



Full length article

## Gender equality for sustainability in ports: Developing a framework

María Barreiro-Gen<sup>a,\*</sup>, Rodrigo Lozano<sup>a,b</sup>, Melis Temel<sup>a</sup>, Angela Carpenter<sup>a,c</sup>

<sup>a</sup> Center for Logistics and Innovative Production, Department of Industrial Management, Industrial Design and Mechanical Engineering, University of Gävle, Sweden

<sup>b</sup> Organisational Sustainability Ltd., Cardiff, United Kingdom

<sup>c</sup> School of Earth and Environment, University of Leeds, Leeds, United Kingdom



### ARTICLE INFO

#### Keywords:

Ports  
Sustainability  
Gender equality  
Gender equity  
Gender segregation

### ABSTRACT

Ports have increasingly been addressing sustainability issues; however, gender equality has been a low priority in such efforts. This paper is aimed at providing insights into how ports have been addressing gender equality to contribute to sustainability. Twelve semi-structured interviews were conducted with top-level port managers from six European countries. The responses from the interviewees were analysed using Grounded Theory's constant comparative analysis. The findings show that European ports have engaged in gender equality measures aimed at contributing to sustainability through gender equality in five stages: (1) Gender segregation, which needs to be overcome, and is, in many cases, the starting point; (2) Compliance with national laws and regulation; (3) Gender equity; (4) Gender equality; and (5) More sustainable ports. Internal and external forces affect each of the stages, where thrust forces help ports reduce gender segregation and advance towards becoming more sustainable and drag forces slow or block the efforts and may lead to returning to a previous stage of the framework. The findings were integrated to develop a "Gender equality for sustainability in ports" framework. Gender equality is a sine qua non for ports, and other male oriented industries, in becoming more sustainable.

### 1. Introduction

Ports have a key role in global production through connecting shipping and seaports to the hinterland [63]. The global port and maritime industries facilitate up to 90% of the global supply chain [83]. In the European Union (EU), the majority of goods transported by sea were from outside the region, and almost 410 million passengers embarked or disembarked in the region's ports in 2018 [26]. Ports are also important drivers of EU welfare and prosperity and play a key role in the Blue Growth Agenda which sets out to make Europe's oceans, seas and coasts healthy and productive [22].

Ports are under increasing pressure to better contribute to the economic, environment, social [12,89], and time dimensions [51,87] of sustainability [55]. Most sustainability efforts of ports have focused on environmental issues [7], such as: environmental indicators, certification of environmental management systems, and environmental policies [18]; new technologies and use of renewable energy sources [2,30]; material recycling and waste disposal [2], reduction of air pollution and hazardous substances, improvement of water quality, dredging and disposal of dredged materials, waste disposal, and land/resource use [39]; and circular economy approaches [8,55].

The contribution of ports to the social dimension of sustainability has been largely neglected [56], with exceptions such as providing jobs within the port and support services [15]; and analysing relations with their stakeholders and organisational change management [54].

A social issue that has received even less attention within the social dimension has been gender equality, which is key for achieving sustainability [13]. According to the World Ports Sustainability Report 2020 [40], gender equality (United Nations Sustainable Development Goal number 5) is ranked almost at the bottom of port priorities in their projects (Fig. 1). Ports, and in particular dock labour, have been traditionally male-dominated [19]. Some women have been hired in ports and the promotion of female employment is included in the European sector social dialogue between port workers and their employees [23]. However, the percentage of women in ports is still quite low, where women make up only an estimated 2% of the world's maritime workforce [41]. The majority of port jobs are in shift-based port operations, which attract more men [1,64], and the female participation rate in port operations between 2014 and 2018 was 12.10%, whereas in cargo handling it was 5.10% [83].

Even ports that have been working with sustainability for years, as evidenced in their sustainability reports, do not have standardised ways

\* Correspondence to: University of Gävle, Kungsbäcksvägen 47, 80176 Gävle, Sweden.

E-mail address: [maria.barreiro@hig.se](mailto:maria.barreiro@hig.se) (M. Barreiro-Gen).

<https://doi.org/10.1016/j.marpol.2021.104593>

Received 29 January 2021; Received in revised form 16 May 2021; Accepted 16 May 2021

Available online 25 May 2021

0308-597X/© 2021 The Author(s).

Published by Elsevier Ltd.

This is an open access article under the CC BY-NC-ND license

(<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

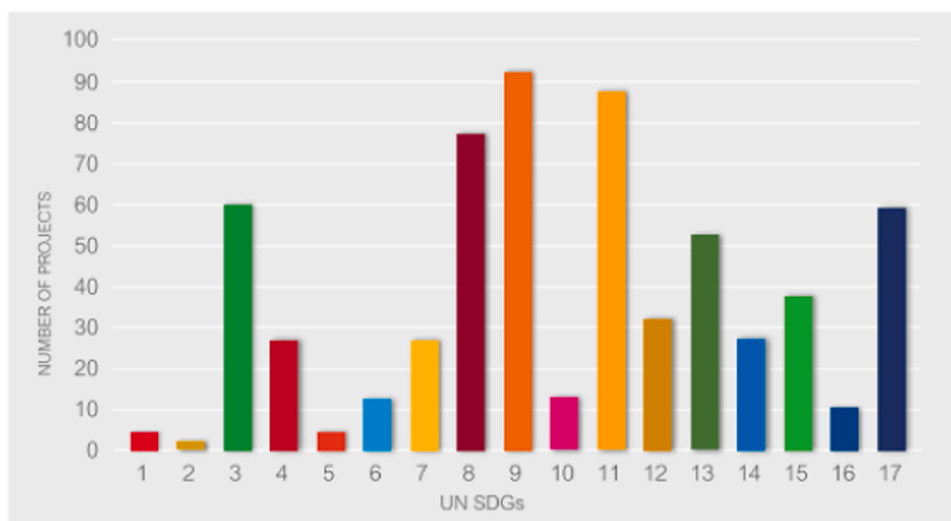


Fig. 1. Priorities given by ports to each sustainable development goal [40].

of reporting their gender equality efforts; for example, it may be included as part of social sustainability issues [69,67,32], within the employees section [36,68,71,65,66], or in professional development and training section [70]. In most cases the information available tends to be scarce and shallow.

There is extremely limited research focusing on gender equality in ports, such as: Halimah et al. [35] who studied on the eight major ports in Malaysia to study the perceptions of the management about women in leadership positions in the port sector showing that there is a gender imbalance in Malaysian ports, and managers still have preference for men for port management; Ngao and Mwangi [62], who analysed the effects of gender diversity in board of directors on port performance in Kenya; and Munyiva [60], who studied how work-life balance measures increases employee performance, also in Kenya.

This paper is aimed at providing insights into how ports have been addressing gender equality in their efforts to contribute to sustainability. The rest of the paper is organised into the following sections: Section 2 presents a literature review on gender equality; Section 3 describes the methods used in this study; Section 4 presents the findings; Section 5 integrates the results into a framework; and Section 6 provides the conclusions.

## 2. A literature review on gender equality

Gender issues are an integral part of sustainability [33,50], since women make a key contribution to it [37]. “Sustainable work” has to facilitate mixed work options for women and men [50]. Women tend to have a higher awareness of, and interest in, sustainability than men [34]. For example, boards of directors that have a broader gender diversity implement more environmental and social sustainability initiatives [45,59], women have a stronger role in contributing to sustainability in the fashion industry [29], and women have a more balanced view of sustainability dimensions when teaching the subject in higher education establishments [53]. In spite of this, actions are still needed to reduce women segregation and their inclusion in certain jobs or industries [76].

Two key areas that ports must improve, in order to achieve gender equality, are gender segregation [21], and gender equity [3].

### 2.1. Gender segregation

Gender segregation refers to the patterns of representation of women and men, for example in the labour market [20]. Gender segregation is the root cause of gender inequality [20]. Traditional gender segregation

[24], due to social norms on the jobs considered to be appropriate for each gender, is still pervasive [16,81]. Although more women are employed in Europe than was the case in the past, efforts toward gender equality continue [17], and a higher proportion of women than men graduate from Higher Educational Institutions in Europe, as well as being more educated than men, the labour market is still male dominated [9]. Low participation rates of women in the labour market and gender segregation lead to rigidity, suboptimal productivity, and economic inefficiencies due to the loss of productive factors and the lack of female skills [81].

According to Eurostat [25], some examples of male-dominated jobs (with more than 70% of men) in the EU include: labourers in mining, construction, manufacturing, and transport (74% of men), science and engineering professionals (83%), and drivers and mobile plant operators (96%); whereas, those female-dominated jobs (with more than 70% of women) include: personal care (89% of women), and cleaning (84%). At an industrial level, some of the male-dominated industries are: financial markets [79]; computer games [73]; construction [61,77,11]; design [75]; forestry [43]; and the port industry [90]. Female-dominated industries include: fashion [29]; education [5]; health care [10] and social sector<sup>1</sup> [38].

A number of government efforts, such as gender equality laws, have been established to serve as a starting point in reducing gender segregation and improving existing work environments [77,13], where more thorough actions are needed to reduce access barriers to jobs and to help retain the under-represented gender [77]. However, it should be noted, such efforts need to be integrated, since ad hoc ones are usually ineffective in reducing gender segregation [81].

### 2.2. Gender equity and equality

Gender equity refers to the process of ensuring fairness to women and men, as well as to the strategies and measures needed to compensate for women’s historical and social disadvantages, and it is instrumental in achieving “gender equality” [84]. Without equal opportunities for men and women gender equality cannot be reached [3].

Gender equality, SDG5, is one of the 17 goals set out in the United Nations 2030 Agenda for Sustainable Development United Nations, Transforming our world: the 2030 agenda for sustainable development, General Assembly Resolution 70/1, 25 September 2015 16301, 1–40.

<sup>1</sup> These sectors are often described as female-dominated ones, despite which women in managerial positions are still underrepresented [5]

([http://unctad.org/meetings/es/SessionalDocuments/ares70d1\\_es.pdf](http://unctad.org/meetings/es/SessionalDocuments/ares70d1_es.pdf)). Gender equality refers to “equal rights, responsibilities and opportunities of women and men, and girls and boys, in all spheres of life” [88]. Promoting gender equality is a driver for economic growth and a fundamental value of the European Union [81], as an intrinsic linked to sustainability [84]. According to the European Institute for Gender Equality, [24], the Gender Equality Index score for the EU is 67.9 points (out of 100), which includes issues related to work, in aspects such as participation, segregation, and quality of work. The index has grown by only 0.5 points since 2017, highlighting the urgent need for progress in all EU Member States. A successful implementation of gender equality must address root causes [91] and avoid cosmetic and tokenistic actions that lack substance and have no clear objective [27].

Previous research on gender equality in male-dominated industries has focused mainly on: (1) the driving forces for women to work in them, such as the importance of education [49] and the scarcity of job alternatives [82]; and (2) the barriers and challenges that women face to access a job position [58,61], to be a leader [14,28], and to continue working in these industries [72,77].

In particular, within the maritime industry, which directly affects ports, research on gender equality has focused on: gender discrimination and sexual harassment [6]; women in the maritime sector and leadership [47]; empowerment of women in maritime sector [42,48]; gender equality in terms of maritime education and training [57]; potential challenges, barriers and opportunities for women’s employment in the maritime industry [46]; and work-life balance of women in the labour force in the maritime sector [4].

### 3. Methods

This paper is aimed at providing insights into how ports have been addressing gender equality in their efforts to contribute to sustainability. Twelve semi-structured interviews were conducted with top-level directors and sustainability managers (ten men and two women) from European ports (Table 1) from October 2019 to June 2020 to answer the question “How ports have been addressing gender equality in their efforts to contribute to sustainability?”. Table 1 shows the main characteristics of the ports for which the interviewees worked. Top managers can be the most reliable source of knowledge since they have a ‘helicopter-view’ of sustainability efforts within their organisation [86, 52].

The interviews ranged from 30 to 90 minutes. The interviews were

done digitally (by phone or Skype), in English or Spanish. They were recorded and backed up by note taking. The interviews were codified using NVivo 12 software [74]. A code was assigned to each of the interviewees to identify them and to ensure anonymity. Each interview code is formed by the ocean or sea where their port is located, followed by a number (Table 1).

The responses from interviewees were analysed using Grounded Theory’s constant comparative analysis [31], which has four stages:

- (1) Comparing incidents applicable to each category, as developed from the literature review (women participation, gender equity, gender equality, gender efforts, and forces).
- (2) Integrating categories and their properties. The individual interviewee responses were classified according to the starting categories.
- (3) Recognising relationships, which helps to develop new categories by juxtaposing data from the categories, or by modifying the categories to provide new insights by comparing the empirical data on gender efforts and those discussed in the literature (as detailed in the discussion section).
- (4) Writing the new or modified theory, which can then be used to develop or test hypotheses, in this case the new framework presented in the discussion section [31,80].

#### 3.1. Methods limitations

Interviews may have threats to validity and reliability [44,78]. A major issue for this research was access to top-level managers in ports, which was extremely limited. The authors had many difficulties in obtaining direct contact information for the interviewees. Many attempts to contact other potential interviewees were done via email and phone. In many ports, it was necessary to go through a switchboard to get access to the interviewee. Another difficulty was to set a date for the interview, which in some cases had to be delayed by up to two months. Access in countries located in Northern Europe was, usually, easier than those in Southern Europe.

For this research the reliability might have been affected by:

**Table 1**  
Interviewees and port’s characteristics.

Interviewee position	Interviewee Code	Ocean/sea	Country	Type of Business (cargo, passenger, mixed, etc.)	Size	Sustainability report	% of women
Sustainability Manager	Atlantic1	Atlantic Ocean	Spain	Fisheries and cargo	Medium	Yes (2018)	20.82%
Sustainability Manager	Atlantic2	Atlantic Ocean	Spain	Fisheries and cargo	Medium	Yes (2019)	17.29%
Traffic Manager	Baltic1	Baltic Sea	Finland	Mixed	Small	Not found	Not found
Sustainability Manager	Baltic2	Baltic Sea	Finland	Passenger and some cargo	Medium	Yes - but within Annual Report (2018)	22%*
Environmental Manager	Mediterranean1	Mediterranean sea	Spain	Goods	Large	Yes (2018)	29.30%
Director	Mediterranean2	Mediterranean sea	Spain	Cargo and some passengers	Medium	Yes (2018)	31.75%
Managing Director	North&Baltic1	North / Baltic Seas	Sweden	Mixed	Medium	Yes (2019)	14.49%
Sustainability Manager	North&Baltic2	North / Baltic Seas	Sweden	Mixed	Medium	Yes (2019)	32.14%
Director	North&Baltic3	North / Baltic Seas	Denmark	Cargo	Small	Not found	Not found
Environmental Manager	North1	North Sea	Norway	Mixed	Medium	Not found	23%*
Director	North2	North Sea	Denmark	Fishing and cargo	Small	Not found	Not found
CSR Manager	North3	North Sea	Belgium	Cargo and some passengers	Large	Yes (2017)	20.90%

\* from the Annual Report

- **Subject or participant error:** the limited time available for the interviews, may not have allowed the interviewee to expand upon answers to some of the interview questions;
- **Subject or participant bias:** the interviewees may have provided answers that were prompted by the semi-structured interview or by the attitude of the interviewer. As the subjects were from the top-level managers of European ports, this might have resulted in a bias towards top-down, over bottom-up, approaches and to a European context. The gender of the participants may have affected their responses;
- **Observer error:** There is the possibility of cultural differences that may have affected the research. Additionally, since sustainability was an important topic for the interviewees, this may have biased some responses;
- **Observer bias:** The shared concern of the interviewees for sustainability may be a cause for this bias, which might not have been the case if another researcher, or other companies, or other interviewees had been approached.

It should be noted that the context of the research (Western Europe) might limit the findings' generalisation to other regions of the world.

#### 4. Findings

The interviewees indicated that, historically, ports have been male-dominated, due to, for example, old traditions and filling new positions by men, as evidenced by Mediterranean1 who noted that *"ports are an eminently masculine environment"*, while Baltic1 stated that *"recruiting has been very informal, especially on the blue-collar side. It is from father to son. Since it started at 100% men, it's very difficult to change the track"*. North-Baltic1 indicated that *"usually when we hire new people, all are men who are filling the places"*.

Some of the interviewees, such as North3, highlighted that, although there are still much more men working on ports than women, there has been a slow increase in women employment in the last years, stating that *"We have a very positive trend, so there's an increasing number of women compared to men, that if you actually look at the figures it's coming from 16% to 18% nowadays or something like that. So, it means that the number of women working in the port platform is really very low"*. Baltic2 indicated that *"Of course, it takes time to change [to hire more women]"*.

Some of the interviewees stated that women have an important role, in some ports, at the top level (e.g. Mediterranean2, North1), in administrative jobs (e.g. North-Baltic2, Atlantic2, and Baltic2), and in activities related to biotechnology, fishing, and environmental issues (e.g. Atlantic1). Mediterranean2 indicated that *"Work can be done the same regardless of gender. But it is true that in the State-owned Port System we are only four (females) directors of twenty-eight port authorities. The number is still relevant. The number is still very low."* However, there are other jobs where still mostly men are working on them, such as maintenance, quays, and Shipyards (e.g. North1, Atlantic2). North1 mentioned that *"I think that the port sees the importance of keeping that balance even though in some parts of work there is still mostly men working on the quays and in maintenance. But in regard to boats and section level but also top leadership there is a good mix in our port"*. Along the same lines, Baltic2 mentioned that *"At the moment we have the management board, I think it's a little under half of the directors are female. On our board of directors, I think it's 50/50. But shipping, the maritime sector, is quite a masculine or a male dominated industry, if that is the right phrase"*. These statements show that gender distribution depends on the type of occupation.

A number of interviewees highlighted that the most outstanding barrier for women to access and stay working in ports was culture

(including tradition, uses, and customs). Mediterranean2 indicated that *"... placing special emphasis on this indirect discrimination. That with those uses and customs that we thought we were not really discriminating, now we see it with different eyes"*. Mediterranean1 indicated that *"Due to the public nature, both genders get the same, there are no salary differences"*. This suggests that the ownership of the port (public or depending on a public entity) might reduce potential inequality problems, such as pay-gaps, that exist in other contexts.

According to most of the interviewees, gender equality promotion has been driven by external and internal forces. The main external forces mentioned were: (1) legislation, which requires, for instance, equal payment for women and men (e.g. North3, Spanish ports, Nordic ports); (2) the city, as the owner of the port, makes recommendations in this field (e.g. North-Baltic2); and (3) society, especially in countries where gender equality is already part of their culture, as highlighted by Baltic2 who stated that *"In the Nordic countries you know we are strong in gender equality and education and stuff like that so, everything plays into it"*.

The internal factors to improve gender equality are mostly related to: (1) the port top-level manager (e.g. CEO), for example, where North1 mentioned that *"But it hasn't come by itself, I think that having a female port director was important to start that process, we've just kept it going"*; and, (2) gender equality actions that each port develops. Some interviewees highlighted that gender equality is not an issue, and interpret it by equally considering women and men, for instance, when they hire new workers (e.g. Baltic1, North2). For example, North2 did not consider gender equality as an issue in his port: *"We are not doing any specific things on gender and that, it's because in all my professional life, gender has never been a matter. I've always looked at the person's qualifications, I've never been looking at gender, so we've not been focusing specifically on gender in the port."* North-Baltic3 highlighted that *"This is [a Nordic country], so we had it for a very long time. I could say that we have.... If we take our port captain, our port captain is a girl (...) The best man or woman for the job I would say."*

Most of the interviewees considered that specific gender equality efforts are needed to avoid indirect discrimination, and they are actively promoting the increase of the percentage of females working on ports, creating a suitable workplace for women.

A number of interviewees mentioned some examples of proactive efforts that had been implemented in their ports:

- (1) Recruitment policies. North1 mentioned that there is *"a very strict policy in regard of recruiting both genders for positions in the port"*.
- (2) Anti-harassment policy. For example, Atlantic2 said that *"We have harassment protocols and other gender equality protocols, which is important"*.
- (3) Work-life balance efforts. Mediterranean2 mentioned that *"we are also working on the EFR certification this year, which is a family-responsible company certification, to certify us in our work-life balance measures, total flexibility and others"*.
- (4) A group that monitors gender equality within the port, making sure that there is a good balance between men and women (e.g. North-Baltic2, Mediterranean1).
- (5) Specific external policies. Atlantic1 combined internal and external measures: *"There are two policies. One is facing the outside, within the strategic Blue Growth, where there are different initiatives and there have been topics and meetings and working groups with groups of women such as the net menders, the shellfish gatherers, and where the problems that they have, they were analysed, and they are helped to find solutions to that. And then, a strategy is in the policy within the port authority to seek more integration or parity"*; and

(6) Communication: North3 highlighted the importance of communication strategy: “What we try to do is, we try to, in our communications, bring more women to the fore, so showing that the port is an exciting place for a woman to work. We have also set up a network for women, (...) bringing them together, to help, to bring out stronger signals to people that women can also find challenging jobs in the port”.

5. Discussion

This research shows that European ports have engaged in measures aimed at reducing gender segregation, as stated by the interviewees. The research found that men and women tend to do different jobs in ports due to traditions and culture (concurring with [16,81,24]); however, the presence of women in the workforce of ports has been increasing, particularly in managerial roles (following the European trend highlighted by [17]).

The findings of this study show that the first stage in reducing gender segregation in ports is to comply with national laws and regulation (as indicated by [13,76, 77]), such as attracting more females to port jobs and equal treatment between women and men in different aspects of the labour market, e.g. recruitment and salaries. It should be noted that some countries are more advanced in the topic than in others, as reflected in national laws and regulation.

The second stage in reducing gender segregation in ports has been through gender equity by reducing barriers to entry and compensate for the historical and social disadvantages that women had previously suffered from. The interviewees highlighted efforts such as demonstrating that the port has a suitable work environment for women, improving work-life balance of all workers, increasing the number of women in different jobs, increase accessibility to different jobs in the ports, having a larger presence of women in the board of directors, creating a group that monitor gender issues, and establishing anti-harassment protocols (adding to the discourses by [47,48,6,42]).

The interviewees highlighted a number of gender equity efforts taken in ports, which can lead to gender equality (concurring with [84]), focusing on guaranteeing the equal treatment of men and women in all processes, such as recruitment, promotion, parental leave, and work-life balance (adding insights to [62,60,6,35]), i.e. the following stage towards more sustainable ports.

Achieving gender equality is a *sine qua non* to make ports more sustainable (as posited by [13]), i.e. integrating social issues of

sustainability with economic and environmental ones (see [55]).

A number of internal and external forces affect each of the aforementioned stages (see [49,58,72,76,77,61]). Thrust, or driving, forces help ports reduce gender segregation and advance towards becoming more sustainability, such as having a champion as a director or sustainability manager in the port, more balanced representation in the board of directors, and establishing internal policies and protocols for gender equality. Drag forces, i.e. barriers and challenges, slow or block the gender segregation efforts (e.g. exclusionary culture, reduced number of women applying for jobs at the port, difficulties in promoting, and impossibilities to achieve a decent work-life balance), which may lead to returning to a previous stage.

The findings were integrated, as outlined at stage four of GT’s constant comparative analysis, to develop the “Gender equality for sustainability in ports” framework shown in Fig. 2. The framework proposes five stages: (1) Gender segregation: This needs to be overcome, and is, in many cases, the starting point. Ports focus on reducing the skewed orientation to male employees; (2) Compliance with national laws and regulation: Ports are in compliance with national laws, but stop their efforts just at what is required by those regulations; (3) Gender equity: Ports aim to assure equal opportunities for males and females, ensuring fairness in order to achieve equality, where efforts to address gender equality without explicitly considering gender equity could lead to unfair treatment for males and females; (4) Gender equality: Ports focus on assuring fairness, where women’s historical and social disadvantages are overcome, and go beyond it by setting up mechanisms that ensure equal treatment of women and men during recruitment, task division, and promotion; and, (5) A more sustainable port: Gender equality is embedded into the port’s efforts, and integrates them harmonically with those in the other social, economic, environmental, and time dimensions. Advancing through the stages requires time. Each stage is affected by forces, where the thrust forces help advance from one stage to the next, whereas the drag forces push the efforts backwards. In some cases the distance between stages might be bigger than in others, for example: national laws might contain most gender equity issues, and thus the port needs to work more on access and maintaining female employees; or in societies where gender equality is more prevalent, and therefore it is easier for the port to hire and promote women. It should be noted that cosmetic and tokenistic efforts would create or increase drag forces that would slow down sustainability efforts, or even go lead to stepping back stages in the framework.

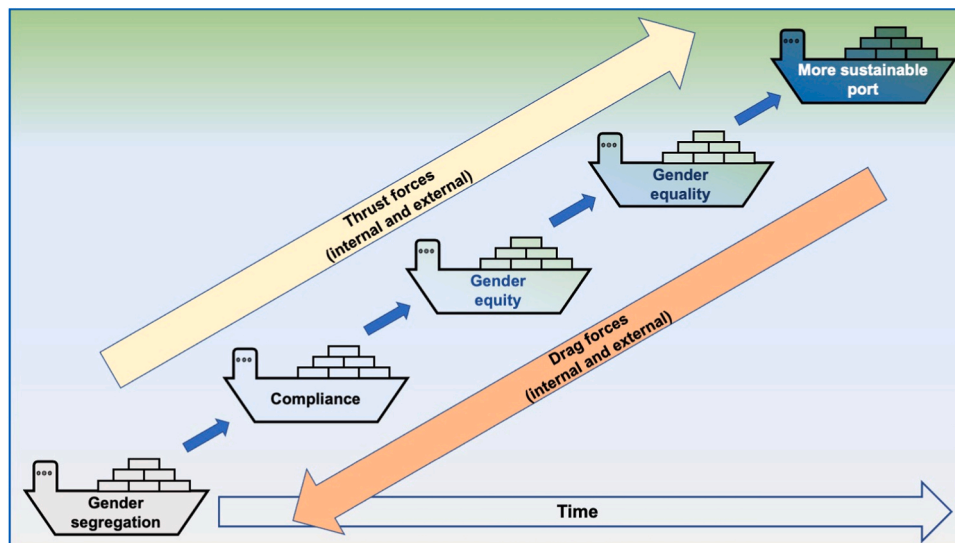


Fig. 2. “Gender equality for sustainability in ports” framework.

## 6. Conclusions

Ports have a key role in global production through connecting shipping and seaports to the hinterland. During the last decade, ports have engaged in efforts to become more sustainable. In general, social issues have been largely neglected in research and practice, with gender equality been ranked almost at the bottom of European ports' sustainability priorities.

Twelve interviews with top-level directors and managers of European ports were carried out to analyse how ports have been addressing gender equality in their efforts to contribute to sustainability. The interviewee answers provide insights into how European ports have been reducing gender segregation through compliance, gender equity, and gender equality efforts. This research proposes five stages from a gender perspective on more sustainable ports: (1) gender segregation; (2) compliance; (3) gender equity; (4) gender equality; and (5) more sustainable ports. These are affected by thrust and drag forces through time. The stages and forces serve to develop the "Gender equality for sustainability in ports" framework, which offers a broader and deeper perspective on how ports, and other male-dominated industries, can be more proactive in their journey to becoming more sustainability oriented.

Ports, as part of the maritime industry, cannot really contribute to sustainability unless gender equality is achieved. Ports, and other traditionally male-dominated industries, must capitalise on women's holistic perspective and higher engagement to better contribute to making Europe more sustainable. Gender equality is a sine qua non for ports, and other male oriented industries, in becoming more sustainable.

Further research should be carried out to analyse the characteristics of leaders (male and female) in making ports more sustainable, on the drivers for and barriers to sustainability, and on insights into the effects over time of different gender equity and equality efforts.

## CRedit authorship contribution statement

**Maria Barreiro-Gen:** Conceptualization, Investigation, Data curation, Formal analysis, Methodology, Writing - original draft, Writing - review & editing. **Rodrigo Lozano:** Conceptualization, Investigation, Methodology, Visualization, Writing - original draft, Writing - review & editing. **Angel Carpenter:** Methodology, Writing - original draft; Writing - review & editing. **Melis Temel:** Formal analysis, Investigation, Methodology, Writing - original draft, Writing - review & editing.

## Acknowledgements

We would like to thank the interviewees for sparing some of their precious time.

## References

- [1] ABP, What Is the Gender Pay Gap at Your Company? London, UK, 2018.
- [2] Michele Acciaro, Hilda Ghiara, Maria Inés Cusano, Energy management in seaports: a new role for port authorities, *Energy Policy* 71 (2014) 4–12, <https://doi.org/10.1016/j.enpol.2014.04.013>.
- [3] Lotte Bailyn, Academic careers and gender equity: lessons learned from MIT, *Gen. Work Organ.* 10 (2) (2003) 137–153, <https://doi.org/10.1111/1468-0432.00008>.
- [4] Meenaksi Bhirugnath-Bhooikhun, Momoko Kitada, Lost in success: women's maritime careers in Eastern and Southern Africa, *Palgrave Commun.* 3 (1) (2017) 1–10, <https://doi.org/10.1057/palcomms.2017.23>.
- [5] Irene Campos-García, José Ángel Zúñiga-Vicente, The female presence in different organisational positions and performance in secondary schools: does a woman leader function as mediator? *PLoS One* 14 (9) (2019) 1–25, <https://doi.org/10.1371/journal.pone.0222411>.
- [6] Laura Carballo Piñero, Momoko Kitada, Sexual harassment and women seafarers: the role of laws and policies to ensure occupational safety & health, *Mar. Policy* 117 (2020), <https://doi.org/10.1016/j.marpol.2020.103938>.
- [7] Carpenter, Angela, Rodrigo Lozano, Proposing a Framework for Anchoring Sustainability Relationships Between Ports and Cities, In, 37–51, 2020. ([https://doi.org/10.1007/978-3-030-36464-9\\_3](https://doi.org/10.1007/978-3-030-36464-9_3)).
- [8] Angela Carpenter, Rodrigo Lozano, Kaisu Sammalisto, Linda Astner, Securing a port's future through circular economy: experiences from the Port of Gävle in contributing to sustainability, *Mar. Pollut. Bull.* 128 (March) (2018) 539–547, <https://doi.org/10.1016/j.marpolbul.2018.01.065>.
- [9] Rosalia Castellano, Antonella Rocca, Analyzing the gender gap in European labour markets at the NUTS-1 level, *Cogent Soc. Sci.* 5 (1) (2019), <https://doi.org/10.1080/23311886.2019.1595294>.
- [10] Katarzyna Czabanowska, Alicja Domaga a a, Stavroula Kalaitzi, Aleksandra Krogulec, Genc Burazeri, Suzanne Babich, Exploring the added value of women health care managers in Poland, *Mater. Socio Med.* 29 (4) (2017) 280, <https://doi.org/10.5455/msm.2017.29.280-285>.
- [11] A.R.J. Dainty, B.M. Bagillhole, K.H. Ansari, J. Jackson, Industry: an agenda for change for, in: *J. Constr. Res.*, 5, 2004, pp. 75–86.
- [12] John Dinwoodie, Sarah Tuck, Harriet Knowles, James Benhin, Mark Sansom, Sustainable development of maritime operations in ports, *Bus. Strategy Environ.* 21 (2) (2012) 111–126, <https://doi.org/10.1002/bse.718>.
- [13] C. Dragomir, The role of maritime labour convention in reducing maritime gender inequalities, *J. Phys. Conf. Ser.* 1122 (1) (2018), <https://doi.org/10.1088/1742-6596/1122/1/012036>.
- [14] Brooke E. Dresden, Alexander Y. Dresden, Robert D. Ridge, Niwako Yamawaki, No girls allowed: women in male-dominated majors experience increased gender harassment and bias, *Psychol. Rep.* 121 (3) (2018) 459–474, <https://doi.org/10.1177/0033294117730357>.
- [15] G.S. Dwarakish, Akhil Muhammad Salim, Review on the role of ports in the development of a nation, *Aquat. Procedia* 4 (2015) 295–301, <https://doi.org/10.1016/j.aqpro.2015.02.040>.
- [16] Paula England, Gender inequality in labor markets: the role of motherhood and segregation, *Soc. Polit.* 12 (2) (2005) 264–288, <https://doi.org/10.1093/sp/jxi014>.
- [17] Paula England, Andrew Levine, Emma Mishel, Progress toward gender equality in the United States has slowed or stalled, *Proc. Natl. Acad. Sci. USA* 117 (13) (2020) 6990–6997, <https://doi.org/10.1073/pnas.1918891117>.
- [18] ESPO. 2018. "Environmental Report 2018." Environmental Report. ([http://www.energinet.dk/SiteCollectionDocuments/Engelske\\_dokumenter/Klimaogmiljio/Environmental\\_report\\_for\\_Danish\\_electricity\\_and\\_CHP\\_-\\_summary\\_of\\_the\\_status\\_year\\_2010.pdf](http://www.energinet.dk/SiteCollectionDocuments/Engelske_dokumenter/Klimaogmiljio/Environmental_report_for_Danish_electricity_and_CHP_-_summary_of_the_status_year_2010.pdf)).
- [19] ETF, IDC, ESPO, FEPOR, EU Ssectoral Social Dialogue on Ports. Recommendations on Women's Employment in the Port Sector, Brussels, Belgium, 2014.
- [20] European Commission, A New Method to Understand Occupational Gender Segregation in European Labour Markets, 2014. (<https://doi.org/10.2838/748887>).
- [21] European Commission, Gender Equality Strategy: Striving for a Union of Equality, European Commission, no. March (2020). ([https://ec.europa.eu/commission/press-corner/detail/en/IP\\_20\\_358](https://ec.europa.eu/commission/press-corner/detail/en/IP_20_358)).
- [22] European Commission, Report on the Blue Growth Strategy: Towards More Sustainable Growth and Jobs in the Blue Economy, Swd/2017/128 (2017). ([https://ec.europa.eu/maritimeaffairs/sites/maritimeaffairs/files/swd-2017-128\\_en.pdf](https://ec.europa.eu/maritimeaffairs/sites/maritimeaffairs/files/swd-2017-128_en.pdf)).
- [23] European Commission, Sectoral Social Dialogue - Ports (2020). (<https://ec.europa.eu/social/main.jsp?catId=480&intPageId=2311&langId=en>).
- [24] European Institute for Gender Equality, Gender Equality Index 2020 Digitalisation and the Future of Work European Institute for Gender Equality, 2020. (<https://doi.org/10.2839/79077>).
- [25] Eurostat, Jobs Still Split along Gender Lines, 2018. (<https://ec.europa.eu/eurostat/en/web/products-eurostat-news/-/EDN-20180307-1>).
- [26] Eurostat, Maritime Ports Freight and Passenger Statistic, Data from March 2020, (2020). ([https://ec.europa.eu/eurostat/statistics-explained/index.php/Maritime\\_ports\\_freight\\_and\\_passenger\\_statistics#Increase\\_in\\_seaborne\\_goods\\_and\\_passengers\\_in\\_EU\\_ports](https://ec.europa.eu/eurostat/statistics-explained/index.php/Maritime_ports_freight_and_passenger_statistics#Increase_in_seaborne_goods_and_passengers_in_EU_ports)).
- [27] Idoya Ferrero-Ferrero, M. Ángeles Fernández-Izquierdo, M. Jesús Muñoz-Torres, Gender diversity on corporate boards, *Creat. Corp. Sustain.* (2018) 138–163, <https://doi.org/10.1017/9781316998472.009>.
- [28] Maria Gardiner, Marika Tiggemann, Gender differences in leadership style, job stress and mental Health in male- and female-dominated industries. *J. Occup. Organ. Psychol.* 72 (3) (1999) 301–315, <https://doi.org/10.1348/0963179991666699>.
- [29] Patrizia Gazzola, Enrica Pavione, Roberta Pezzetti, Daniele Grechi, Trends in the fashion industry. the perception of sustainability and circular economy: a gender/generation quantitative approach, *Sustainability* 12 (7) (2020) 1–19, <https://doi.org/10.3390/su12072809>.
- [30] David Gibbs, Patrick Rigot-Muller, John Mangan, Chandra Lalwani, The role of sea ports in end-to-end maritime transport chain emissions, *Energy Policy* 64 (2014) 337–348, <https://doi.org/10.1016/j.enpol.2013.09.024>.
- [31] Barney G. Glaser, L. Strauss Anselm, *The Discovery of Grounded Theory: Strategies for Qualitative Research*, Aldine de Gruyter, New York, 1999.
- [32] Gothenburg Port Authority, Sustainable port. Sustainability Report 2019, 2019.
- [33] Kate Grosser, Corporate social responsibility and gender equality: women as stakeholders and the european union sustainability strategy, *Bus. Ethics Eur. Rev.* 18 (3) (2009) 290–307, <https://doi.org/10.1111/j.1467-8608.2009.01564.x>.
- [34] Robin von Haartman, Kaisu Sammalisto, Rodrigo Lozano, Per Blomqvist, A longitudinal comparison of sustainability learning between men and women in engineering and nursing programmes, *Sustainability* 9 (8) (2017), <https://doi.org/10.3390/su9081464>.
- [35] Halimah, Sharifah, Syed Ahmad, Universiti Teknologi Mara, Geetha Subramaniam, Universiti Teknologi Mara, Shahrin Nasir, Universiti Teknologi Mara, Women in Management at the Port Sector of Maritime Industry in Malaysia - Is There a Gender Imbalance? 2020, 19 (3), 1–7.

- [36] Hamburg Port Authority, Taking action / creating values. Sustainability 2018 at the Port of Hamburg, 2018. (<https://doi.org/10.12968/nuwa.2019.11.30>).
- [37] Kathryn Haynes, Alan Murray, Sustainability as a lens to explore gender equality: a missed opportunity for responsible management. Integrating Gender Equality into Business and Management Education, Routledge, 2017, pp. 55–80, <https://doi.org/10.4324/9781351285766-4>.
- [38] Stephen Hicks, Social work and gender: an argument for practical accounts, Qual. Soc. Work 14 (4) (2015) 471–487, <https://doi.org/10.1177/1473325014558665>.
- [39] Vijay Hiranandani, Sustainable development in seaports: a multi-case study, WMU J. Marit. Aff. 13 (1) (2014) 127–172, <https://doi.org/10.1007/s13437-013-0040-y>.
- [40] International Association of Ports and Harbors, World Ports Sustainability Report 2020, 2020. (<https://sustainableworldports.org/reference-documents/>).
- [41] ITWF, Women Seafarers, 2020. (<https://www.itfseafarers.org/en/issues/women-seafarers>).
- [42] Amber Javed, Empowering women in maritime sector of developing countries in South Asia – gender aspects, SSRN Electron. J. (2020), <https://doi.org/10.2139/ssrn.3567872>.
- [43] Kristina Johansson, Elias Andersson, Maria Johansson, Gun Lidestav, Conditioned Openings and restraints: the meaning-making of women professionals breaking into the male-dominated sector of forestry, Gen. Work Organ. (2019), <https://doi.org/10.1111/gwao.12403>.
- [44] Victor Jupp, *The Sage Dictionary of Social Research Methods*, SAGE Publications, London, 2006.
- [45] George Kassinis, Alexia Panayiotou, Andreas Dimou, Georgia Katsifaraki, Gender and environmental sustainability: a longitudinal analysis, Corp. Soc. Responsib. Environ. Manag. 23 (6) (2016) 399–412, <https://doi.org/10.1002/csr.1386>.
- [46] Tae eun Kim, Amit Sharma, Anne Haugen Gausdal, Chong ju Chae, Impact of automation technology on gender parity in maritime industry, WMU J. Marit. Aff. 18 (4) (2019) 579–593, <https://doi.org/10.1007/s13437-019-00176-w>.
- [47] M. Kitada, E. Williams, L.L. Froholdt, Participation of Ecuadorian women in the maritime oil transportation sector, in: Momoko Kitada, Erin Williams, Lisa Loloma Froholdt (Eds.), *Maritime Women: Global Leadership*, Springer Berlin, 2015.
- [48] Momoko Kitada, Laura Carballo Piñeiro, Maximo Q. Mejia, Empowering women in the maritime community, WMU J. Marit. Aff. 18 (4) (2019) 525–530, <https://doi.org/10.1007/s13437-019-00188-6>.
- [49] T. Kyalo, R. Gichira, A. Waititu, M. Ragui, Demographic factors and social networks influence on women to start enterprises in male dominated sectors in Kenya. Prime J. Bus. Adm. Manag. (BAM) 3 (4) (2013) 944–949.
- [50] Beate Littig, Good work? Sustainable work and sustainable development: a critical gender perspective from the global north, Globalizations 15 (4) (2018) 565–579, <https://doi.org/10.1080/14747731.2018.1454676>.
- [51] Rodrigo Lozano, Envisioning sustainability three-dimensionally, J. Clean. Prod. 16 (17) (2008) 1838–1846, <https://doi.org/10.1016/j.jclepro.2008.02.008>.
- [52] Rodrigo Lozano, A holistic perspective on corporate sustainability drivers, Corp. Soc. Resp. Environ. Manag. 22 (1) (2015) 32–44, <https://doi.org/10.1002/csr.1325>.
- [53] Rodrigo Lozano, Maria Barreiro-Gen, Analysing the factors affecting the incorporation of sustainable development into European higher education institutions' curricula, Sustain. Dev. 27 (5) (2019) 965–975, <https://doi.org/10.1002/sd.1987>.
- [54] Lozano, Rodrigo, Angela Carpenter, Kaisu Sammalisto, Analysing Organisational Change Management in Seaports: Stakeholder Perception, Communication, Drivers for, and Barriers to Sustainability at the Port of Gävle. 2020, 205–24. ([https://doi.org/10.1007/978-3-030-36464-9\\_12](https://doi.org/10.1007/978-3-030-36464-9_12)).
- [55] Rodrigo Lozano, Lea Fobbe, Angela Carpenter, Kaisu Sammalisto, Analysing sustainability changes in seaports: experiences from the Gävle Port authority, Sustain. Dev. 27 (3) (2019) 409–418, <https://doi.org/10.1002/sd.1913>.
- [56] Chin-Shan Lu, Kuo-Chung Shang, Chi-Chang Lin, Examining sustainability performance at ports: port managers perspectives on developing sustainable supply chains, Marit. Policy Manag. 43 (8) (2016) 909–927, <https://doi.org/10.1080/03088839.2016.1199918>.
- [57] Sarita Mahabir-Lee, Vivian Rambarath-Parasram, Forging ahead: leveraging inclusive and equitable education to bridge the gender gap in the Caribbean, WMU J. Marit. Aff. 18 (4) (2019) 617–637, <https://doi.org/10.1007/s13437-019-00184-w>.
- [58] Phiona Martin, Antoni Barnard, The experience of women in male-dominated occupations: a constructivist grounded theory inquiry, SA J. Ind. Psychol. 39 (2) (2013), <https://doi.org/10.4102/sajip.v39i2.1099>.
- [59] Masi, Sara De, Andrea Paci, Claudio Becagli, Toward Sustainable Corporate Behavior: The Effect of the Critical Mass of Female Directors on Environmental, Social, and Governance Disclosure, no. August 2020, 1–14. (<https://doi.org/10.1002/bse.2721>).
- [60] Mutunga Janet Munyiva, Work life balance and employee performance at the Kenya ports authority in Mombasa county, Kenya work life balance and employee performance at the Kenya ports authority in Mombasa county, J. Hum. Resour. Leadersh. (2018) 0–26.
- [61] Shamil George Naoum, Jennifer Harris, Joseph Rizzuto, Charles Egbu, Gender in the construction industry: literature review and comparative survey of men's and women's perceptions in UK construction consultancies, J. Manag. Eng. 36 (2) (2020), 04019042, [https://doi.org/10.1061/\(asce\)me.1943-5479.0000731](https://doi.org/10.1061/(asce)me.1943-5479.0000731).
- [62] Ngao, Edward, Charles Mwangi, Effects of managing gender of employees in enhancing organizational performance, A Case Study of Kenya Ports Authority, 2013, 5 (21), 1–8.
- [63] Notteboom, T. The Relationship between Seaports and the Intermodal Hinterland in Light of Global Supply Chains: European Challenges, in: Seaport Competition and Hinterland Connections, Discussion Paper 2008/10 of March 2008, Research Round Table, Paris.
- [64] Peel Ports Group, Peel Ports Gender Pay Gap, Liverpool, UK, 2018.
- [65] Pireaus Port Authority, Corporate Responsibility Report, 2019.
- [66] Port of Antwerp, Telenor Sustainability Report 2019, 2019. (<https://www.telenor.com/wp-content/uploads/2020/06/Telenor-Sustainability-Report-2019.pdf>).
- [67] Port of Barcelona, Sectoral Sustainability Plan Annual Report 2018, 2018.
- [68] Port of Castellón, Memoria de Sostenibilidad 2018, 2018.
- [69] Port of Dublin, Mapping towards Our Greener Port. Sustainability Report 2017, 2017, 1–70.
- [70] Port of Marín, Memoria de Sostenibilidad 2019, 2019.
- [71] Port of Vigo, Memoria de Sostenibilidad 2018, 2018.
- [72] Abigail Powell, Katherine J.C. Sang, Everyday experiences of sexism in male-dominated professions: a Bourdieusian perspective, Sociology 49 (5) (2015) 919–936, <https://doi.org/10.1177/0038038515573475>.
- [73] Julie Prescott, Jan Bogg, Segregation in a male-dominated industry: women working in the computer games industry, Gen. Sci. Technol. 3 (1) (2011) 1–23.
- [74] QSR, NVIVO 12, 2018.
- [75] Suzanne Reimer, Es Que Es Una Industria Muy de Hombres': Género y Trabajo en Las Agencias de Diseño En El Reino Unido, Gen. Place Cult. 23 (7) (2016) 1033–1046, <https://doi.org/10.1080/0966369X.2015.1073704>.
- [76] Roksana, Kaniz, Women in Male - Dominated Industry Walk out from Construction Industry, no. December (2018).
- [77] Roksana, Kaniz, Women in Male - Dominated Industry Walk out from Construction Industry, no. December (2018).
- [78] Mark Saunders, Philip Lewis, Adrian Thornhill, A. Thornhil, Adrian Thornhill, A. Thornhil, Adrian Thornhill, Research Methods for Business Students, Pearson Education Limited., Third. Harlow, England, 2007.
- [79] J. Spinelli-de-Sá, A.H. Lemos, F. Cavazotte, Making a career in a male-dominated field: the meaning of work for women employed in the financial markets, Ram. Rev. Adm. Mackenzie 18 (4) (2017) 109–136, <https://doi.org/10.1590/1678-69712017/administracao.v18n4p109-136>.
- [80] Anselm L. Strauss, Juliet Corbin, Basics of Qualitative Research. Techniques and Procedures for Developing Grounded Theory, second ed., SAGE Publications, Thousand Oaks, California, California, 1998.
- [81] Karen Struthers, Glenda Strachan, Attracting women into male-dominated trades: views of young women in Australia, Int. J. Res. Vocat. Educ. Train. 6 (1) (2019) 1–19, <https://doi.org/10.13152/IJRVET.6.1.1>.
- [82] P.F. Tunji-Olayeni, A.O. Ogunde, O. Joshua, A.A. Oni, Work-life balance of women in male dominated fields, Int. J. Mech. Eng. Technol. 8 (12) (2017) 1197–1205.
- [83] UNCTAD, Review of Maritime Transport 2019, 2019. ([https://unctad.org/en/Pages/Publications/Review-of-Maritime-Transport-\(Series\).aspx](https://unctad.org/en/Pages/Publications/Review-of-Maritime-Transport-(Series).aspx)).
- [84] United Nations Population Fund, Gender Equity, Gender Equality and Women's Empowerment, 2005. (<https://www.unfpa.org/es/node/9348>).
- [85] Derek Walker, Choosing an appropriate research methodology, Constr. Manag. Econ. 15 (1997) 149–159, <https://doi.org/10.1080/014461997000000003>.
- [86] WCED, *Our Common Future*, first ed., Oxford University Press, Oxford, 1987.
- [87] UN Women, Gender Mainstreaming: a Global Strategy for Achieving Gender Equality & the Empowerment of Women and Girls, 2020.
- [88] Christopher F. Wooldridge, Christopher McMullen, Vicki Howe, Environmental management of ports and harbours — implementation of policy through scientific monitoring, Mar. Policy 23 (4–5) (1999) 413–425, [https://doi.org/10.1016/S0308-597X\(98\)00055-4](https://doi.org/10.1016/S0308-597X(98)00055-4).
- [89] World Maritime University, Third WMU international women's conference, in: Empowering Women in the Maritime Community, 2019. (<https://commons.wmu.se/lib-reports/62/>).
- [90] Alison T. Wynn, Pathways toward change: ideologies and gender equality in a Silicon Valley technology company, Gen. Soc. 34 (1) (2020) 106–130, <https://doi.org/10.1177/0891243219876271>.