Contents lists available at ScienceDirect

### Marine Policy

journal homepage: www.elsevier.com/locate/marpol

# Gender analysis for better coastal management – Increasing our understanding of social-ecological seascapes

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#### ARTICLE INFO

Keywords: Gender Marine spatial planning Seascape ICZM Environmental governance Place-based management

#### ABSTRACT

Although highly recognized as needed, studies linking gender and coastal/marine management are scarce. This research illustrates the importance of gender analysis in natural resource management by linking gender and coastal management i.e. Marine Spatial Planning. The research was conducted in various Zanzibar seascapes (Unguja Island, Tanzania). Using a typology comprising gender structure, symbolism and identity; the results show a clear gendered division of labor, highly associated with a gender symbolism in which traditional roles of women as responsible for reproduction activities played a major role. Men used the whole seascape for their activities, while women remained in coastal forests and shallow areas collecting wood, invertebrates and farming seaweed. These activities allowed women to combine productive and reproductive work. Ecosystem importance for subsistence decreased with distance from land for both genders, while the importance for income increased with distance for men. Both genders acknowledged seagrasses as very important for income. Income closely followed the universal pattern of men earning more. Identities were defined by traditional ideas like "women are housewives", while men identities were strongly associated with fisheries with reinforced masculinity. Livelihood diversity was higher for women also showing a tendency of slow change into other roles. Management was found to be strongly androcentric, revealing a deep gender inequality. The research exemplifies how a gender analysis can be conducted for management enhancement. It also invites replication around the world. If management is found to be androcentric in coastal locations elsewhere, a serious gender inequality can be at hand at global level.

#### 1. Introduction

Although gender and environmental links have been highlighted by the development community for at least four decades [1–4], studies on gender and natural resource use are still relatively scarce [3,4]. Gender mainstreaming in natural resource management (NRM) is to date recognized but "in paper". This research argues that an understanding of gender is both urgent and critical to improve natural resource management and move towards better coastal management. Lack of knowledge about a large portion of resource users, their unequal representation in decision making processes and managerial positions, and the general tendencies to simplify gender-environment relationships [3] may result in partial and counterproductive management strategies. While navigating the Anthropocene, inclusion and mobilization of all possible actors in the management process is needed. In this research, the importance of gender analysis and its links to Marine Spatial Planning (MSP) in tropical seascapes is illustrated.

In the last decade MSP has advanced as a viable management option expanding from a relatively narrow view of marine protected areas and building on integrated coastal zone management (ICZM) experiences [5,6]. MSP has been proposed as the way forward to deal with different conflicting objectives and uses of the coastal/marine areas, with enough flexibility to adapt to different situations worldwide [7]. It has been argued that, advances in mapping techniques, geographic information systems (GIS), large data-base creation, new knowledge in connectivity and life-cycles, make it possible to apply a more relevant zoning for coastal/marine areas [5,6]. The major challenge now is to add the "human component" to reach a profound understanding of what is happening in the coastal/marine space and what can be done for sustainability and conservation [5,8]. Not mapping the "social landscape" *together with* the "ecological landscape" impedes key knowledge acquisition [8]. An analysis of actors, activities and where they are

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http://dx.doi.org/10.1016/j.marpol.2017.05.015

Received 21 December 2016; Received in revised form 10 May 2017; Accepted 10 May 2017 Available online 23 May 2017

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performed, i.e. a spatial analysis, is a pre-requisite for relevant management. Another key aspect when dealing with the social sphere is the heterogeneity of resource users and other stakeholders [9] in which gender is obvious. The choice of gender as a focal point in natural resource management should be carefully considered since gender is a key organizer of all social life [10,11]. The record shows, however, that this is seldom done. Although analyses of gender and space do exist, especially in the geography literature, the intersection between gender and planning is a relatively new topic focusing mainly on urban planning [12,13]. Nevertheless, considering gender is relevant for any type of planning including natural resource use in general and coastal/ marine in particular.

Recent reviews show that there is a global tendency of a gendered differentiation of space and resource use [14,15]. Men and women use the coastal/marine spaces differently and thus produce differential environmental impacts. Recently, gender aspects have been highlighted in small-scale fisheries [16] within a diversity of areas such as e.g. empowerment and agency [17]; well-being approaches [18]; women's contribution in fisheries [15,19,20]; recognition of the gendered aspects of knowledge [21]; need for policy inclusion and way of life considerations [22]; health issues in aquaculture [23]; and women entering fish trade arenas [24]. Some authors have also argued for gender integration in coastal management e.g. [25]. Despite these efforts, the managerial discourse still uses a terminology with broad categorization of resource users such as "stakeholders" and "appropriators", or "fishermen" and "middlemen". But these terms are associated with men activities and attributes masking women's contributions. The commons literature, although recognizing heterogeneity and the importance of gender to participate in and design longenduring institutions, has not gone deeper with the gender question and not addressed it empirically [26]. Resilience and Resilience thinking have been strong influential discourses in NRM in the last decades, still little attention has been paid to gender aspects. It has been argued than rather to strive for unified frameworks, method plurality is better to promote gender equality and adapt to different situations [27]. Importantly, a recent review in fisheries shows that there is an extensive bias in data collection and catch report ignoring women's contributions [15]. All the above are examples of what can be denominated as "gender blind natural resource management" which extends also to coastal/marine management.

The overall objective of this research is to illustrate the importance of gender in natural resource management, using the example of tropical seascapes and MSP. Tropical coasts are rich in biodiversity and resources. Both men and women use the seascape on a daily basis. However, management rarely addresses the latter and knowledge about gendered space and resource use is lacking. To reach the overall objective, a gender analysis of seascape space use was performed, specifically considering: i) the gendered division of labor along the seascape (access and resource use as well as activities performed); ii) gendered perceptions of ecosystem goods and services; and iii) gendered economic importance in terms of income and subsistence. Also, to what extent the above were considered in legislation and management plans was investigated. Further, a discussion about the gains of addressing gender for better management is presented. Although the analysis is centered on tropical seascapes, the theory behind, methods, discussion and general conclusions can be relevant globally and thus advance the understanding on how to tackle critical sustainability challenges.

#### 1.1. Theoretical framework – gender and the tropical seascape

In "gender analysis" the broader implications of being man or woman raised in a particular society are critical. An important consideration is to account for the social relations between sexes, and not only using women as a category. This approach brings up new dimensions to highlight the differences between men and women in terms of e.g. opportunities, status and standards in society [11: viii]. While sex is a biological category gender is a social construction. They are, however, in complex ways "deeply intertwined" [28]. Biological differences may be important and may play a role for natural resource use, but considering gender is crucial as it discloses social and cultural aspects. Whether being born man or woman, society promotes certain behavior and the relationships between the sexes follow predefined expectations and patterns [10,29]. The behavior of men and women, the relationships between them and their position in society are thus critical [30].

Throughout history men have enjoyed a superior position in society, and a normative aspiration of the broader feminist research is thus to "see" that inequality exists between the sexes, thus calling for social and political action [2:139, 31:1]. Sprague [11] argues that "knowing" is not enough; a fight for social equality is needed. Thus, gender analysis can be seen as a tool for understanding the socio-cultural constructions where men and women inhabit different spheres and holds different power, as well as a tool to promote social change [e.g. 16,31,32].

In this research gender analysis was done using specifically Harding's typology of structure, symbolism and identity [10]. Harding [10:17–18] suggests three main categories to analyze gender; the first one, gender symbolism, encompasses the role that cultural and societal aspects play in defining what is perceived as male or female oriented. The second one, gender structure, relates to the gendered division of labor and the third one, individual gender, is concerned with how the individual identity is constructed. Harding's categories are used here as a heuristic tool to broaden the understanding of gender in relation to coastal resource use and management of space. Some criticism has been made stating that the framework was an early work in the feminism literature and nowadays complex issues such as intersectionality and multiple identities have been developed. However, the authors of this research consider it clear and useful. Particularly considering the scarce knowledge found *a priori* for the case. Moreover, the framework, brings order through clear categorization and allows going into depth in the different aspects relevant for understanding gender. In addition, it is still used in Sweden, one of the most active countries in gender issues, for educational, policy and research questions (see for example www. jamstalldskola.se; and the Sida gender and environment framework).

Since there is no universal way to do a gender analysis and several frameworks have been developed stressing different aspects [33], the position of the present research is briefly explain in what follows. Within the broad diversity of gender and feminist studies some scholars stress the need of empirical data [e.g. 3,25,30,34]; the present research adheres to that view. It also shares Naila Kabeer's concern with institutions [35,36]. Gender as a social construction can result in different sexual identities see [37]. However, although important, this research does not deal with those. Neither ecofeminism [for a review of critical arguments see 3, 34], nor radical feminism are used [for a review see 31:10-12, 38]. Intersectionality is acknowledged; i.e. other factors and not only gender are important (e.g. poverty, class, race) [11:3, 30, 31:14, 39:193], and sometimes can weigh more than gender itself [10:17]. Subsequently, this works touches upon poverty as it is highly relevant in the studied coastal settings. However, in this initial step the main focus is on highlighting gendered space use and coastal/ marine management. The similarities and differences between men and women living in coastal settings in which most activities of production and reproduction take place are analyzed.

To be relevant, gender analysis has to be site-specific [30]. Here, the analysis takes place in a tropical seascape. The tropical "seascape" consists of ecosystems connected from land to the open sea. The most conspicuous ecosystems are mangroves, seagrass beds and coral reefs connected by ecological, geo-chemical and hydrodynamic processes [e.g. 40–42]. These three ecosystems are among the most diverse and valued on the planet [43,44]. The seascape as spatial unit is rich in diversity at all levels providing numerous ecosystem services crucial for human well-being [45–47]. In tropical countries, in which high

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