

Appendix A: Project description

Heading 1: Title and project coordinator

Port Effectiveness and Public Private Cooperation for Competitiveness II (PEPP II)

Annette Skovsted Hansen

Heading 2: State of the art and rationale

The performance of sea ports in global trade is critical to the development of nations [6,36]. To improve competitiveness, many African ports have undergone reforms [47]. Such reforms in governance have seen private investment such as Terminal 3 at Tema Port, which has improved efficiency in the port. Unfortunately, the impact of private investment on economic development is not obvious in West Africa [10]. Port studies literature distinguishes between port efficiency and effectiveness in assessing port performance. Efficiency is defined as 'doing things right' and effectiveness as 'doing the right things' [5,40,47]. However, the cost and time efficiencies of the new MPS Terminal 3 (T3), which inspired PEPP I seems impeded by other factors.

The PEPP I network of contacts and on-going stakeholder conversations contributed to an increased understanding of 1) how smooth operations at the port depend on unofficial internal communication, 2) how labor and politics are insurmountable obstacles unless taken very seriously, and 3) how negotiations of safety and efficiency in capacity development courses reflect everyday experiences at Tema Port as it is undergoing monumental changes in the wake of the opening of terminal 3 and the raging of the Covid 19 pandemic. These findings call for more investigations and an expansion of our team with new expertises in communication and port and gender economics.

Our findings show cluster performance, channels and forms of communication engagements, and sustainability decisively impact port competitiveness. PEPP II will contribute to port competitiveness literature by measuring effectiveness within the framework for International Maritime Organization (IMO) compliance and port governance literature by addressing some of the complexities in these governance systems [65]. By definition, a cluster is a geographically close group of interrelated enterprises and related organizations in a specific field that are linked by commonalities and complementarities [22]. Haezendonck (2001) first described port clusters as "the entire set of organizations contributing directly to the port's performance, in terms of relative growth rate and market share, and which are also affected by this performance". Port clusters are a key concept for increasing competitiveness and gaining a competitive advantage over other competing ports [48]. We can therefore argue that increased port cluster performance will lead to increased port performance and competitiveness.

Existing scholarship on port competitiveness catalogues its drivers [36,55,64] and their measurement [53, 54]. With few exceptions [26], the scholarship largely ignores the place of communication as a competitiveness driver. This is in spite of allusions to effective communication as possible resource that complex organizations can leverage for competitiveness [41,51]. Thus, despite rich tradition of port competitiveness scholarship, questions remain about how different forms and levels of communicative interactions among Tema Port's stakeholders underpin its competitiveness in port governance and sustainability in social and environmental terms, waste management and stakeholder satisfaction. Situational Theory of communication [21] suggests different issues will generate different publics, conversations and implications for competitiveness. We explore this theory by attempting to catalogue who, within the Port's ecosystem congregates around which issues and by what means they negotiate agreement towards shared prosperity using examples such as the Terminal 3 concession agreement. Communication between corporate, policy institutions, and operations appear conflictual or disengaged, which PEPP II will address.

Sustainability is a concept that is relatively new in assessing port competitiveness, especially in Africa, as evidence through the vast port performance literature. The literature [see e.g.52, 25,58,12] uses varying methodologies to examine relationships between inputs and outputs of ports. Even though port inputs are made up of both physical facilities and labor force [52], not considerable attention is given to labor market imperfections (such as norms and practices) that are counter-productive to port sustainability. Restrictive gender roles and environmental governance need more attention and, in this respect, PEPP II fills a critical gap in the literature with implications for labor practices at the port [eg. 63,49,6]. We will contribute to sustainability

research by tracing the specific understandings of authority and responsibility affecting the disposal of ship waste, which is not included in previous studies into solid waste management in the Tema and Accra metropolis focused on external polluters [9,10,11,42,44,45]. Finally, we also contribute to stakeholder cooperation literature by adapting a structure-conduct-performance framework.

PEPP II defines competitiveness through a transdisciplinary approach, where contributions from different disciplines make us reframe the challenges and opportunities of competitiveness and how it is measured. PEPP II will identify vacuums and overlaps that affect engagement within and between policy and operational levels impeding competitiveness. We focus on formal and informal stakeholder linkages as continuous expressions and performances of boundaries of authority and responsibility. To understand the port environment dynamic as affected by a multiplicity of actors including individuals, administrative and commercial entities, we draw on recent insights from the West African maritime sector about the continuous efforts necessary for disembedding economic interaction from social context [2] and Ghanaian histories of boundaries of authority [3].

While cluster performance and communication have long affected competitiveness, sustainability is an emerging addition to the list of factors that port callers directly consider when choosing one port over another. IMO and shipping lines measure sustainability in many ways. Furthermore, cluster performance and communication affect sustainability at any given port including Tema. Vessels calling ports require ongoing access to operational services including fresh supplies as well as disposal of accumulated onboard waste matter, all of which need to be sourced and discharged externally. Detailed knowledge about these linkages is crucially important for the future development of Tema as a green and sustainable port and port city, because the fenced-off port facilities cannot fully contain the environmental impacts of port operations. While some of the latest research on environmental sustainability at Tema Port focuses on the planning and design stages of port infrastructures [14,59,50], a significant knowledge gap remains concerning the currently performed linkages between formally defined port areas and the adjoining hinterland communities. Specifically concerning waste management from the maritime sector.

PEPP II will approach the research questions through five work packages, where port governance in WP 1 frames existing and future relationships that influence how actors communicate as WP2 explores specific communication hubs enabling stakeholder engagements at Tema Port. WP3 explores the case of sustainability as an example of how communication and port governance work. WP4 focuses on impact of results and WP5 on management to ensure research capacity building. Drawing on the identification and mapping of PEPP I of an extensive network of both formal and informal stakeholders throughout the port community connected to the Port of Tema, PEPP II is now in a uniquely advantageous position of having a well-established and detailed access to a large cross-section of the local maritime authority and business community. This current deep level access in turn enables new and highly detailed research into the topic of port competitiveness focusing on governance models, communication, and sustainability as a key space for negotiation of authority and responsibility [2].

Heading 3: Relevance

PEPP II is *highly relevant*, because maritime development is heavily reliant on engagement between public and private entities in the regulatory, operational, and port community space. The relationship between Ghana and Denmark has since PEPP I started in 2019 moved from aid to trade, however, the Sustainable Development Goal (SDG) agenda pertain to all countries and drive the current maritime sector and, thereby, also the strategic sector agreement between Ghana and Denmark, when focusing on the enforcement of international maritime regulations from IMO. In 2016, Ghana and Denmark signed the first sector cooperation agreement for the maritime sector and are now to finish the second phase by the end of 2021. The Maritime Authorities in both countries agreed on a third Strategic Sector Cooperation (SSC) for 2021-2024 and they are currently negotiating the components of a third phase where communication,

sustainability, and further development and implementation of an e-navigation platform are in focus. The Maritime Sector Advisor at the Danish Embassy in Accra suggests closer cooperation between PEPP II and the new SSC. All three components build on the previous two phases where PEPP I has contributed with new knowledge and in identifying not least some of the challenges to communication and cooperation among Ghanaian, Danish, private, and public sector interests at Tema Port. PEPP II will follow up and deepen our understanding of communication within the maritime sector in Ghana, but also how the communication mirrors a much larger context of maritime concerns globally.

The Danish development policy strategy 2021-2025 emphasis on gender and climate reflects larger international realities and policies and is, therefore, relevant to PEPP II, as well. PEPP II is relevant to a new IMO gender initiative, the association Women in Maritime of West and Central Africa (WIMOWCA). Another focus will be sustainability, which is a national strategic concern in both countries and, globally, manifested in IMO regulations and priorities. During the PEPP I fieldwork in Ghana in March 2019, the team attended several events connected to the visit of the Director General of IMO, when he repeatedly mentioned the objective of curbing Green House Gas emissions directly addressing the 13th SDG. Maersk [31,32,33] has made several announcements in the name of CO2 policies that call for attention in terms of how they resonate in the local practices at Tema Port and beyond within Ghana. Besides current practical implications, we hypothesize that it will become an essential competitive parameter, when port practices become part of the calculations of sustainable consumer goods. Therefore, WP3 will investigate the current situation concerning ship waste received at Tema and follow any changes or continuities over the project period [30].

Ghana's revised National Transport Policy 2020 reflects plans of the maritime sector especially the continual involvement of the private sector in port operations and capacity development of maritime authority staff to enhance their mandate of implementing IMO regulations. Terminal 3 matches the National Development Planning Commission's West Africa Greater Growth Ring (WAGRIC) plan for the development of a transport corridor connecting Ghana, Ivory Coast, Togo and Burkina Faso for bringing economic development to inland locations – reflecting SDG 8 and 9. Sustainability is a national strategic concern in both partner countries and, globally, manifested in IMO regulations and priorities. One of the IMO advised measures¹ is Just in Time (JiT) berthing, which PEPP I found the local berthing meetings to optimize at Tema. Today, IMO works to ensure that shipping does not impact negatively on the environment at sea and on land (ref IMO).

The specific empirical focus of WP3 is collection, processing, and management of maritime waste at the port, which relates significantly to both SDG 8 on sustainable economic growth and productive employment, and to SDG 12 on sustainable consumption and production patterns in relation to the environment.

With regard to gender, PEPP II addresses labor opportunities for Ghanaians of regardless of gender towards the realization of SDG 8 and 9 by enabling resilient infrastructure that promote inclusive and sustainable industrialization (SDG 9) and building strong institutions (SDG 16) through internal and external communication [61]. Specifically, PEPP II questions how gender roles at the port have changed from the women being key to negotiations of land purchases in the 1980s till now being questioned, because of their divergent skill sets. PEPP II will contribute to creating awareness of the benefits of gender inclusion in the port labor market and thereby create new jobs and making temporary jobs permanent in all parts of the port labor market including HRM (SDG 14). PEPP II findings will have implications for quality education at University of Ghana (UG), Aarhus University (AU), Regional Maritime University (RMU) and other institutions (SDG 4).

To achieve the *Strategic Sector Cooperation* objectives of 1) enhancing 'the capabilities in key maritime institutions' and 2) promoting 'maritime regulatory and enforcements environment compliant with international standards,' PEPP II will deepen our understanding of communication within the maritime sector in Ghana and how it integrates and mirrors global maritime standards. Specific interests of the SSC include waste management as per steering committee meeting August 17, 2021. PEPP I and PEPP II preparation phase interviews ensure that our research question is of immediate interest to public, private, and mixed entities. These entities include The Maritime Authorities of Ghana and Denmark, Ghana Ports and Harbours Authority (GPHA), Ghana Institute of Freight Forwarders (GIFF), the Maersk group, Meridian Port Services (MPS), RMU, Berthing Meeting Association (Berma), The Danish Embassy in Ghana, Portside, Aarhus Port, and the 'borla' group of Tema. The 'borla' group is a loose affiliation of commercial actors working with environmental services at Tema Port. All have made time and resources available for interviews, stakeholder meetings, and observations.

Heading 4: Objectives

The main objectives of PEPP II are to:

1. Contribute to international scholarship with innovative research and knowledge about the competitive role of cluster performance, local knowledge co-creation, and communication and about how international standards for sustainability impact local practices.
2. Enhance the competitiveness of Tema Port by providing new knowledge about how port governance, gender imbalances, communication, and sustainability intertwine and, thereby, creating the potential for a more diverse and effective work force at Tema Port as it competes with other West African Ports.
3. Contribute convincing data to prove advantages of a cooperative approach through effective informal and formal communication strategies among private and public partners towards reducing un-productive tension to resolving challenges of perceived and real differences, including strikes from the labor front.
4. Provide a better understanding of port governance and communication strategies in order to improve the cooperation between public, private, and mixed stakeholders at Tema Port in the shared interest of port competitiveness.
5. Foster a strong transdisciplinary research experience for all team members in order for all to engage in more innovative international scholarship through conferences, peer-reviewed journals, and externally funded research projects.

Heading 5: Expected outcomes and outputs

Expected outcomes:

1. New knowledge about port competitiveness regarding port governance, cluster performance, port communication engagements, and international sustainability policies and standards for local practices. (WP1-3)
2. Contribution to international scholarship about the implications for port competitiveness of port governance, cluster performance, port communication engagements, and international sustainability policies and standards for local practices by the Tema Port community. (WP1-3)
3. Affect a wide variety of potential and real 'uptakers' who will realise the benefit of taking the findings and knew knowledge from the PEPP II research into consideration in their work. (WP4)

4. Increased awareness among private/public and national/international decision-makers about nuances of port cluster performance, port governance, communication, and sustainability-related practices in their considerations of port policies and practices and their impact. (WP4)
5. Development of mutual transdisciplinary research capacity of all team members providing insights into how to manage transdisciplinary research and increase chances of winning new research projects as PIs. (WP5)

Due to our in-depth understanding of the complexities and dynamics at the port from PEPP I, we expect stakeholders to be more inclined to integrate our findings in their future decisions and practices, so we will see increased precision in design of future partnerships. Danish companies will be better equipped to engage successfully in the port having considered our findings about the intricacies of the opportunities and challenges in communication and relationships at the port, further developed in our focus on the implications of international standards and shipping line compliance with the sustainability agenda on local practices.

Outputs: 6 academic articles; three stakeholder meetings; three workshops at Tema Port: two for stakeholders and one co-organized with DFC with other FFU Ghana projects; three international advisory board meetings; 4 writing retreats; attendance at minimum 3 international conferences; one workshop with other FFU maritime projects, when the team is in DK May/June 2023 co-organized with World Maritime University and DFC; integration of PEPP II findings in 6 university courses; 1 podcast (WP4); 3 policy briefs; one animation.

Heading 6: Methodology

The overall methodology is common for all work packages to ensure coherence and mutual inspiration. Moving from efficiency to effectiveness, PEPP II explores cooperation that renders some port cluster activities ineffective or engenders conflict among stakeholders as discovered in PEPP I. PEPP I identified strong Ghana-centered knowledge co-creation hubs that begs an in-depth investigation of how the various actors engage in communication at the port.

The identification of interviewees and locations for observation build directly on our extensive PEPP I network of close to 100 qualitative interviews and 200 respondents to our survey, to which we also know we have access. WP 1-3 will follow the same research flow. In 2022, literature review and a first round of exploratory interviews during a joint fieldwork stay in Ghana in preparation of an extensive survey including questions relevant to each of the three work packages. At the end of 2022 and beginning of 2023, we will conduct and analyze the survey. Subsequently, we will conduct qualitative follow-up interviews during a second joint fieldwork in Ghana in 2023 and continue co-writing academic articles. The two rounds of joint fieldwork in Ghana enables observations of practices and communication at the port, for example at three Ghana-centered knowledge co-creation hubs, the thrice-weekly berthing meetings, RMU, and the borla group, which is a loose affiliation of commercial actors working with environmental services. Besides, the post doc anthropologist will spend one year at the port to perform longitudinal observations of relevant practices in order to reveal intricacies, of which the interviewees and survey respondents may not be aware. We will present the methodology pertaining to WP4 and 5 below under the headings 8, 9, and 11

WP1: Port Governance

WP1 seeks to decode GPHA's hybrid port governance (HPG) approach for the governance of Tema Port. The evolution of port governance models has increased the port authority's autonomy and responsibility, allowing it to play a larger role outside of the port [8] include a collaborative governance role within a port cluster. The Port Authority, the private sector, and the community all play a role in this function, communicating and cooperating to accomplish a common aim of competitiveness. Examining port governance structures offers a window to explore the distribution of professional relationships and social roles in ports [28]. Scholars deem it adequate, when port governance promotes stakeholder integration and boosts the port cluster's performance [16]. Analysing the effects of GPHA's HPG model on the cluster's performance provides insights into determinants of port competitiveness, performance measures other than

port throughput, theoretical background for analyzing collective action and the critical role played by dominant firms it also offers an additional framework for analysing the roles of port authorities in seaport clusters [23].

If competitive clusters contribute significantly to the economic development of regions [17], then, we argue that discrimination and segregation by gender roles may be counter-productive and hence thwart port competitiveness. Employment and occupational segregation are found to have considerable consequences for gender wage gaps [e.g. 4,19,29]. In addition, if men and women have a similar distribution of innate abilities [27], all else equal, then, discrimination by gender may also have some implication on quality of governance at the port, through for example, the gender shares in various levels of management in the shipping activities.

Therefore, WP1 investigates evidence of employment and/or occupational segregation, and the extent of these inequalities in the activities of the Tema port cluster, and how they influence port governance. Beyond port governance and competitiveness, the analysis carried out may have important policy implications on identifying gender-specific challenges, and how to make the male-dominated maritime industry attractive to women.

WP1 will seek answers to the following questions: What are the characteristics/features of the HPG Model assumed by the GPHA? Who are the stakeholders in the port cluster, and which firms are dominant? What factors influence port cluster performance in Tema? What constitutes efficiency/performance of a cluster and do stakeholders agree with what constitutes efficiency? How does the HPG model affect port cluster performance and port competitiveness? What conditions are necessary for the HPG model to work optimally? Is there any evidence of gender discrimination and occupational segregation in the cluster? How does the port governance model influence gender representation in the cluster? How does gender representation in the cluster affect port governance?

Approach

The study will adopt mixed methods by collecting both quantitative and qualitative data in addition to an extensive literature review. The quantitative data will be obtained using structured questionnaires, which will be administered to authorities (of Tema port, and private and public entities within the port cluster) and employees at various levels to get cluster performance variables and gender shares at various levels of governance. We will conduct qualitatively, non-structured discussions, semi-structured and structured focus group discussions and one-on-one interviews with key individuals in order to get in-depth knowledge about the governance dynamics, operations, organization and functioning of the port cluster, and perceptions and attitude towards norms and gender roles. Experts will review and vet all research procedures in line with approved and standard practice.

WP2: Communication of maritime knowledge: co-production and networks

WP2 addresses the nature of communicative interactions between stakeholders within Tema Port and how this affects competitiveness. We adopt a view of communication as exchange, rather than dissemination, of information between individuals and entities within and across organisations and are guided by extant allusions, yet unexplored, to communication as a critical success factor in organizations broadly [41, 56] and ports in particular [26]. From a Resource-Based View of organizations, this exchange could facilitate or damage coordination, information sharing and efficiency, thus affecting bottom-line. Yet, within complex systems such as Tema Port, networks of stakeholders exist that are activated around issues [21] in a manner that shape the benefits of effective communication. We, therefore, deploy the Situational Theory of communication to explore Tema Port as a complex web of interrelated parts whose interaction is activated depending on their problem recognition, constraint recognition, and level of involvement in an issue [21,18]. In particular, we seek answers to the following to enrich scholarship: What modes and channels of communication are deployed by different stakeholders in negotiating and sharing knowledge on issues of shared and contested interests? What issues do stakeholders congregate around, and engage on? Which modes and channels are suited to which subjects of discourse? What understandings are held about effective communication and its place in port competitiveness by different stakeholders? How does communication

enhance/undermine port competitiveness? Across these questions, we will deepen our findings by adopting a gender-aware stance to our inquiry in order to explore gendered undertones.

Approach

We will use three modes of inquiry in WP2:

1. Formative interviews with key individuals in the Tema Port communication machinery to discover constructs beyond those suggested by the theoretical lens adopted. This will aid in the development of the main research instrument. This method may be complemented by ethnographic visits to hub meetings to help streamline our thinking during instrument development. Data from this will be coded thematically and used to generate items for construct measurement.

2. Survey of members of the hubs identified in PEPP1 to explore the indicated questions. Participants include freight forwarders, bus drivers, clearance agents, dockworkers, journalists, shipping line, government agencies, and entrepreneurs. Data will be analyzed using a mix of descriptive and inferential statistics (regressions and structural equation models). The former will help with profiling respondents and patterns of communication while the latter will be used to glean patterns of association among constructs.

3. Key Informant Interviews, our close-out study, will be used to explore the reasons behind findings from the survey and fill any gaps left in it. The analysis is thematic guided by steps proposed by Emerson, Fretz and Shaw (2011).

WP3: Green and Sustainable Port

The adoption of the initial IMO Strategy in 2018 set the stage for important action by the shipping industry to decarbonize [31,32,33]. Backed by the UN call for global action through the SDGs we have seen a reinforcement of sustainability as a near ubiquitous concern to both public and private port and port city stakeholders across the globe [60]. The ambition of WP3 is a detailed analysis of different ways in which Tema Port stakeholders envision and seek to realize recent and current sustainability efforts. The scope of our enquiry involves data collection and analysis from upper management, i.e. policy level, to operational levels, including the port area itself along with its linkages to the adjoining Tema city community and hinterlands.

The aim of this work package is to identify key factors affecting current sustainability efforts at Tema Port, along with new measures necessary to ensure that future environmental sustainability initiatives at Tema Port achieve genuine sustainable solutions rather than displacements of problems from the port itself onto other areas, including both marine surroundings and maritime hinterlands. IMO targets and UN goals are ambitious - there are often no clear pathways to reach these and there is a multitude of potential measures (operational, market based, hybrid, time optimization, assessment of impact etc.). There is potentially a lack of economic incentives, due to limited knowledge of the system dynamics. Political considerations often characterize the process, which may cause delays or hamper the outcome. The challenges are multiple, and WP3 approaches them at various analytical levels with the following study components:

- 1) A mapping of key Tema maritime stakeholders' definition of their own areas of authority and responsibility in regards to environmental sustainability and greening of the port.
- 2) A study of the movement, processing and management of maritime waste material from port areas to the hinterlands, focused on the linkages between the formal and informal sectors of the local economy in regards to environmental sustainability efforts.
- 3) A study on the role of affirmative action in achieving port competitiveness by showing that women do not have to be 'honorary' men to succeed in the maritime space but offer differential resources from men that can be useful to achieving competitive advantage.

Approach

WP3 analyzes the topic of sustainability at Tema Port from both a top-down and a bottom-up perspective, combining insights and methods from business studies, maritime studies, and anthropology. We will collect data on the perspectives, understandings, and applications of sustainability across the full range of Tema's maritime sector, from strategic to operational level. WP3 builds significantly on insights and stakeholder contacts generated through the first phase of PEPP, 2019-2021. The institutional envisioning of current boundaries for environmental responsibilities and solutions will be explored through in-depth interviews with key

representatives of both port and national authorities, as well as both large and small shipping business stakeholders. A one-year extensive on-site ethnographic fieldwork will be conducted within Tema Port, where key participants will include members of the 'borla' group. We will "follow the waste" from the ships and the port through observations, local port user social media channels, and resources from the SSC on water and waste water in Tema.

The research will focus on the identification of formal and informal linkages between stakeholder entities, as well as the expressed and performed limitations of authority and responsibility. WP3 explores sustainability as enacted through everyday work performance rather than as expressed through organizational, commercial, or theoretical abstractions.







Questions: 1) How are sustainability initiatives envisioned and operationalized across the public and private sectors of Tema Port? 2) How do relevant port stakeholders define their own areas of authority and responsibility in regards to environmental sustainability? 3) What role does the informal job sector and the policy level fulfill in linking waste management and other environmental sustainability issues at Tema Port with the port's maritime hinterlands? 4) Who communicates about sustainability, how, and to or with whom? What is left out and where? What is silenced and who silences whom? 5) How can issues of gender equality be a sustainable and competitive strategy.

Regarding the PEPP II approach to research capacity strengthening, both Ghanaian and Danish partners have learned from different disciplines and local knowledge in Ghana and Denmark in PEPP I as well as during the PEPP II project preparation phase. At monthly Zoom meetings, workshops devoted to specific research methodologies, writing retreats, and joint fieldwork periods, all team members will engage in continuous conversations about how to combine our individual strengths to reframe research questions in order to ensure innovative questions and new findings. Furthermore, we practice transdisciplinarity through co-authorships and writing retreats in order to train all in framing and reframing research questions and using scientific literature in publications. As in PEPP I, we use stakeholder engagements to ensure impact of our research findings by discussing SSC and other stakeholder concerns and intend to coordinate and co-create knowledge between different research projects in the maritime domain and in Ghana. Moreover, we draw on the expertise of our advisory board to challenge, nuance, and sharpen our research design and findings. PEPP II will comply with all AU and UG policies and procedures for research permits and provision of information and with ethical standards for conducting interviews, collecting other data, and handling the data. We will apply for ethical approvals at UG.

Heading 7: Overview of the research plan

Annette Skovsted Hansen (ASH) (16,5 manmonths including co-financing) and George Acheampong (GA) (15) will co-manage, plan, and engage in all joint activities. Abena Yeboah-Banin (AYB), George VanDyck (GV), Gloria Afful-Mensah (GAF) (each 6) Jonas Nii Ayi Aryee (JA) (7), Torben Andersen (TA) (9), and Casper Andersen (CA) (6) will all use one month a year for joint fieldwork (2022 and 2023) and in 2024 for preparation of and presence at closing events. Their remaining months will be allocated to literature review, data analyses, conference and workshop participation, and co-writing. Martin Arvad Nicolaisen (MAN) (21) participates in the same activities and devotes 12 months to port observation.

Responsible partner

ASH	
ASH/JA	
MAN	
AYB/GV/GA/CA	
All	
ASH/GA	

	2022				2023				2024			
	1	2	3	4	1	2	3	4	1	2	3	4
WP 1-3												
Literature review	Yellow	Yellow										
Joint fieldwork		Yellow				Yellow						
Port Observation			Green	Green	Green	Green						
Writing retreat		Yellow				Yellow	Yellow			Yellow		
Conference participation						Yellow	Yellow			Yellow		
Article writing		Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow		
Article submission				Yellow				Yellow		Yellow		
WP 4: Dissemination												
Web and social media updates	Brown											
Stakeholder meetings*		Blue				Blue	Blue					Blue
Advisory board meetings*		Orange				Orange	Blue					Orange
Animation									Blue			
WP 5: Management												
Monthly update zoom meetings	Orange											
Grant agreement	Blue											
Partnership agreement	Blue				Blue				Blue			
Ethical approval	Blue				Blue				Blue			
Research management course ^x			Red									

* Stakeholder meetings and advisory board meetings will be in Ghana, Denmark, and Ghana

^x AU co-finances ASH participation

Heading 8: Organisation and management

Three women including the PI (two associate professors, one from Ghana and one from Denmark, and one Ghanaian assistant professor) and six men (four senior lecturers (two Danish and two Ghanaian)/one Ghanaian lecturer/one Danish postdoc) comprise the PEPP II team. We encompass the disciplines of economics (business, maritime, gender), communication, gender studies, human resource management, maritime transport, anthropology, history of ideas, and global history. Thereby, the team has experience with quantitative and qualitative methods including network and transition theories and methodologies from statistics to fieldwork observations and interviews. The PEPP I team with 2 years of experience and three additions including two women has worked closely together on the proposal writing as an excellent start-up of the extended team. PEPP II will approach the research question through four work packages, where port governance in WP1 frames existing and future relationships that influence how actors communicate as WP2 explores specific communication hubs enabling stakeholder engagements at Tema Port. WP3 focuses on sustainability and WP4 on impact of results. WP5 is devoted to the organization and management of PEPP II.

During the first months of the project period, UG and AU will obtain research permits and prepare legal agreements concerning rights to research findings and protection of confidential information between the stakeholders providing access to data and the partner institutions. The PI draws on strength research management [7] in order to develop the transdisciplinary research capacity and shared learning across universities and disciplines of all the partners through writing workshops, employee development conversations, conference and webinar organization, and participation in relevant courses and activities at DFC and elsewhere regarding research communication, project management, and knowledge in action. The teamwork is structured around monthly Zoom update meetings, the SLACK platform, OneDrive co-writing tools. In order to limit the PEPP II CO2 footprint, the travel to Ghana and Denmark will combine multiple activities such as joint fieldwork, stakeholder meetings, international advisory board meetings, writing retreats, and international conference participation.

Heading 9: Capacity strengthening

PEPP II strengthens research capacity in order to increase UG, RMU, and AU chances of winning more external funding. The PEPP II design process made all partners more aware of

challenges and opportunities in research cooperation. Research management courses, a continuous conversation among team members, responsibility as coordinator of a work package or other research management responsibilities such as co-PI for the Ghana will enable senior researchers to prepare convincing research grant proposals responding to current expectations from the international research funding agencies and institutions. AU, UG, and RMU can all gain from this endeavor. UG through Building Stronger Universities (BSU) is already well-prepared institutionally. However, individual senior researchers can profit from a larger research repertoire across national and disciplinary boundaries and exposure to re-framing challenges, responding to new research grant calls, and design and implementation of dissemination plans as in WP4. We will discuss paradox leadership [38], mission-oriented research [37], reframing [62], strength management [7], and more as new trends surface during the project period.

Heading 10: Partnerships

We are in conversation with other research projects about specific challenges to Tema Port competitiveness, such as the Future of Work in Maritime program at World Maritime University, Piracy, Port Logistics, Corruption, Smuggling, Environment, and Global Ports and Shipping. Findings from these projects and those of our PEPP I international advisory board Brenda Chalfin, Lindsay Whitfield, Morten Tinning, and Henrik Sorren-Friese will inform our investigation of how port governance and communication systems affect port cluster competitiveness. We Projects about waste management and water in Aarhus and Tema.

The international academic partnerships will build on conference participation and publications in academic journals in African, Maritime, and Business Studies. The researchers on the PEPP advisory board all represent relevant international research projects and networks, besides each partner's already established research networks. The PEPP advisory board, so far, comprises researchers and practitioners (Brenda Chalfin (University of Florida), Anne Mette Kjær (AU), Lindsay Whitfield (RUC), Morten Tinning (Maritime Museum and CBS), Henrik Sorren-Friese (CBS), GPHA, Aarhus Port, and the Maritime Sector Advisor at the Danish Embassy in Accra. Meetings are scheduled in connection with joint fieldwork stays in Ghana in 2022 and 2023, and in 2024 before the end of pilot project events. We also plan to keep a running dialog around questions and dilemmas as they arise in the pursuit of new knowledge and, therefore, are unpredictable. Besides, our research will draw on partnerships with private (MAERSK group and Danish Maritime Fund) and public (Port and Maritime Authorities, GPHA, and ministries in Ghana and Denmark) stakeholders, in which PEPP II will engage, and which have been initiated in PEPP I.

Heading 11: Publication and dissemination strategy

The objective of WP4 is open science and for that purpose, we question how we can negotiate communication and dissemination to enhance project impact? In other words: How are research findings most effectively communicated to relevant stakeholders to ensure impact? Communication on all aspects of our research with partners, other stakeholders, students, and an interested public will be a main outcome of PEPP and WP4 is where we will organize a combined strategy to inspire change through increased awareness. Besides six academic articles, international conference participation, we will prepare policy briefs, a podcast, and post on social media platforms of public, private, and mixed port communities. In order to affect political change, we will raise public awareness with media spots and press releases and for most longterm effect, we teach our students, who are the future public and private sector employees and decision makers, about our findings in our courses at UG, RMU, and AU. The PEPP I project website [PEPP \(au.dk\)](https://pepp.au.dk) provides a platform for knowledge sharing among all researchers and stakeholders and form the basis for continuous future data collection, as we digitalize most research elements and through open access journal articles, our website, and social media postings.

List of references PEPP II 180821

Attach a list of principal publications, etc. used in the research project description.

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