



Towards a sustainability management system for smaller ports



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ABSTRACT

Larger ports routinely deploy environmental management tools but systematic sustainability management in smaller ports is rare. Accordingly, this paper assesses the sustainability needs of smaller ports in Cornwall and Devon, a case-study, and proposes a systematic method for identifying and managing them. The development and deployment of a Port Sustainability Management System for smaller ports in an environmentally sensitive but economically peripheral UK area is discussed. In-depth collaboration with Harbour Masters to identify sustainability management practice revealed few applications of the theoretical elements of triple bottom line accounting. Rather, semi-structured interviews unearthed the essential elements of port management and facilitated mapping of the forces which underpin port sustainability practices. A constructivist grounded theory approach identified emerging concepts, common patterns and sustainability themes, which were synthesised into a Sustainability Management System based on 11 indicators of knowledge criteria and a self-scoring mechanism. Adopters reported a more proactive stance towards sustainability and safeguarding of local communities, improved understanding, and more effective discourse with stakeholders. Benefits spanned port improvements; awareness of progress, performance, strengths and weaknesses; enhanced communication and reporting; and improved thought processes. Almost all reacted positively and identified multiple benefits, equating to two new jobs in each port.

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1. Introduction

This paper aims to assess the sustainability needs of smaller ports in Cornwall and Devon (CAD) as a case-study and propose a systematic method for identifying and managing these. It discusses the development and deployment of applied research which aimed to develop and deploy a systematic approach for identifying and managing sustainability issues within a UK case-study context of smaller ports. The mission statements of these smaller ports, as elsewhere, typically commit Harbour Masters (HMs) to safeguard local employment and commercially important but sustainable local operations. The development and deployment of a Port Sustainability Management System (PSMS) would assist them and about 700 operational smaller UK ports [1] which currently possess insufficient resources or technical expertise to engage specialists, to assess the potential impact of their operations on port sustainability. In smaller ports globally, complex legislation and evolving stakeholder expectations make compliance increasingly challenging as environmental

legislation confronts HMs especially in environmentally sensitive areas. Increasing legislative and regulatory pressures on smaller ports in CAD threaten their survival as managers struggle to maintain commercially viable and sustainable entities, whilst stakeholders demand prioritisation of specialist interests. Compliance is essential to preserve local employment, to attract tourists, and to maintain and grow the local economy. Issues are complex because diversity characterises smaller ports which host fishing interests that create employment, leisure functions which accommodate visiting yachts and provide facilities for boat mooring, and strategic facilities for bunkering and importing and exporting goods. However, mere investigation of sustainability management issues in smaller ports may assist systematic unlocking of resources in each port adopter through new-found knowledge, efficiency and awareness [2].

The paper is organised as follows. Literature reviews discuss the concept of sustainability and recent work which highlighted the importance of ocean services and the nature and deployment of existing port management systems in CAD. Section 3 presents the research problem case context, outlines the methodology including the research design and context, and system development including examples of the theoretical framework and practical system. Section 4 analyses benefits to smaller ports which

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were identified during a pilot test. The final section discusses impacts of the research and examples of accrued benefits several months after the pilot test.

2. Literature review

2.1. Ports and sustainability

The need for sustainable development has been articulated widely, but in a recent exegesis by Visbeck et al. [3] “blue wealth” refers “collectively to the wealth created by the various services and assets” that oceans provide. Following a comprehensive review of the challenges presented by attempts to sustain blue wealth, the authors advocated that a new sustainable development goal specific to oceans and coasts be appended to the UN Rio+20’s (UNR20) current goals [3]. The “future of our society” is highlighted, given that 90% of fishing occurs in coastal waters [4] and that the impacts of coral reef degradation on the shoreline and flooding [5] then impact regional and national economies, employment, welfare and the interconnectedness of coastal sustainability. The UNR20 [6] report highlighted the importance of sustainable fisheries for future food security (§133), commitment to protect the resilience of marine ecosystems to allow sustainable conservation (§158), and the importance of area-based conservation using the best available scientific information as a tool for conserving diversity and sustainable use (§177).

Smaller ports situated in coastal communities in CAD are essential elements of local economies which are heavily reliant on fishing and tourism. Both can be severely affected by unsustainable coastal management [3]. If European Sea Port Organisation (ESPO) classifications in which smaller ports mostly seek specific niches and frequently provide cargo-handling and technical-nautical services such as pilotage, towage and mooring [7] are applied to CAD ports, the latter is ubiquitous, but cargo handling is not. ESPO’s threshold whereby smaller ports handle cargoes not exceeding 10Mt annually [7] is five times the throughput of the largest CAD port. Drawing on European Commission criteria, each CAD port is a small enterprise which turns over under €10m annually, employs less than 50 people, and has a balance sheet valuation under €10m. Indeed most CAD ports are micro organisations turning over less than €2m [8]. Fishing activities spawn many businesses and support local economies, including supplies to prestigious restaurants. In turn, these activities enhance tourism and create holiday destinations which benefit the wider region [9]. Economically vital locally, smaller ports have defined an organisational mission of safeguarding their harbour operations and “protecting the maritime area against the adverse effects of human activities so as to safeguard human health and conserve marine ecosystems” and if possible, to restore “marine areas which have been adversely affected” [10]. In this study data collection and the grounding of theoretical development focus necessarily on the regional sector as required by the sponsor. However, despite the unique regional context which is of wider interest in itself, issues of sustainability management will increasingly engage all sizes and types of ports and their stakeholders.

Within this context, what does the term “sustainability” imply? In an early definition, sustainable development must “meet the needs of the present generation without compromising the ability of future generations to meet their own needs” [11]. Recent debate has identified this definition as useful but problematic [12]. Following proposals of an agenda for global change, many governments and institutions began to incorporate the sustainability agenda into their products, processes and policy planning [13]. Despite successful local projects informing people about the necessity for waste reduction and regeneration of urban spaces,

practical applications of sustainability require a change in habits and attitudes of both people and institutions [13].

The application of sustainability is often operationalised using the concept of the Triple Bottom Line (TBL) [14–16]. Elkington reported hundreds of companies signing up because “the basic challenge was of “greening”, of making business more efficient and trimming costs” [15]. According to TBL principles, true sustainability is achieved only where environmental, economic and social dimensions intersect. Unless societies move towards the same goal, little happens as “firms alone cannot become sustainable in an economic, environmental and social sense, as they merely contribute to more sustainable patterns of production and consumption within society” [17]. The TBL may give the “illusion of a more specific tool for analysis – the bottom line” which is a respected business concept. This creates strong “marketing reasons to tag a slogan to a concept with an attractive no-nonsense meaning” [16]. The original idea behind each of the dimensions of TBL encompassed accountability, accounting, auditing, reporting, risk rating and benchmarking [15]. These concepts represent measures of reporting and demonstrating a socially acceptable behaviour as argued previously; however they do not contribute towards the knowledge and understanding of sustainability related issues. TBL represents a generalisation of principles rather than a definition of sustainability, and its application is often problematic.

The British Ports Association (BPA) represents the interests of port and council authority members and private company associate members to UK, European and other policy makers, campaigning for example to minimise the effect of Marine Conservation Zone programmes [18]. Its 91 port members get benefit from stronger representation and professional networking [18], but approximately 600 other UK ports remain unrepresented [1]. Examples of best practice within CAD ports include a Falmouth Bay Test Site in which wave energy device developers may test components and prototypes [19]. A Phosphate Free campaign at Salcombe educates port users about the environmentally harmful effects of phosphates contained in washing up liquids [20]. However, to avoid differentiation between BPA members and others this paper adopts a holistic view of the ports sector in CAD, briefly considering some existing management systems which are available to all ports.

2.2. Management systems

The diversity of UK ports with regards to size, operations, infrastructure, ownership, geographic location, traffic volume and other factors creates a challenge in producing a “unified response to the demands of sustainable development and environmental protection” within this sector [21]. Disruption to operations can be caused by a number of technological, organisational, human and natural factors [22], which resulted traditionally in managers adopting a reactive approach to sustainability. Previous approaches to assist ports with sustainable management were focused predominantly on mitigation of environmental impacts through the use of environmental management systems (EMS(s)).

There are many excellent tools which are applied by large commercial ports and give great benefits. The most widely used EMSs in ports are either based on the principle of ISO14001 or have been accredited with that certification, and those that are part of the EcoPorts tools methodology. EcoPorts tools include a Self-Diagnosis Method (SDM), an EcoPorts tool to self-audit environmental issues [23]; a Port Environmental Review System (PERS) which consists of guidelines and example documents for implementing EMS [24]; and a Strategic Overview of Significant Environmental Aspects (SOSEA) tool for ports to identify and rank “significant” environmental aspects of ports [25]. Excluding

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