



Paper xx - Sustainable Marinas – Institutional Framework of Sustainability

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ABSTRACT

Sustainability is a guiding principle for the planning, design, and operation of waterfront infrastructure in general, and specifically for recreational boating infrastructure and marinas.

This study was triggered by the observation of organizational behavior by private and public promoters in waterfront development, which suggests that the most difficult challenge for the successful implementation of sustainability strategies is working with the local community to integrate its needs and perceptions, allow positive involvement, and increase positive impacts. After analyzing organizational factors that negatively impact sustainability, we found that environmental impacts of coastal resort projects and the regulatory environmental impact assessment process are also affected by organizational behaviors. The awareness of this challenge highlights the importance of addressing organizational issues and considering a comprehensive institutional framework in order to improve conditions for sustainable marina development.

The traditional environmental impact assessment process, which is the basis of most environmental regulatory frameworks, has shown to have deficiencies. The problems are magnified in places where the regulatory framework and enforcement are weak and when project promoters have a confrontational approach to environmental permitting. A change in attitude by developers towards the design and entitlement process, rooted in fundamental objectives of hospitality design and enhancement of guest experience, is proposed as a path forward to improving the environmental sustainability of marina projects.

Social sustainability criteria for marina planning is considered necessary to achieve sustainability. However, it is not sufficient. While the business case for experience-oriented marina planning may be strong and the benefits to sustainability are apparent, the implementation of an approach to include the local community faces significant challenges in practice. The implementation of a social sustainability strategy that enhances guest experience and benefits the local community requires a long-term commitment, resources and institutional capabilities.

This paper summarizes case studies of private development and operation hospitality organizations that have implemented successful sustainability programs that demonstrate the feasibility of this approach. This analysis results in recommendations for private marina developers and operators. A comprehensive approach for sustainable development of recreational boating infrastructure should consider the net benefits of embedding environmental and social dimensions of sustainability in the design and operation of marinas.

1 INTRODUCTION

1.1 SUSTAINABILITY FRAMEWORK

The term sustainable development was introduced by the Brundtland report (WCED, 1987), and since then has become a mainstream concept. “It is generally accepted that sustainable development calls for a convergence and long-term balance between the three pillars of economic development, social equity, and environmental protection” (WCED, 1992). In addition to the classic

“three pillars”, institutional and organizational issues have also been identified as key requirement for sustainability.

Institutional Sustainability has been studied extensively by different development promotion institutions and by lending organizations, which have realized that recipients of loans and grants need an appropriate governance framework to fulfill their goals. Sustainable development implementation continues to challenge institutions at different scales (UN, 2002).



1.2 OBJECTIVES

This paper deals with issues at the organization level that affect the sustainability of marina development and operations. Specifically, it identifies challenges to sustainability observed by experience working with private companies that develop or operate marinas and with the government agencies that regulate those activities or create regional plans that encompass them. Case studies of good practices by private organizations are analyzed to identify patterns that contribute to sustainable development. We provide recommendations that can be used by other real estate development and hospitality organizations, including marina developers or operators.

1.3 CONTENTS AND METHODS

This paper explores some relationships within organizations and among organizations that affect sustainability of the development and operation of marina projects.

We first present basic definitions and an introduction to institutional issues that affect sustainable development of recreational and tourism development projects, specifically focused on social and environmental sustainability.

Background issues regarding the state of practice of marina development and operations are presented, including brief discussions of the marina planning process, regulatory environmental framework, and recommendations for social and environmental sustainable design and operations of marinas.

Additionally, patterns of behavior observed by the authors during their professional practice are used to explain problems and dysfunctions found in the common practice of marina development and operations. Our reflection on observed behaviors led to the identification of some typical emerging patterns within organizations (developers or operators) and between organizations (such as between private developers and regulatory agencies). These empirical findings are used as the basis for an assessment of conditions that often discourage or prevent marina sustainability.

A summary of brief case studies of private organizations that have achieved some level of success milestones in sustainability are highlighted. These are also based on experience working with developers or operators of hospitality projects. The cases intend to illustrate the reasons that led these organizations to adopt these practices or implement the plans, that we believe support sustainability goals, both on the environmental or social realm.

After exploring the positive relationships within these organizations, we offer recommendations that we believe can be implemented by private for-profit developers or operators of marinas. These recommendations are expected to improve sustainability of the projects that these organizations develop or operate. Because the recommendations are addressed to private for profit companies, emphasis is given to how this approach increases the economic value of those projects and reduces their risks.

2 INSTITUTIONS, ORGANIZATIONS AND SUSTAINABILITY

2.1 INSTITUTIONS AND SUSTAINABLE DEVELOPMENT

Sustainable development in general is a learning process. Institutional sustainability is related to the institutions needed to achieve sustainable development, addressing the socioeconomic characteristics and limitations of their context. It is related to how institutional framework and governance can guide the process to sustainable development. Appropriate institutions and a good governance are essential for sustainability. Sustainable governance is related to managing, directing, and guiding actions in the sustainable domain.

Steurer (2009) identifies five key governance principles:

- horizontal integration (policies),
- vertical integration (spatial scales)
- participation (stakeholder integration),
- reflectivity (knowledge integration), and
- inter-generational equity (temporal integration)

The table summarizes the components of each of the main governance principles of sustainable development.

Table 1 : Governance principles (mod. Steurer, 2009)

Governance principle	Components
Horizontal integration	Economic, environmental and social policies need to be comprehensive and integrated
Vertical integration	Spatial scales, from local to international, need to be accounted for.
Participation	All stakeholders need to have access and participation, based on genuine information.
Reflectivity	Knowledge from different sectors need to be integrated. This applies to sciences as well as local experience (lessons learned).
Inter-generational equity	Consideration of different time scales, from short to long-term, are required.



Documents of most international agreements on sustainable development since the Earth Summit emphasize the idea of sustainability as an adaptive and incremental learning process. It is understood that sustainability should be implemented coherently within a multilevel institutional structure that address three dimensions of sustainable development in a balanced way, adopt integrated planning across different sectors, promote participation of relevant stakeholders, and guarantee genuine access to information (UN DESA, 2012).

2.2 IMPORTANCE IN TOURISM DEVELOPMENT

Recent statistical information indicates that tourism is one of the largest and fastest growing industries in the world, and plays an important part in the economic development strategies of many regions. However, the tourism industry can have negative impacts on the environment, such as the loss of natural landscapes, congestion, change or loss of local identity, loss of community employment, and promotion of economic inequalities. These environmental problems can be exacerbated if planning and management are not sustainable.

Sustainable tourism development is tourism that fully considers "current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities; () and maintaining cultural integrity, essential ecological processes, biological diversity and life support systems" (UNEP and UNWTO, 2005).

Marina development takes place in coastal areas, which are generally fragile and threatened environments. They are under very high population pressure due to rapid urbanization processes, are highly desirable for development of recreation and tourism infrastructure, and are threatened by climate change impacts due to sea level rise. Coastal tourism and recreation development can create great pressure on coastal ecosystems and resources such as energy, land, landscape, and water.

2.3 THE INSTITUTIONAL LEVEL AND THE ROLE OF ORGANIZATIONS

Sustainable development requires an integration of the economic, social and environmental objectives within decision-making and implementation process. This includes horizontal and vertical integration where governments and businesses make economic, social and environmental policies more coherent and appropriate (European Parliament, 2012).

Governments need to provide the normative and institutional framework to encourage sustainable development. This requires integrated development

planning mechanisms for coordination among diverse institutions as well as processes for promoting genuine community participation, including appropriate public communication tools for engaging stakeholders (Pfahl, 2005).

While the system level mentioned above must be considered (institutions refer mostly to the system level) it is also critical to evaluate the role of individuals and organizations - the actors or "players" within a system (NORAD, 2000).

This paper is focused on private sector organizations. It includes a "bottom-up" analysis of institutional sustainability, which results in recommendations that can be implemented at the individual and organizational level. We evaluate behaviors observed within organizations involved in the development and operation of marinas and assess how they relate to environmental and social sustainability at the system level. The conclusions of this analysis are then focused on individuals and private organizations, suggesting types of activities that can improve the performance of specific marina projects and lead to improvements in institutional sustainability at the system level.

3 BACKGROUND ON MARINA DESIGN AND DEVELOPMENT

3.1 STATE OF PRACTICE OF MARINA PLANNING AND DESIGN

Sustainability is assumed to be a goal for the planning and design of coastal infrastructure in general, which includes marinas and all recreational navigation infrastructure. Recognized best practices for marina planning include comprehensive considerations of engineering, economic, and environmental issues. However, a review of professional marina planning and design literature suggests that the state of practice in marina design does not have a comprehensive sustainability framework beyond environmental impact studies (ASCE, 2014; Tobiasson and Kollmeyer, 2000; SAI, 2001). Modern marina planning guidelines are only recently starting to expand the evaluation of environmental issues to encompass a more ample sustainability framework (PIANC, 2014), but only in general terms. However, despite the existence of professional regulations, environmental regulations, design guidelines, and voluntary certification programs, many marina projects still cause significant environmental impacts.

Social sustainability is not set as an objective of marina design (Biondi, 2010) and no specific guideline exists for addressing social sustainability as part of the marina planning and design process (Biondi, 2014). Experience in different aspects of



consulting work by the authors over more than a decade suggests that social sustainability is typically not addressed at all in the design process. Moreover, while assessing and strengthening institutional capabilities has been an objective of significant efforts in other fields of sustainable tourism, the institutional framework necessary for sustainable marina development and operation has not been studied.

3.2 ENVIRONMENTAL SUSTAINABILITY CHALLENGES

3.2.1 *Weakness of the environmental impact assessment regulatory framework*

The main goal of environmental impacts assessments (EIA) as instruments of sustainable development, is to produce a better project for the environment, considering natural, social, and economic components. EIA is a tool for evaluating potentially adverse environmental impacts for decision-making in the development process. It provides decision-makers with information and recommendations during the planning and design process, so that environmental issues are considered from the beginning of the process and the final project can be sustainable. EIA should ensure that significant negative environmental effects on the environment are explicitly considered, so that they can be anticipated, avoided, minimized, or compensated for.

Environmental regulations, which include requirement of specific government approvals through an environmental permit process, are part of most legal systems in the world. Over more than three decades, a comprehensive technical and legal framework has evolved specifically to address the environmental impacts of marinas using EIA as a tool. However, involvement in permitting processes in different countries suggests that limiting environmental considerations to a "compliance approach" (using the tool just to get the permit) can have significant weaknesses.

It should be noted, that the state-of-practice is very different among countries. Environmental considerations for marina design in countries with strong regulatory framework and enforcement have completely different challenges than countries with weaker regulations or enforcement. Accordingly, the organizational issues that private developers need to address in order to achieve sustainable marina projects vary widely.

In jurisdictions with strong regulatory enforcement, limitations have been documented that highlight the inefficiencies of the process, which often do not achieve all possible sustainability goals and create costs and burdens to the developers. Approaches such as "Working with Nature" (PIANC,

2011) suggest process adjustments to reduce risks of delays during the regulatory approval process in countries with strong regulatory systems and enforcement.

Jurisdictions with weak environmental regulations and enforcement have a different set of challenges. Regulatory compliance is much simpler, but good design requires exceeding them. This is the scenario where a comprehensive sustainability approach to design and implementation, based on added value to the project, is considered to be of most benefit.

Public participation is one of the basic principles of sustainable development. When appropriately conducted, it can add value to the project and prevent unnecessary conflicts. Different countries have mechanisms for public participation, review, or comment as part of the formal environmental impact study regulatory process, with a wide variety of results. However, the role of direct public involvement in planning of private projects is a subject of debate, and many countries do not have adequate tools for community involvement in the design of public projects.

3.2.2 *Conflicts in the environmental permitting process*

Conflict often manifests itself in disagreements among people who see incompatible goals and potential interference in achieving these goals (Madden and McQuinn, 2014). Marina development proposals can generate conflicts among diverse stakeholders with interests on the coast such as ports, conservation groups, recreational users, or developers of tourism, transportation, or urban infrastructure, which are often exposed during the environmental permitting process. Additionally, the legal framework and regulatory enforcement procedures sometimes result in conflict between the project proponent (marina developer) and the regulatory agency. This section is focused on a few types of conflicts that have been observed during the environmental permitting process.

In jurisdictions with weak environmental regulatory conditions, conflict may evolve due to confrontational dynamic relationship between permit applicant (developer organization) and reviewer (environmental enforcement organization). These two parties are the main organizations that interact in the environmental permitting process. They have different primary goals for the process. The environmental regulatory organization has a primary role as enforcer of legal requirements and the environmental and social sustainability of any development within its jurisdiction. The developer's first responsibility is the return on investment of the project and its economic sustainability. From the



point of view of the developer, if the project is not viable economically, no other sustainability objectives can be achieved. From the point of view of the regulator, if the project is not viable environmentally and socially, it is not sustainable. These goals can be compatible when the principles of sustainable development are implemented. They are compatible when the design that achieves best economic performance is sustainable socially and environmentally.

Arguably, certain attitudes and approaches of the developer organization towards the permitting process can lead to avoidable conflict scenarios. For example, weak environmental regulatory systems have a track record of allowing less than desirable projects. In some cases, minimal compliance with some formal requirements without sufficient substance is believed by some developers to be a low cost means of obtaining a permit, based on precedent. This issue may be compounded by the complexities innate to marina projects and because type of impacts vary depending on the site conditions and project characteristics.

However, our professional experience suggests that within all regulatory agencies there are competent professionals that can very easily identify when an environmental impact submittal is incomplete or deficient. They may not have the experience specific to fully comprehend all issues, impacts, or mitigation measures, but they can tell if enough effort was placed in studying relevant baseline environmental issues and avoiding or reducing impacts of the proposed plan. Submittals of projects with significant impacts that do not demonstrate an effort to avoid or minimize impacts are often proposed may be a perceived to have the intention to negotiate concessions, as opposed to abiding by the intent of the process. When a poor submittal is received, credibility drops and conflict may evolve.

Our experience suggests that establishing a credible technical position by the proponent as perceived by the regulatory agency leads to a less contentious and shorter review process, with less requests for additional information or reviews, and therefore less cost to the developer both in time and in out-of-pocket expenses and consulting fees. This can be achieved by a better design, which evolves spontaneously when the objective is to achieve sustainability.

3.2.3 The "Working with Nature" approach

While considering environmental issues is required by regulatory compliance, the traditional regulatory compliance process based on EIAs has proven to have limitations in practice (Christa, 2005;

Middle and Middle, 2010; Wright et al, 2013). The challenge is to upgrade the EIA process and mechanisms so that it can comply with its essential goals. In response to this challenge, international professional organizations focused on navigation, coastal, and port projects are recommending a new approach based on proactive consideration of environmental issues, as a means to prevent problems commonly encountered during the impact study and approval process.

The "Working with Nature" (WwN) position paper developed by PIANC (2011), as well as the "Building with Nature" initiative (Ecoshape, 2015) and the "Engineering with Nature" program (USACE, 2015), have been developed by different institutions with a similar goal and following the same principle. Ultimately, they all recommend a modified planning process that allows for information relevant to environmental and social issues to be incorporated early in the design process. They are all based in the fundamental principle of EIA, and they all share the EIA's basic goal of considering environmental issues from the beginning of the development process.

In summary, all these approaches encourage a design process that incorporates environmental analysis before the design is advanced, so that the plan that is analyzed under the formal EIA already has a reduced impact. These initiatives became necessary because the design process that evolved over several decades after formal environmental impact studies were required, lost the original intent. Planning and design became less comprehensive and integrated. The process became sequential and with compartmentalized steps, possibly due to the need for large specialized consulting contracts, and lost iterations of review cycles. It resulted in a first step to develop the plan and a subsequent one to conduct the EIA. This led to stiffness in planning and resistance to design adjustments. In other words, if the project is conceived and designed first to evaluate its feasibility (economic and technical), the effort required to reach that level of detail in the design becomes an incentive to reduce the changes that result from the EIA process.

In marina projects, which are typically smaller than large navigation or port projects, and are often designed by smaller integrated consulting organizations, this problem is more easily avoidable. A cohesive and flexible team can simultaneously evaluate environmental, engineering, business, and operational issues to seek a balanced solution before a plan is set. These evaluations are conducted in iterative cycles, each one with more detail (Biondi, 2010 and 2014). The integrated marina design approach, considered the best practice in marina



design, by its definition meets the principles of WwN and sustainable development. It includes starting the environmental studies as part of the design process, so that the impact analysis starts with a preliminary design and the plan is not finalized until a reduced impact solution is achieved.

WwN does not yet have a workable guideline specifically for marinas that meets the needs of developing countries or jurisdictions with weaker environmental regulatory enforcement. However, these principles, recently formalized as policy by these major professional institutions, have been followed by some marina designers for many years.

3.2.4 Systemic inefficiencies relative to baseline data for environmental impact studies

The cost of generating data and baseline mapping of physical and ecological features is very significant. Additionally, most countries in Latin America and the Caribbean have extremely limited information available, as opposed to developed nations. Moreover, most local regulations and common practices are inefficient. For example, expensive studies and data collection efforts undertaken at national level are often not made available to the general public.

A typical example of significant system inefficiencies in developing countries is related to high resolution LIDAR topographic surveys. Many governments have paid for that data as part of cartographic, cadastral or vulnerability studies, but the data is only available to government agencies. When proposing a marina project, private developers are responsible for collecting topographic data at their own expense, even if the same information may exist in some government agency. Additionally, in the case of topographic surveys, a developer would typically undertake a lower quality traditional topographic survey, as opposed to the higher quality LIDAR data.

Better data in the hands of the developer and its consultants will result in significant system efficiencies by avoiding duplication of efforts and costs. They will also result in improving the quality of the marina design because the project design will be based on better data. A better design, based on accurate baseline information, will simplify the work of the government agencies that review and approve those marina projects. The fact that better data in the hands of a developer improves the efficiency and efficacy of the regulators, and that the data already exists, may be enough justification to make available all that information for free.

Similar efficiencies, but with less reaching impacts, may be achieved by requiring private developers to submit digital source files of basic

surveys and environmental mapping as part of the environmental permitting process.

It would take a rather simple, common sense, decision by government agencies to produce significant systemic institutional benefits.

3.2.5 Proactive marina environmental design

Proactive environmental design is a tool proposed to expand marina integrated design best practices. It consists in including environmental features proactively as part of the marina project design, not as a mitigation of impacts (Biondi, 2015). These features are design elements that add value to the marina project (for example to the aesthetics, functionality of a project) or reduce costs, as much as they provide benefits such as habitat creation and protection of threatened vegetation. This approach can be considered an advanced level of integrated marina design process and leads to a more effective way of conducting EIA as an instrument of sustainable development.

This approach can render significant results when considered in the context of added value. Marina environmental features are - or can be designed to be - landscape aesthetic features. They can complement pedestrian overwater boardwalks or be integrated into guest's amenities, spaces for (active or passive) recreation, or educational opportunities. Environmental design can also result in enhancing a sense of place that is authentic and true to the surrounding natural and cultural environment. Moreover, additional opportunities for environmental design can be found when they reduce costs of fill, dredging and shoreline structures by maintaining natural physical and ecological features. This approach has also been called "living shorelines" (NOAA, 2015). Combinations of structure and natural features offer efficient solutions by creating habitat as part of a shoreline protection structure and often reduce construction costs.

Specific solutions can be similar to proven mitigation schemes, but they differ radically in their motivation. They are proposed upfront, proactively, as part of the plan because they add value or reduce costs as much as they reduce environmental impacts, even if they may not conform to the usual construction practices. Ultimately, this is not a technological improvement, but a proposed change in attitude and objectives of the organization of the developer (and its technical and design team), which modify the design process and outcomes.

A significant added value to this approach is the improvement of the dynamics of the relationship between applicant and reviewer organizations in the environmental permitting process. In other words, the more the developer and designers are convinced



that an environmental design feature adds value, the better the permitting process will go, by establishing the technical credibility of the proponent's team as well as the common interest in conserving or creating habitat.

The credibility gap that often emerges in some environmental permit review processes can be avoided by an approach that includes environmental design, which clearly demonstrates the intent to seek win-win solutions.

3.3 MARINA SOCIAL SUSTAINABILITY BENEFITS AND CHALLENGES

3.3.1 *Public participation*

Public participation is a key principle of the EIA process. The consideration of public "views and comments in the decision-making process promotes equitable and informed choice, leading toward better and more acceptable social and environmental outcomes" (UNEP, 2004). In order to implement the principles of the EIA process, appropriate provisions should be made so that affected and interested parties are able to comment on a proposal and its impacts. In practice, however, public commenting on coastal tourism and marina projects in Latin America and the Caribbean is rarely achieved as envisioned by these principles.

Most regulatory and enforcement agencies in developing countries arguably cannot handle the public participation process very effectively because of their own limitations and because most developers try to avoid the risks and uncertainties of an open public review. Additionally, the public participation regulations are sometimes used in destructive ways, not to avoid, minimize, and mitigate impacts, but to stop the project under any circumstance, which in turn is used as a justification by developers to limit public participation. Because of these underlying dynamics, the implementation of formal public participation requirements often devolves into conflicts and is rendered ineffective in promoting sustainable development. At the same time, failure to carry out a genuine participation process often leads to the escalation of conflicts.

Effective methods for public participation have been used for some time in some public projects in developed countries and in some developing countries. For example, collaborative planning under the "charrette" format (Lennertz and Lutzenhiser, 2014) has been used very successfully for many years in urban planning in the United States. This methodology creates conditions for stakeholders to participate in planning and design decisions in constructive ways, collaborating in finding effective and balanced solutions. This process is much more profound than only providing input and comment on

proposals, as typically required by regulations. However, the authors are not aware of public participation mechanisms being used in the design of private coastal tourism projects in Latin America or the Caribbean.

3.3.2 *Community inclusion and public participation*

Public involvement can happen in many different ways. As mentioned above, public participation relates specifically to having a voice in the process that leads to the definition of the project. We use the term "community inclusion" in this paper as a project design characteristic that provides access to community members so they can benefit directly (economically, culturally, or otherwise) from it. In the context of this discussion, community inclusion is an attribute of the project design.

Public participation does not necessarily mean that the project will be designed for community inclusion. Local community members may not have direct access to the business activity generated by the project, even if their opinion is voiced. For example, many public input or comments relate to impacts in areas outside the project itself.

Conversely, it is possible to achieve community inclusion (as defined above) with limited public participation. A private developer may choose to allow public access to some project areas, even if that is part of a "closed-door" design process. Moreover, this developer can also give preference to local community members to operate tourism services within the project facilities. For example, a private resort developer may decide to include a public waterfront open space that can be used for tourists, as well as general public from adjacent communities, and such space may host a farmer's market for local producers to sell directly to tourists. This idea is based on sustainable tourism principles, which promote responsible projects that allow communities to gain benefits, enhancing their employment opportunities.

When public participation is profound - as in the public charrettes - it can have significant positive influence on the design. Design ideas with multiple types of benefits may emerge from the collaboration among community stakeholders, project designers, authorities and the project developer. The likelihood of creating spaces in the project that will directly benefit the local community is higher when using collaborative design tools so that an efficient public participation process leads to community economic inclusion. However, this ideal scenario is uncommon in practice and much work needs to be done for solving the main obstacles.



3.3.3 Marina planning for guest experience and social sustainability

A specific approach for the consideration of social sustainability as an objective of marina design has been made by Biondi (2013 and 2014). It proposes that physical planning of a marina is relevant to guest experience and social sustainability.

Memorable guest experiences have a very high economic value and are at the core of the largest and most sophisticated hospitality businesses (Pine and Gilmore, 1999). The physical facility is the stage for these experiences. A planning approach aimed at developing marinas rooted on a deep experiential meaning and authenticity, should create a stage where local community members interact with guests.

From a pure business point of view, the strategy of offering authentic experiences, through interactions with local people, can be framed as the understanding of client needs and expectations, and by itself be justified in economic terms. While the proposed community inclusion in the project may be considered part of a corporate social responsibility strategy, it can also be justified exclusively by the added value and enhanced profitability of the project.

The same conclusion may be reached by a different approach. The direct participation by community members in the business opportunities generated by the project can have a profound positive impact on the local community. Direct access to guests by local businesses can significantly reduce economic leakages. Promoting the authentic value of guest experiences supports cultural and historical preservation. Local participation tends to enhance environmental and landscape protection. Many of these positive impacts have been analyzed and studied in the sustainable tourism literature. For example, they have been used to establish guidelines for eco-lodge design (Mehta et al, 2002). The proposed social sustainability criteria for marina planning (Biondi, 2014) requires creating proper spaces for positive involvement of local community members in the marina project.

While the business case for marina planning may be strong and the benefits to sustainability are apparent, it is recognized that the thorough implementation of an approach to include the local community members faces significant challenges in practice (Biondi, 2014).

The inclusion of local community participants that is both effective as a positive socio-economic impact and as quantifiable additional value to the project, has significant challenges. The implementation of a social sustainability strategy requires a long term commitment, resources and institutional capabilities.

In other words, these challenges can be traced to organizational issues.

3.3.4 Capacity gaps at the individual and local organizational level

In principle, local community members are the best human resources to deliver authentic guest experiences. In practice, these individuals are often not ready to deliver them. Potential opportunities for participation in marina projects are usually very difficult to realize because local companies and individuals are often not prepared to deliver the required quality of services.

In general, basic requirements to achieve the necessary capabilities to offer goods, services, and experiences and are usually not available, include education, training, technical assistance, and financing. Most community based organizations are used to operating in the informal economy and face many barriers to entry in the formal economy. It is very common that a local group that is capable and willing of providing tourism services, does not have the legal structure, accounting support, capacity of obtaining business loans, and possibility of getting insurance, which are required to operate.

Moreover, in many countries, local communities where tourism development occurs also lack other more basic supporting capabilities to perform at a high level, such as basic infrastructure (roads, schools, etc), basic services (clean water, sewage, power, solid waste management, etc), community services (recreation opportunities, public spaces), legal protection for safe working conditions, governance, etc. These support functions, which should be provided by governments, are sometimes partially replaced by private companies and the NGOs that they bring to the area where these tourism projects are developed.

3.3.5 Challenges of private organizations supporting capacity building

Professional experience working for developers in the Caribbean and Latin America suggests that the implementation of social and environmental sustainability objectives by private organizations that develop and operate resorts in general and marinas in particular is very challenging, and often unsuccessful.

Personal observations collected over many years suggests that people from a variety of fields are committed to working along these lines, but face numerous challenges. An informal and incomplete recount of common observations by practitioners involved in working with local communities on behalf of developer/operators, foundations and NGOs include:



- Time - There are always more needs in the community that would require attention than staff availability to address them.
- Money - There are always more projects that require funding than availability.
- Funding struggle - Some key staff of non-profit organizations spend most of their time seeking funding, as opposed to fulfilling their mission.
- Trust - Privately funded organizations working with local communities need to gain their trust before they can enter into an effective collaboration relationship.
- Complexity - Most communities have multiple and interrelated needs and interests, so programs intended to address one issue can easily need expanding into trying to solve other underlying deficiencies.

Many government agencies, non-profit, private organizations, and specialized consultants have experience working with local communities to satisfy the needs outlined above (education, training, financing, technical assistance, business support, etc) and comprehend their interests, including some with the goal of creating successful tourism-oriented commercial operations. These efforts require organization support and strategic focus because they need long timeframes to achieve tangible results.

4 CASE STUDIES

Some developers of coastal tourism projects have successfully implemented programs to address environmental and social issues in the surrounding communities and within their projects. While limited to a relatively small percentage of hospitality companies, and many examples not specifically related to marina projects, they are relevant to typical circumstances encountered in marinas. In some cases, private developers of resort projects have already initiated or proposed social responsibility programs that may be implemented in their marina projects.

This section summarizes cases of private organizations that have implemented social or environmental programs in marina or related resort projects. They illustrate that these type of programs and tools are feasible and can benefit the hospitality business.

4.1 PUNTACANA RESORT & CLUB, DOMINICAN REPUBLIC

Grupo Puntacana (GPC) is a large scale private developer and operator of coastal tourism projects in the Dominican Republic. Over four decades of operation, the company has created two foundations

to address environmental and social issues. In 1988, GPC set aside 1500 acres of lowland dry subtropical forest with freshwater lagoons for conservation and formed the Puntacana Ecological Foundation (FEPC) to run it. In 1998, GPC founded the Puntacana Foundation primarily with social, cultural, and educational objectives that supports a range of social needs through social and community programs in the region such as schools, clinics, and vocational training programs (Uzzo, 2013).

The Environmental Director of GPC, Jake Kheel, reports directly to the board of directors and oversees FEPC. The Ecological Foundation has a basic operational budget funded by the corporation, while most of the educational, research and community programs are supported by specific partnerships, grants, or fundraising. This organizational structure allows efficiency by ensuring the continuity of key staff and facilities that are not tied to third party grants or agreements, but are part of the corporation long term investment strategy.

GPC created the Puntacana Center on Sustainability, which provides physical infrastructure onsite to support research collaboration agreements with universities such as Harvard, Cornell, and University of Miami, among others.

While FEPC has many programs that could benefit the guest experience within a marina setting, none of these programs take place in their marina. A famous restaurant overlooks the marina, but the marina boating facility itself is relatively antiquated and has not been a high priority within the master plan development strategy in the short term.

4.1.1 The PESCA Programs

The Partnership for Ecologically Sustainable Coastal Areas (PESCA) is a long-term collaborative effort with multiple partners spearheaded by the Ecological Foundation to balance the continued growth and development of the region, the long-term health and sustainability of the coastal zone and coral reef, and the needs of local stakeholders. PESCA seeks to achieve integrated coastal management, including water quality monitoring, coral reef and coastal ecosystem protection and restoration, sustainable fisheries management, conservation of endangered species such as sea turtles, and development of alternative livelihoods for local fishermen.

In addition to training and hiring individual local fishermen for a variety of marine environmental programs (coral nurseries, sustainable fisheries, etc), FEPC is undertaking the creation of a cooperative of fishermen. Among other benefits, the legal registration of the cooperative will allow the fishermen to engage in business with third parties, be

eligible for financing, etc. The foundation is working on implementing an organizational structure of the cooperative that recognizes the traditional leadership structure of the community.

4.1.2 Lionfish seafood and crafts

One specific program under PESCA provided training to fishermen to target the invasive lionfish (*Pterois* sp.), which was damaging the ecological balance of the Caribbean coral reef. Creating a market for lionfish had been identified as a viable way to control its rapidly expanding populations. The local fishermen were paid for their catch and the fish was highlighted in the menu of the resort restaurant (Uzzo, 2013; PCEF, 2015).



Figure 1 : Lionfish restaurant presentation (photo by Robert Alvarez, source: PCEF, 2015)

The Foundation also implemented a supplementary program that trained the wives of the fishermen in lionfish taxidermy. Using this technique, the fish is dissected and mounted as a unique souvenir. The animal's fins are also converted into earrings and pendants. The souvenirs are available for sale at the resort and local artisan hand craft shops. Each souvenir includes a tag with a short description of the lionfish, that it was caught by local fishermen, and that it was handcrafted into a souvenir by their family members.



Figure 2 : Lionfish handcraft (photo by E. Biondi)



The LION FISH

• *Pterois volitans* and *Pterois mits* •

Native to the Pacific Ocean, this beautiful but voracious predator was introduced by accident into the Caribbean Sea in the late 1990's. Armored with 13 venomous dorsal spines, it has encountered no natural enemies to control its invasion and now inhabits the water from the eastern United States down to Brazil.

The growing lionfish population throughout the Caribbean is depleting the already stressed native fish and crustacean populations, causing serious damage to the fragile coral reef.

This lion fish was caught by local fishermen and handcrafted into this unique souvenir by their families.

When purchasing this product you are supporting the efforts of the Puntacana Ecological Foundation and the local community in controlling the lion fish population, while providing an alternative income source for the fishermen's families.

Made in the Dominican Republic

To learn more about the Puntacana Ecological Foundation projects visit www.puntacana.org

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Figure 3 : Lionfish handcraft explanation tag (by FEPC)

The combined programs (restaurant signature dish and souvenirs) resulted in multiple benefits due to fishermen income from sustainable fishery, additional income directed to the women in the household, higher volume and steadiness of catch of the exotic fish, and reduction of population of the exotic species in the reef.

4.2 INKATERRA, PERU

Over four decades, Inkaterra has created a model for ecotourism by developing and operating eco-luxury hotels in Cuzco, Machu Picchu, and the Amazon basin. Inkaterra states that it promotes scientific research for the conservation of ecosystems and natural resources, collaborates with local communities, and offers authentic experiences to guest by incorporating the local culture and nature in each of their properties.

Inkaterra Association (ITA) is an NGO through which the company supports research, conservation, education, and social development programs. ITA's ongoing research programs include sponsoring international scientists and local experts to conduct ecosystem studies and biodiversity, flora and fauna inventories. ITA's activities have resulted in the identification of 372 species, the discovery of 8 new species in the Machu Picchu cloud forest, as well as the proposal of a marine reserve in northern Perú.

ITA is actively engaged in partnerships and attracting volunteer work to multiply its capacity. Inkaterra's Chairman Jose Koechlin has put forward a vision of sustainable tourism and established an organization for its implementation, while remaining actively involved in daily operations.

4.2.1 Cabo Blanco fishing community

While Inkaterra is still developing its first property on the Pacific coast, ITA has ongoing major collaboration efforts with the local community in the vicinity of their property. The developer has used its access to government agencies to promote infrastructure projects that will serve the town of Cabo Blanco and the project itself, such as potable water supply, as well as government investment that only benefits the local fishermen, such as improvements to the fishing pier and processing plant.



Figure 4 : Traditional fishing boats in Cabo Blanco anchorage (photo by E. Biondi)

4.2.2 Cabo Blanco sustainable fisheries strategy

ITA was supported by fisheries scientist Dr. Nelson Ehrhardt of the Rosenstiel Institute of Marine and Atmospheric Science at the University of Miami to evaluate fishing practices of the local fishermen community. By involving this expert in fisheries economics, population dynamics, and sportfishing, ITA aims at establishing a series of programs with the local fishermen community that comprehensively address sustainable marine resource management, increased economic benefits for the local fishermen, and opportunities for future tourism-related activities.

Preliminary evaluations identified species that can be targeted and processed to achieve much higher revenue at reduced ecological impact than present practice. In other words, scientifically-based programs will allow traditional fishermen to reduce their capture and increase their income. New fishing and processing practices with tuna, initiated based on preliminary assessments, are already having positive results. While most of the programs will be carried out from the fishing pier and processing plant, some programs considered can be implemented within a marina setting.

In addition to scientific support for improvements of the local traditional fishermen, the collection and analysis of existing research provided key information to Inkaterra regarding the true potential for species with high sportfishing value. This scientific input allows the project's marketing strategy to be based on scientific knowledge regarding expected species presence and abundance.

4.3 PUERTO LOS CABOS, MEXICO

Puerto Los Cabos (PLC) is a large coastal tourism development project in San José del Cabo, Baja California Sur, Mexico. The project, which includes an excavated 500-boat marina, was developed around a small fishing village called La Playita. The master developer, Grupo Questro, has a foundation that is primarily focused on social issues of the communities near their projects, such as education, recreational opportunities, and disaster relief.

4.3.1 Fishermen village

The marina at PLC includes a basin dedicated to the local fishermen, which was agreed with the locals to offset the project impacts (Biondi, 2014). The fishermen village is operated by local fishermen cooperatives, which existed prior to the project and were involved in the pre-development agreements with Questro. The facility was built to very high standards and had to be repaired by the developer after damages caused by hurricane Odile in late 2014.



Figure 5 : Panga dockage at Puerto Los Cabos Fishermen Wharf (photo by E. Biondi)

Fishing charters for tourists operated by the local cooperatives have been very successful, with high levels of satisfaction by visiting sport fishermen reported. However, there are no activities for other resort visitors. While some community activities take place in the fishermen wharf land facility and adjacent plaza built by the developer, there may be still untapped additional economic benefits for the community (Biondi, 2014). While the fishermen village at PLC is by far the most significant investment in community-oriented infrastructure within a resort project known to the authors, it may have not reached the full potential of offering authentic guest experiences and benefiting the local community.

4.4 PLAYA BLANCA BARU, COLOMBIA

Playa Blanca Barú is a coastal development project under planning south of Cartagena, on the Caribbean coast of Colombia. The project development, which includes a marina, is undertaken

by a partnership between the national state and two private corporations.

The development partnership supports an NGO called Corplaya, which is the entity that holds the concession of part of the beach adjacent to the project. Corplaya has developed numerous community and social entrepreneurial programs to support the participation of local community members in the tourism businesses within its beach concession area, and routinely collaborates with other foundations with active social programs in the area.

The developers have planned for a key area of the project near the beach to centrally locate facilities for community businesses, improve the operation of the beach, enhance the environmental conditions of the beach and adjacent lagoons, and provide future protection for the coastal area.

4.4.1 Marina planning

While the marina planning itself is not advanced, significant steps have been taken towards the sustainable design of the marina. The marina conceptual plan has defined two main sustainability objectives: environmental preservation and community inclusion. Early conceptual planning of the marina avoids mangrove impacts, with the exception of a small area for the tourist fishermen village (Figure 6). The village area is intended to create water spaces for marine tours, land based authentic retail, and food and beverage outlets operated by local community members. The developers believe that this will enhance the authentic experience of the project guests.

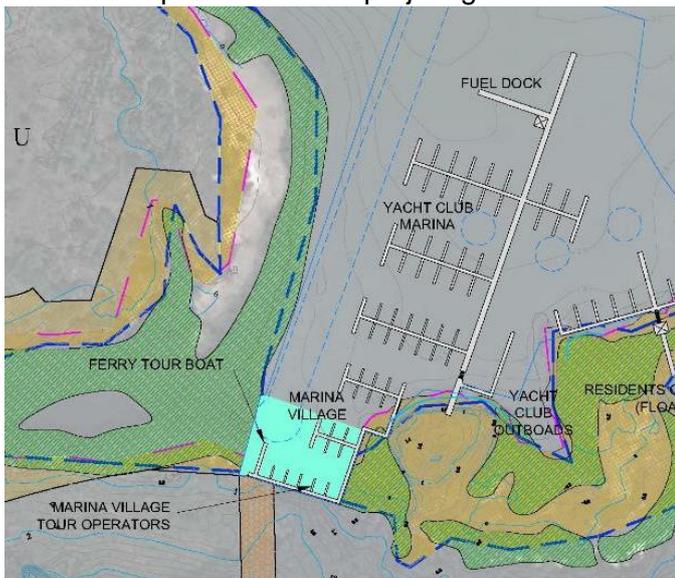


Figure 6 : Concept plan of the proposed marina for Playa Blanca Baru

With Corplaya, the project has in place an organization that has a track record of working with

the local community to improve socio-economic and environmental conditions. The know-how developed by the ongoing collaboration between Corplaya and the local community on the beach area is expected to be transferred to the marina village area as the project development evolves, independently of the entity that may be in charge of the marina program.

4.5 RODNEY BAY MARINA, SAINT LUCIA

Rodney Bay is a well-known marina in the Eastern Caribbean. Formerly recognized as a major facility for sailboats, it has been redeveloped to include megayacht facilities. The marina is part of the largest international network of luxury marinas, with a large footprint in the Caribbean.

4.5.1 Marina farmers market

The marina partnered with the Ministry of Agriculture to offer local farmers direct access to marina guests at “The Farmers Market at Rodney Bay”. This was an initiative of the local management, who identified the opportunity through their local informal communication channels, and obtained the agreement from the government and facility ownership.



Figure 7 : Farmers Market at Rodney Bay (photo provided by Adam Foster)

When the program started it had about 20 different vendors who traveled from some of the poorest parts of the country to sell their goods. Not only did it encourage marina clients to purchase direct from the farmers, but it also encouraged residents around the facility to visit the marina for their weekly fruit and vegetable shop. Other businesses inside the marina benefited due to the extra foot traffic through the facility. The previous general manager Adam Foster and marketing director Portia Mogal, who envisioned and implemented this program, provided this information when asked about the community activities that they set up in the marina.



4.6 CORONAS DEL MAR, EL SALVADOR

Coronas del Mar is a tourism and residential coastal development project in El Salvador. The project, which envisions a marina, is in planning stages.

Analysis led by the developer Marco Guirola as part of the early planning of the project included a detailed evaluation of social, economic, and demographic conditions of the community in the area. Early assessment identified that tourism development projects create significant pressures on property values in the vicinity, which tend to displace local inhabitants. The awareness that the local community lacked basic infrastructure, prompted the developer to include community improvements as part of the project to foster long-term positive relationships with the community. Pre-design efforts were aimed at mapping environmental resources and identifying ecological functions.

With limited resources to implement specific social or environmental programs and significant personal time commitment, the developer has already implemented a small scale sea-to-table program.

4.6.1 Marina planning

Within the project, the developer conceived an area dedicated specifically to the local fishermen, and provided direction to his team of consultants and architects to implement his vision. He created program requirements so that specific infrastructure and equipment can support the inclusion of the local community in the project business.

4.6.2 Sea-to-table

The sea-to-table program was conceived working with the local fishermen community and implemented years before any project infrastructure will be in place (Biondi, 2013). The program allows the restaurant at the Crowne Plaza in San Salvador to offer a branded "catch of the day" and the local fishermen significantly improve the terms under which they sell their production.

The developer got the support of the restaurant chef, who trained the fishermen and their wives to target a specific type of fish and prepare it for transportation. The developer provided the equipment and logistic support for transportation to the city restaurant. This small-scale program illustrates that limited initiatives can be implemented to start positive processes that strengthen relationships with the local community by offering better economic opportunities.

4.7 LESSONS

The examples reviewed suggest that a personal commitment by the leaders of an organization is a

pre-requisite to achieve sustainability goals. Dynamic creativity and personal commitment by top leaders have been an underlying force in some of these cases. Vision by leaders is a driver to include environmental and social sustainability elements in their marina projects.

However, this individual commitment is not sufficient to provide continuity and sufficient attention to the implementation of long-term programs, especially social programs intended to include community members in the project activities. Organizations that have shown continuity and innovation in their programs have in common the availability of staff (a single leader or a comprehensive team) dedicated exclusively to developing, validating, and implementing specific environmental and community activities. A common thread in many interviews is that successful programs have emerged from trial and error approaches, which require focus, time, and continuity.

It appears that foundations set up by development companies are effective tools to provide seed funding to set up a platform for a range of activities, attract researchers to provide technical support, have resources to transfer scientific findings into practical recommendations, develop test programs, innovate based on failures, and offer continuity to the personal relationship with local communities. FEPC and ITA have benefited from long term relationships with universities, but the key to success appears to be working with the local communities for many years.

All projects surveyed that use foundations or NGOs to implement their programs have their own project or developer-specific entities. Having an organization working with the community on a long term basis, as opposed to using the services of third party non-profits, is also recommended by others (Perazzo, 2015).

It is also recognized that significant achievements have been the result of short-term goals and opportunistic agreements driven by local facility managers (Rodney Bay). Providing freedom to and rewarding sustainability initiatives by local staff has also been reported to be a powerful tool used by hotel brands (Pinabell, 2015). As long as organizations have a culture of allowing bottom-up creativity, they may evolve into adopting social and environmental sustainable practices by organic evolution driven by cumulative impacts of a range of grass-roots activities.

Short-term small informal efforts have produced some notable programs that can be compared to some of the individual programs of large foundations



that have been operating for decades. This suggests that arrangements based on identifying opportunities within a broad vision and in collaboration with other local efforts, may lead to successful programs, even with limited support and resources.

Physical marina planning is necessary but not sufficient for marina sustainability. Some of the successful programs reviewed do not directly impact the marina operation because they do not have a space in the marina (GPC). Conversely, a very functional and dedicated space in the marina does not guarantee the spontaneous development of mechanisms that benefit the local community and enhance guest experience (PLC).

While many of the behavioral patterns are similar across the organizations surveyed (personal commitment of leaders, dedicated staff, continuity working with the local community, etc), few individual programs are the same. However, many of these programs could be implemented or adapted by other organizations in a variety of locations. Since all organizations interviewed are willing to share their experiences, a venue for sharing experiences could prove beneficial.

5 CONCLUSIONS AND RECOMMENDATIONS

5.1 CONCLUSIONS AND GENERAL RECOMMENDATIONS

Private marina developers and operators should attain a deeper awareness of the institutional and organizational needs during the whole process of marina development that can lead to enhancement of the project value by offering authentic, environmentally sensible, and culturally rich guest experiences.

Experience by private organizations that excel in the hospitality business suggests that marina developers should have dedicated staff to focus on environmental and social issues. These efforts are different from, and go beyond regulatory compliance and public relations.

An attitude to systematically and proactively develop and implement social and environmental programs that improve guest experience will enhance project value and prevent environmental damage and social conflicts.

Specific programs relevant to marinas have been implemented with positive results and remarkable achievements. In particular, this paper summarizes successful programs that have been implemented in marinas or targeting fishing communities with encouraging successes.

Regulatory agencies responsible for enforcement of environmental laws should encourage proactive environmental design methodologies, and recognize

positive contributions of developers that use such an approach.

Whenever baseline environmental data or mapping efforts are generated for government projects, they should be made available for free to private developers that undertake environmental impact studies in those areas.

Governments also need to make a strong commitment to coastal sustainable development, articulated through a strategic vision for the whole coast. Local level objectives that take into account the environment (natural and socioeconomic) and are anchored in legislation and institutional framework need to translate this into specific goals and priorities.

Governments should support and encourage grass-roots efforts by local management of hospitality projects, NGOs and foundations, community organizations, and cooperatives. Removing regulatory hurdles that discourage achievement of government goals should be a first priority. They should also allow bottom-up innovations by government staff (proven extremely beneficial in private organizations) and provide ample flexibility for government program managers to partner with private organizations in specific programs.

5.2 SPECIFIC RECOMMENDATIONS FOR DEVELOPERS

General guidelines based on good practices that can be used by marina developers and operators to support their sustainability goals include the following:

- A leader (owner, partner, or founder) with vision can provide direction for sustainable design, including approaches such as proactive environmental design and social sustainability criteria to enhance guest experience, and provide direct benefits to the local community.
- Even if there is a very active leader, additional staff dedicated exclusively to environmental or community programs is required.
- Staff dedicated to social or environmental sustainability (one person or one organization depending on circumstances, project size, and development stage) should have autonomy to engage in long term community relations, explore means to better understand their needs, and propose realistic programs. They should also have direct access to the highest levels of decision-making within the organization through formal (and informal) channels.
- Staff dedicated to social or environmental sustainability should lead the implementation of programs, have freedom to test gradual



approaches, and adjust as needed based on feedback and partial results.

- The organization should promote and nurture a widespread culture that recognizes the value of guest experiences that are authentic, personal, profound, and therefore memorable.
- Continuity of staff on the ground is considered critical, both for establishing and nurturing relationships with the local community, and to test and adapt environmental programs.
- In larger organizations, allow individual initiatives for small scale partnerships and testing local programs.
- Sustainability programs can be implemented through a foundation or NGO with well defined, limited financial funding by the development corporation that supports basic financial needs and allows to leverage long term resources with grants and project specific funding and technical teams.

These recommendations are expected to improve sustainability of the marina projects that they develop or operate, as well as increase the value of those projects.

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6.1 DISCLOSURE

The contributions of this paper by Esteban L. Biondi are the result of his independent research. His analysis, assessments, opinions, and recommendations included in this paper are personal. None of the contents of this paper represent the position of Applied Technology & Management, Inc.

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