Sustainability **2014**, *6*, 2929-2945; doi:10.3390/su6052929

OPEN ACCESS

sustainability

ISSN 2071-1050

www.mdpi.com/journal/sustainability

Article

Local Sustainability and Cooperation Actions in the Mediterranean Region

Tiberio Daddi [1,*], Stefano Vaglio [2,3] and Massimo Battaglia [1]

[1] Sant'Anna School of Advanced Studies, Institute of Management, Piazza Martiri della Libertà 33, 56127 Pisa, Italy; E-Mail: massimo.battaglia@sssup.it

[2] Laboratory of Anthropology, Department of Biology, University of Florence, Florence 50100, Italy; E-Mail: stefano.vaglio@durham.ac.uk

[3] Department of Anthropology, Durham University, Durham DH1 3LE, UK

* Author to whom correspondence should be addressed; E-Mail: t.daddi@sssup.it; Tel.: +39-050-883-971; Fax: +39-050-883-936.

Received: 11 February 2014; in revised form: 10 April 2014 / Accepted: 4 May 2014 / Published: 14 May 2014

Abstract: The populations of the Middle East and Africa are increasing rapidly, contributing to rapid urban growth. This paper describes a two-year action research process involving diverse public, private, and community stakeholders. The actions aimed to develop and strengthen the capabilities of three Mediterranean cities (Marrakech, Morocco; Sin el Fil, Lebanon; and Bodrum, Turkey) in managing and promoting local sustainable development. The needs and priorities of each Mediterranean partner were identified and pilot actions were elaborated to promote urban sustainability, the exploitation of local resources, and the enhancement of local tangible and intangible assets. The paper describes the outputs of pilot actions carried out in these cities, highlighting how these experiences contribute to the current debate on urban sustainability. Broad implications for policy and practice are discussed.

Keywords: sustainable development; urban sustainability; local cooperation; Mediterranean Basin region

---

1. Introduction

The Mediterranean is the largest European sea, shared by 460 million people living in 22 countries and territories and visited by an additional 275 million people annually. According to the 2009 United

Nations Environmental Program Plan Bleu [1], the shores of the Mediterranean Basin account for 5.7% of Earth's land mass, 7% of its population, and 12% of the global gross domestic product (GDP). Despite its richness, the Mediterranean region is one of the most vulnerable environments in the world, containing 60% of the world's "water-poor" population and producing 8% of global carbon dioxide emissions. Sustainable development is thus a global objective for Mediterranean countries [2].

The Mediterranean Basin has undergone dramatic alterations due to rapid changes in demographic trends, with currently prevailing socioeconomic conditions favoring greater consumption of natural resources, but also due to new technologies, including those related to transportation (e.g., new roads, ship types, and harbors), in its coastal regions [3]. Increasing waste production and pollution are closely related to a conspicuous loss of biodiversity [4]. The environmental pressures of aquaculture and reduction of the fish stock are challenges in the whole Mediterranean Basin region [5]. The need for a greater commitment to the reduction of inequalities and assistance with the development of poor countries has been emphasized, and such commitment is expected at the global level [6–8]. Moreover, the need to change unsustainable production and consumption patterns to allow for sustainable protection and management of natural resources, the safeguarding of health, and integration of the objective of sustainable development more effectively into the process of globalization has been recognized [9,10].

As the Mediterranean environment frequently forms the basis for local development, the counteraction and minimization of potential environmental degradation processes, which have already incurred very high economic and social costs, are important. Many Mediterranean countries, mostly those in the southern and eastern portions of this region, can plan and manage sustainable development. The potential increase in environmental pressures on Mediterranean coastal regions in the next 20 years is considerable, particularly in the tourism sector, which is expected to lead to increased transport requirements and costs as well as urban development and sprawl and energy infrastructure needs [11]. The continued spread of unsustainable production and consumption patterns is likely to dramatically increase environmental costs, which already account for 3%–5% of GDP of Mediterranean Countries [12]. The environment should not be considered an additional constraint, but rather a driving force, an asset, and an incentive to improve local developmental patterns [13]. The Food and Agriculture Organization of the UN (FAO) has released a report, titled "State of Mediterranean Forests 2013", which details the social and environmental changes affecting forests in the Mediterranean region, as well as the contributions that forests make to agriculture, water, energy, tourism and other economic sectors [14]. The report pays special attention to the vulnerability of Mediterranean forests (included urban and peri-urban forestry) to global changes such as climate change, as well as to changes in regional demographics and lifestyles. The publication highlights for instance, the relationships between the depopulation of some areas and increased forest fires; and population growth in other areas and increased deforestation.

Mediterranean people are more and more aware of the threats to their environment and their unique natural and cultural heritage, as evidenced by the large number of policies adopted in almost all Mediterranean countries that provide specific solutions to these problems [15]. Most Mediterranean economies, which have been insufficiently dynamic in the last 20–30 years compared with those in other regions of the world, are currently experiencing critical levels (8%–25%) of unemployment. Poverty is closely related to the employment situation, as well as to changes that have marginalized

some portions of society, such as very rapid transformation of the craft and rural sectors. Social issues are also a major concern, particularly in southern and eastern Mediterranean countries, which remain behind in literacy and gender equality despite having made some progress. Although little extreme poverty exists, and is present mostly in rural areas, poverty remains a dominant problem in many countries in this region. This situation is aggravated by the inequitable distribution of wealth. The populations of many southern and eastern Mediterranean countries also suffer from insufficient access to safe drinking water and public health services. The pattern of economic growth in the Mediterranean Partner Countries increasingly relies on the ability of industrial sectors to face the competitive challenges of European Union (EU) markets by complying with increasingly high quality standards and performance requirements. On one hand, this requirement is curbing the occurrence of the phenomenon known as the Kuznets curve, which explains how a country's increased production and economic output can lead to a corresponding increase in polluting emissions and resource consumption, especially in the early phases of industrial development. In this context, industrial growth is considered to negatively impact the environment. On the other hand, to achieve full integration into the economies of developed countries and access to the EU market while creating or maintaining socially acceptable conditions, the industrial production of Mediterranean countries and the products they offer must increasingly comply not only with performance and quality standards, but also with environmental quality requirements.

The challenge of globalization requires widespread regional cooperation, political stability, efficient governance, and social protection [16]. Mediterranean countries' fulfillment of these conditions has been very asymmetrical. European Mediterranean countries are facing the challenges of globalization with strong support from the EU, whereas southern and eastern Mediterranean countries do not currently benefit from such dynamic regional cooperation. The Euro-Mediterranean Partnership, established in 1995, continues to lack a collective vision for sustainable development and the required resources and commitment [17]. This situation is closely related to inadequate levels of north–south and south–south cooperation and to continuing conflicts, especially in the Near East, although some long-term political solutions appear to be emerging. In view of the slow spread of democracy, governance is weak and much-needed political and structural reforms, particularly those aiming to improve human rights and gender mainstreaming, are not being adopted rapidly enough. Failure to quickly implement such reforms will result in growing instability due to differences between the two Mediterranean coasts and may accentuate existing levels of social and economic asymmetry. A possible alternative approach to optimizing the positive effects of globalization is to maximize complementarities and opportunities between the northern and southern Mediterranean in the context of joint and differentiated processes of sustainable development. The European Neighborhood Policy (ENP) may provide an appropriate path for such efforts [18–20]. This policy seeks to strengthen political cooperation and economic integration between the EU and its immediate neighbors, and to promote and support better governance and reform in Mediterranean countries. Through mutually agreed-upon action plans and cooperation projects, the EU and its ENP partners will address issues of common interest and devise measures beneficial to economic growth and social cohesion, raising quality of life standards and protecting the environment, thereby contributing to the long-term goal of sustainable development in the Mediterranean region [21].

The Vision of Sustainability in Middle-Eastern and North-African Cities: The Research Context

The populations of the Middle East and Africa are growing rapidly, leading to increased demand for infrastructure and social amenities (e.g., water, sanitation, hygiene, schools, recreational facilities, housing, land for development, security, and food). The appropriate mobilization of resources to meet the demands of these rapidly exploding population poses a challenge. Experience from advanced industrial countries has shown that cities and other human settlements can contribute significantly to social, economic, and environmental sustainability. However, efficient management of the rapid growth of urban centers and their slums, and the translation of cities into assets for sustainable development, pose challenges.

Urban scaling of the issue of sustainability simultaneously represents an opportunity, a necessity, and a challenge. It is an opportunity on the scientific level because the city—a single comprehensive articulation of public space where dynamic economic, social, and environmental relationships are concentrated—represents an ideal laboratory in which to observe the three dimensions of sustainability in an integrated manner. It is a necessity because development cannot be planned feasibly without taking into account urban settings, in which more than 50% of the global population lives. It is a challenge because cities, as places with the highest levels of human activity, are "by definition" unsustainable [22].

The majority of approaches to urban sustainability are "unidisciplinary", in that they define criteria and development models from the perspectives of specific disciplines. In general, such approaches are characterized by one-dimensional views of urban development, which is analyzed using interpretative (and sometimes competing) models based on only one of the three aspects of sustainability (environmental, economic, or social). "Ecocentric" visions dominated the first part of the debate on sustainability in general and corresponding solutions on an urban scale. Pickett *et al.* [23] distinguished between approaches that study the ecosystem in the city [24] and those that study the city as an ecosystem [25,26]. More recent social matrix approaches have investigated urban sustainability using variables such as social capital, social cohesion, and fair distribution [27,28].

Other studies of urban sustainability have adopted transdisciplinary approaches that aim to integrate scientific, political-strategic, and local knowledge [29,30]. Transdisciplinarity is characterized by elements such as attention to the "problems of everyday life" [31], collaboration between experts and researchers from different disciplines, and open confrontation between these academics and political and social actors [32]. This concept is founded epistemologically in the principles of "new science", which conveys the idea of an imperfect science forced to interact and engage with non-codified knowledge to find solutions to real problems that are no longer exclusively entrusted to it [33].

Many African and Middle-Eastern cities are beginning to adopt the ideals, principles, and norms of good urban governance [34,35]. The Global Campaign will also promote security of tenure and improvement of the living standards of the poor by providing them with affordable housing, employment, and sustainable livelihoods. Many African countries have mainstreamed sustainable urbanization into their policies, introducing programs and projects that provide basic urban services (e.g., water and sanitation) upgrade slums, implement prevention of pollution efforts, and guide the development of social housing.

Cities and towns are critical engines of rural economic transformation. They are centers of innovation and provide formal and informal markets for rural products, as well as market information for agricultural production. Their sustainable growth and development should thus be factored into economic policies and strategies.

The management capacity of local actors, especially municipalities, for effective and sustainable governance is very low. The human, financial, and technological resources needed for municipal management have been lacking, unpredictable, and unreliable. If this capacity is not improved, sustainable development cannot occur at the local level, which in turn prevents such development at the national level [36].

Within this framework, this paper aims to contribute to the debate in the literature about sustainability in southern and eastern Mediterranean countries by reporting actual sustainable experiences in three cities: Sin el Fil (Lebanon), Marrakech (Morocco), and Bodrum (Turkey). Innovative initiatives of the European Building Effective Partnerships among European and Mediterranean Municipalities for Local Economic Development Promotion (PAMLED) project are analyzed and related to the pillars of sustainability: economic and social development (experience in Sin el Fil), sustainable development (experiences in Marrakech and Bodrum), and cultural heritage (experience in Bodrum).

2. Methods

This study represents qualitative research, as it utilizes techniques and methods which are both qualitative. With respect to the nature of work, the study can be classified as action research, which uses bibliographic and field research as procedural techniques.

The concept of action research originated primarily in the work of Kurt Lewin in the mid-1940s [37,38] and aims both to take action and to create knowledge or theory about that action. According to Adams and McNicholas [39], action research has some broad characteristics that define it and distinguish it from case study research, and interviews and/or observation. Action research is based on a cyclical, four-step process. Initially an exploratory stance is adopted, where an understanding of a problem is developed and plans are made for some form of interventional strategy (the reconnaissance and general plan). Subsequently, the intervention is carried out (the action phase) and during and around the time of the intervention, pertinent observations are collected in various forms (monitoring the implementation by observation). Finally, the new, interventional strategies are carried out, and the cyclic process repeats, continuing until a sufficient understanding of (or implementable solution for) the problem is achieved (reflection and revision). Action research is a participative process, members of the investigated institutions and organizations participate actively in the investigation analysis, working with the research team so that the issue/s may be resolved or the system improved [40].

In the literature on sustainability, the action research has been considered an incisive research methodology for understanding how an organization or an institution manage, measure and communicate its orientation to sustainability issues [41]. To this end, pursuing research where researchers can be actually engaged in the management of sustainability issues has been recognized as an important way to advance the knowledge on the topic [42].

The action research project described in this article, was carried out from 2006 to 2009, through an international partnerships and in the framework of a project co-financed by the European Commission as part of the Med-Pact Program.

3. Overview of the Research Experiences

Given the wide range of (frequently critical) sociopolitical, economic, and environmental assets in the Mediterranean Basin, many cooperation projects have been developed by research institutions to support the development of Mediterranean countries, with specific attention to natural and cultural enhancement, economic promotion, and local sustainable development. In this general framework, the PAMLED project was conceived in 2006 by the Municipality of Prato leader of the project.

Taking into account the peculiarities of partner countries involved, the PAMLED project aimed to develop and strengthen the capability of three Mediterranean partners by managing and promoting local development in the city of Marrakech (Morocco) and the municipalities of Sin el Fil (Lebanon) and Bodrum (Turkey) (see Figure 1). The project also sought to implement innovative ways to meet these centers' problems and issues in different action fields. The strengthening of the Mediterranean partners' capabilities was based on "collective learning" through the development of lasting partnerships with five European centers (the municipalities of Prato, Lucca, Rio Marina [Italy] and Brtonigla [Croatia], and the city of Skopje [Republic of Macedonia]), and the recognition and exchange of the most significant experiences and expertise that the European partners had gained in particular fields. The needs and priorities of each Mediterranean partner were identified, and specific pilot actions were elaborated to contribute to sustainable development and exploitation of local resources. The proactive involvement of local citizens and civil society played an important role in pilot project implementation, adding value to the entire project. Special care was taken to promote environmental protection and the enhancement of local tangible (e.g., environment, cultural heritage, economic potentialities) and intangible (e.g., culture, traditions) assets.

Figure 1. Mediterranean cities involved in sustainability actions.

In the following sections, we describe the actions developed and implemented by the three Mediterranean partners, and the main results of these efforts. The fields of action were identified in

consultation with stakeholders, including main actors in the three cities. The action plans were validated before implementation using a participatory approach that involved representatives of the local authorities and all other potential stakeholders and actors in each territory.

3.1. Youth Developments Strategy in Sin el Fi (Lebanon)

With the 1989 Taif Agreement—which marked the end of the 20-year civil war in Lebanon—reform to facilitate the decentralization of administrative competencies toward the municipal levels of government was envisaged as a necessary step to support the country's return to normalization. Such decentralization was considered important to allow wider participation, empower local authorities, and enhance their capabilities to manage territories and reach citizens more autonomously. Unfortunately, this type of administrative reform has not yet been implemented, despite various law proposals and pressure from national and international stakeholders. The central government continues to serve functions typically granted to local authorities, resulting in dysfunctional distribution and management of financial and economic resources and the overlapping of competences among the various levels of government. Centralized politico-technical decision making compromises the responsibility and legitimacy of local administrators and creates in citizens a sense of detachment from their municipalities, which are not considered to be the main sources of services and needs, but rather to be mere "tax collectors" and sources of incomprehensible bureaucratic procedures. As emphasized by Lebanon's Office of State for Administrative Reform [43], the lack of professionals and skilled civil servants is a main obstacle to administrative reform, despite the high demand for decentralization to meet the needs of all citizens.

The municipality of Sin el Fil, located in the metropolitan area of Beirut, is an exception to this scenario. The PAMLED pilot project in this center demonstrates the feasibility of implementing administrative and strategic reforms to proactively work for the well-being of the community. In the course of PAMLED research, partners representing this municipality focused on reviewing its economic potentiality, working strategically to support the growth of specific economic categories and developing economic plans. This approach aimed to enable the municipality to respond to citizens' priorities and shape its role as an authority directly responsible to the community.

The municipality intended to develop a mid–long-term urban social strategy in response to the need for sound economic development policies addressed to the young population. With support from the PAMLED partnership, Sin el Fil partners defined a pilot project in the field of economic development and a strategic plan focusing on entrepreneurship among youth to reduce the "brain drain" currently affecting this municipality and to provide the basis for future comprehensive strategic planning focused on municipal socioeconomic development. The plan was based on experiences with similar youth action plans in Prato (since 2006), Skopje, and Brtonigla (both in 2000), although the administrative elements of these projects differed according to the sociopolitical and historical backgrounds of these areas. Using the city-to-city partnership approach of PAMLED actions, the technical staff of Prato and Skopje assisted Sin el Fil in setting up the pilot project. The municipality of Sin el Fil implemented the initial steps of this multidirectional strategy targeting young potential entrepreneurs with a development plan and an ad hoc business opportunity plan comprising three fields of action: socioeconomic analysis in Sin el Fil Baldeh (one of the municipality's four suburbs),

a local youth development plan, and a youth business plan involving open competition to provide the best business ideas.

The city-to-city approach offered good practices for the dissemination of intervention models that provide resources, support, and opportunities in employment and education; and help youth identify their skills, prepare for job interviews, and enter the job market. The importance of communication about the action and dissemination of information about the competition at the local level was emphasized. Municipal actors organized and held meetings at universities and high schools to motivate students to participate. Such actions are particularly important in the context of the great need to bring together local communities and administrators. The action involved 2800 households and 1200 business stakeholders, who were interviewed and monitored; 50–60 young people and municipal citizens' associations; the University of Lebanon; and many officers of the municipality of Sin el Fil.

The action achieved several results. First, the city of Sin el Fil achieved a strong level of participation and was able to involve and mobilize the community and various stakeholders (e.g., youth, local entrepreneurs), as well as gaining deep knowledge of the priorities and needs of the population. The understanding of their role and the positive attitude toward the project also resulted in the decision to cofinance the project with municipal funds, although this was not a requirement of the project. Second, great efforts were made to "bridge the gap" between the local community and administration, and to ensure that all citizens were involved in and benefitted from the project. However, a different manner of communication should be utilized for future initiatives, as citizens do not expect this kind of approach from their municipality. In addition, the action attracted the interest of the central government and sensitized it to the municipality's success in reaching its citizens to reinforce institutional aspects and guarantee sustainability; the central government recognized the eventual possibility of replicating this kind of project in other parts of the country. Finally, socioeconomic mapping of the suburb of Baldeh achieved positive results, with 60% of households responding to questionnaires drafted by the municipality in cooperation with sociologists and social workers, despite citizens' skepticism and frequent reluctance to answer questions asked openly by municipal officers, as the last population census was taken in Lebanon in 1932.

Sin el Fil's municipal officers developed a strong capacity to strategically consider the community's economic potentiality and social needs and to plan for the medium/long term, rather than coping with the management of municipal problems through "spot actions." The actors involved in project management acquired new skills, experiencing a new way of working for the local community and conceiving of their roles in coordinating efforts internally and promoting them externally in a comprehensive manner.

In the framework of urban sustainability, the experience of this action in Sin el Fil can be linked with studies of the relationship between sustainable development and the capacities of urban centers' "human resources" (citizens). It helps to demonstrate how economic development can be boosted through a specific youth development strategy. It confirms that the enhancement of entrepreneurship capacity can play a key role in the development of the urban contest, and that such efforts are effective only when they involve a large number of local stakeholders (e.g., enterprises, businesspeople, universities).

3.2. Improving Domestic Water Consumption: A Local Sustainability Imperative in Marrakech (Morocco)

The urban district of Marrakech, with an area of 190.42 km^2 and a population of 877,500 inhabitants in 2003, is a decentralized territorial entity with legal status and financial autonomy in the Marrakech-Tensift-Al Haouz region of Morocco. The city of Marrakech has managed by a single municipal government since the Municipal Charter of 1976, and the municipal district was unified until 1992; between 1992 and 2002, the city was composed of five urban districts: the municipalities of Guéliz Menara, Medina, Méchouar Kashba, Ennakhil, Sidi Youssef Ben Ali.

In June 2007, the city of Marrakech obtained ISO 14001:04 environmental certification through an international project funded by the European Commission under the Marrakemas LIFE-Third Country Program [44]. It was the first city in Africa and the Arab world to receive an Environmental Management Standard certificate from an accredited third-party organization.

According to local and national policies and in light of the results obtained during previous stages of the PAMLED project, a pilot project entitled "Development plan of environmental communication to sensitize citizens and carrying out of a sample of actions envisaged by the plan in the district of Guéliz of Marrakech" was drafted and implemented. The main targets of the proposed pilot action were to contribute to the environmental education of the population with respect to the sustainable and rational use of water (e.g., reducing water losses in the public and private spheres, development of processes to control water consumption) by carrying out a public awareness campaign, and to promote eco-sustainable tourism by encouraging the use of sustainable resources (particularly water). These targets were in line with the need to spread a new culture of respect for the environment and sustainable use of resources. The pilot actions were implemented in the Marrakech suburb of Guéliz, chosen on the basis of the results of a 2007–2008 analytical study carried out by the city's administration in association with a local institute of technical expertise (Energy Concept SARL). The pilot actions were specifically addressed to the suburb's citizens, main public service companies, and local actors with important roles in the most characteristic and water management–impacting sectors (owners of riads, guesthouses, and Moorish baths; schools; those involved in handicraft trades; the RADEEMA—Régie Autonome de. Distribustion d'Eau et d'Electricité de Marrakech; district associations for environmental protection). The implementation of this pilot project was supported by a partnership with the city of Lucca (Italy), which had experience in sustainable resource use and traditional environmental engagement, and had partnered with Marrakech in the environmental certification process. The renewed partnership with Lucca can be viewed as a way to ensure and reinforce continuity by controlling the most important environmental aspects at the municipal and city levels.

The pilot project achieved several results, including the acquisition of better knowledge about water consumption in general and in sectors with higher impact in particular, and the identification of specific measures and actions for sustainable water management. These results were obtained by distributing questionnaires and implementing systems to monitor and measure water consumption. These devices allowed regulation of the flow of undeclared wells near the water basin. The implementation of an efficiency awareness campaign as part of the pilot project, which involved public information booths, posters, and door-to-door leaflet distribution, also increased citizens' and stakeholders' awareness and perceptions of the water problem. It also served to mobilize some local actors to address this problem. Long-term results will include the reduction of water costs and

extension of this water management model to the whole urban center and other areas. These achieved results allowed to address the problems related to the citizens water use awareness identified as one of the most important objective for the improvement of water consumption.

This experience in Marrakech is related to the topic of urban environmental sustainability, particularly the importance of citizens' awareness in reducing the environmental impacts of a city. It contributes to the debate in the literature by confirming that—as in Western countries—the need for an "upgrade" of citizens' awareness of an issue such as water consumption remains challenging [45], but also offers the potential to better manage the problem; in this case, the availability of potable water.

3.3. Urban Sustainability in Bodrum (Turkey)

The Municipality of Bodrum aimed to improve the sustainability of the tourism by decreasing its urban impact. On this purpose two pilot projects were planned: (i) to establish the habit of waste separation in households and workplace employees in the marina and to improve the efficient use of water resources and prevent the unnecessary water consumption in hotels and restaurants as well; (ii) to improve the development of cultural tourism through the valorisation of Cultural Heritage by experiences and practices of promotion and management of archaeological sites within the old town and close to the marina.

These two experiences with waste management and cultural heritage actions in Bodrum are linked to the transdisciplinary approach to urban sustainability. They confirm the findings of previous research by highlighting that the substantial involvement of local stakeholders and combined application of scientific, political, and social knowledge can be effective paths to achieving urban sustainability.

3.3.1. Urban Waste Management in Bodrum (Turkey)

Bodrum is a district and a port city in Muğla Province, in the southwestern Aegean Region of Turkey. It is located on the southern coast of Bodrum Peninsula, at a point that checks the entry into the Gulf of Gökova, and is also the center of the eponymous district. The city was called Halicarnassus of Caria in ancient times and was famous for housing the Mausoleum of Mausolus, one of the Seven Wonders of the Ancient World. Bodrum Castle, built by the Knights Hospitaller in the 15th century, overlooks the harbor and the marina. The castle grounds include a Museum of Underwater Archaeology and hosts several cultural festivals throughout the year

The city had a population of 136,317 in 2012. Bodrum has an active tourist economy. The town has over 100 plus restaurants and one of the largest marinas in the Aegean containing docking facilities for 500 boats. It is a city with a seasonal tourism peak. A main challenge in such areas is the management of urban waste, as established infrastructures are often proportional to the permanent population, with no consideration of tourists [46–48].

The target area of the action was first defined between the marina and castle, and the decision to draft an emergency action plan was made. The selected area was considered to be suitable for information and awareness campaigns because the local population uses it intensively, allowing for the achievement of high-impact results with the use of visual informative materials. The area was visited by the PAMLED team to quantitatively determine the number of users, waste collection

potential resulting from users' waste production, and numbers of bins, containers, depots, and collection bags available.

Then, a decision was made to determine—in cooperation with the municipal waste collection company—the costs and required quantities of specially designed bins adhering to ease-of-use and city safety rules for the collection of waste vegetable oil in the target area, which contains numerous restaurants and hosts daily boat tours. Waste collectors were involved in decision making through regular meetings with the municipality's technical team.

Although waste differentiation and collection at the source are mandated by the Turkish Regulation on the Control of Packaging Waste, people do not habitually comply with these practices. Thus, it was decided to add a statement about penal provisions in case of violation of the rules and regulations, with clear statement of the applicable article of law, to all brochures and fliers distributed to boats and residences.

The actions aimed to achieve the following objectives:

- Drafting of a local awareness plan of action for solid waste, recycling, and pollution;
- Establishment of a trend of active participation by local stakeholders in the implementation of pilot project activities; and
- Contribution to the acceleration of recyclable materials collection, which had been initiated throughout Bodrum.

Diverse activities and approaches were used to achieve these objectives, including educational and awareness efforts through local mass media (radio, television, newspapers) and communication channels such as billboards, warning signs, and bulk mobile text and e-mail messages; the creation and distribution of brochures containing specific information and warnings about violations; informative campaigns targeting residences, restaurants and boats; and on-site visits to monitor the progress and developments of the tasks of the pilot project.

To promote good practices through the PAMLED city-to-city partnership approach, representatives and technical experts from the municipalities of Bodrum and Lucca visited one another's municipalities in 2008 and 2009. Then press conferences were held to develop awareness in the community about solid waste collection.

The pilot project provided good input for Bodrum's Environment Department, created in 2005. Other than some spot actions, this department had not previously had the opportunity to fully implement a recycling policy; the city contained only a few recycling bins, and no campaign supporting their efficient use had been possible. The project's actions focused on the proper dissemination of recycling bins and information/awareness about their use.

The municipal staff was directly involved in the campaigns, increasing local people's recognition of these officials and enabling them to ask for help when needed. The Cleaning Department staff was directly involved in awareness meetings, allowing direct contact with the community and the municipal staff. Furthermore, a telephone number was highlighted on the campaign poster for people to call when necessary (e.g., when bins are full).

Beyond the provision of bins and other materials for waste disposal, the most important element of the pilot project was increased community awareness. The municipal staff explained how the recycling

system was implemented to the citizens involved to facilitate its use. The campaigns were implemented along the marina and in schools.

The experience has allowed to achieve important results in the urban area of Bodrum. First, people in shops and restaurants along the marina were familiar with the project and shared its objectives, indicating a good level of local involvement. This thanks to the fact that the project achieved good visibility, as posters were displayed in several shops. Second, boat owners and captains were pleased to have the opportunity to recycle oil and waste water, as it is available in other Mediterranean ports and so they were already confident with these practices. Third, PAMLED aligned Bodrum with other Mediterranean ports and with current EU legislation also acting as a capacity building action toward the staff of municipality directly involved in the project activities.

One weakness brought to light by this experience is the current poor availability of municipal finances for expansion of the project to other areas. Furthermore, a real long-term recycling effort is not currently possible at the local level due to the lack of a recycling plant on the Bodrum Peninsula. For this reason a strong coordination and waste planning at the regional and national levels in Turkey is needed in order to complete the management of waste along the whole chain until the final recovering.

3.3.2. Cultural Heritage and Archaeological Tourism in Bodrum (Turkey)

Bodrum has a rich history, with numerous archaeological buildings and sites, only a small portion of which have been excavated. These archaeological sites have not had the expected effect on tourism in Bodrum. For this reason, a pilot project entitled "Pre-feasibility Study on Cultural Heritage and Archaeological Tourism: Alexander's Footsteps" was carried out to assess the potential for the enhancement of sustainable tourism at known archaeological sites in the urban area.

Although the central government is the main authority responsible for the protection and development of archaeological sites in Turkey, a 2005 law has allowed municipalities to carry out activities to preserve their historical and cultural heritage. However, Turkish municipalities often fail to conduct significant such activities due to the lack of appropriate funds. This project aimed to provide the municipality with information to guide the reorganization of its archaeology and tourism priorities and fundraising for larger cultural and archaeological preservation projects supported by the EU and the national government. Specifically, local authorities sought to organize and develop long-term objectives in the tourism and cultural heritage fields of action. In particular the action aimed to select five archaeological sites in the urban area for inclusion in a tourism itinerary and develop a municipal strategy on archaeological tourism supporting the exploitation of these five sites. To achieve this main goal a pre-feasibility study was drafted for the enhancement and promotion of these sites and itinerary. In addition a specific objective was the developing of an overall strategy to exploit Bodrum's cultural and archaeological heritage for promotional and tourism purposes contributing to the development of cultural tourism in Bodrum.

To achieve these objectives, several activities were carried out. First, the project staff created a team of urban/regional and international technical experts with knowledge of Bodrum's archaeological sites that was given the task of mapping the archaeological areas identified for tourism exploitation, with consideration of cultural heritage and environmental preservation. Plans were also created for the preservation of exposed archaeological sites and further excavation, to be financed at a later stage.

Furthermore, the city developed a long-term strategy for the protection and preservation of Bodrum's archaeological heritage while exploiting currently accessible archaeological sites for city promotion and marketing purposes. To support the application of this strategy, the municipality established cooperative partnerships with the Bodrum Museum Directorate of the Ministry of Culture and Tourism; the universities of Mugla (Turkey), Florence (Italy), and Southern Denmark; and the municipalities of Brtonigla (Croatia), Prato (Italy), and Rio Marina (Italy).

This stakeholders' involvement allowed Bodrum to manage its archaeological sites with an international perspective planning their development according to long-term objectives and financial resources strategy. Additionally, efforts to raise funds from EU and other sources (e.g., national governmental projects on cultural and archaeological preservation) to expand and implement the pilot project activities in the entire municipality were initiated. Unfortunately this fund-raising activity looks like quite challenging due to the lack of expertise and experience by staff members of local authorities acting in the area of Bodrum.

4. Conclusions

The objective of strengthening the capabilities of the three involved Mediterranean cities to plan and manage local economic and environmental development initiatives was achieved through the creation of operational and lasting partnerships among the urban areas involved in the actions and the implementation of proactive interventions. The development of new roles and proactive involvement to address local needs generated new approaches within the internal organizations of the Mediterranean partners. Mutually beneficial and collaborative relationships between European and Mediterranean partners were initiated through specific "city-to-city" networks. The activities evinced partners' potentialities and expertise in the management of local development, which could be shared with other cities.

The results of this research contributes to three issues in the debate on urban sustainability in Middle-Eastern and North-African cities. First, it confirms the utility of the transdisciplinary approach as a tool to improve cities' environmental, economic, and social conditions. The "bottom-up" development model encourages integration and synergy at the local level, as well as among private, public, and civil actors, thereby enabling the achievement of important results in terms of urban sustainability. In the experiences described here, this approach involved experts and researchers from different disciplines and fostered open confrontation between them and political and social actors. In Bodrum, projects related to two different themes (environmental sustainability and cultural heritage) involved many of the same actors. In addition, the transdisciplinary approach was applied to create partnerships with other participating cities, which allowed the analysis and the sharing of problems with actors operating at the same level and with similar degrees of empowerment.

Second, these experiences contribute by describing the method adopted by a Middle-Eastern city to plan a youth development strategy focused on entrepreneurship. Previous economic development planning in this area of the Mediterranean Basin has focused on existing economic activities.

Third, these experiences confirm the fundamental importance of citizens' awareness in achieving sustainable urban development. The experiences in water consumption and waste management projects in Marrakech and Bodrum, respectively, document the need to "rethink" consumption

behavior in third countries. Several North-African and Middle-Eastern cities are beginning to adopt awareness campaigns, and the experiences described in this paper contribute to the debate in this urban policy field.

This research could be further developed by assessing the effects of these actions through analysis of the improvements in sustainable management achieved in the involved urban areas.

Acknowledgments

This work was supported by PAMLED project [MED/2006/127/610] which was funded by MED-PACT program (MEDA funded Regional partnership program between local authorities in the Mediterranean) from 2006 to 2010. For this reason we are grateful to the European Commission (DG EuropeAid Cooperation Office Centralised Operations for Europe, the Mediterranean and the Middle-East) and the Municipality of Prato for making this study possible. In addition we thank: Fabiana Farro for effective management of the project; Fabio Iraldo, Giacomo Bartoli, and Brunetto Chiarelli, Riccardo Sansone, Christian Guadagni, Andrea Manuelli and Myriam Lamela for long-term collaboration; Bouchra Nabil, Jean El Ghazal, Kamal Sfeir, Ibrahim Apak, Harun Giz, Pinar Akgün, Slobodan Kosev, Mirjana Apostolova, Rebeka Rizovska-Stanoevska, Doriano Labnjan, Ruzica Mitrovic Maurovic, Mauro Di Bugno, Riccardo Pensa, Adriana Mercantelli, Laura Casati and all other members of local authorities for their warm welcome and enthusiastic help. We are grateful to anonymous reviewers for constructive comments on a previous version of this manuscript.

Author Contributions

Tiberio Daddi coordinated the drafting of the paper and wrote the Sections 1.1, 3, 3.2 and 4. Stefano Vaglio contributed to the Sections 3.1 and 3.3. Massimo Battaglia drawn up the Sections 1 and 2. All authors contributed discussing the approach to follow in the whole paper and approved the final version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest.

References

1. United Nations Environmental Program. MAP-Plan Bleu, State of the Environment and Development in the Mediterranean, 2009. Available online: http://www.planbleu.org/actualite/uk/soed2009_Uk.html (accessed on 4 October 2012).
2. Zdruli, P. Land resources of the Mediterranean: Status, pressures, trends and impacts on regional future development. *Land Degrad. Dev.* **2012**, doi:10.1002/ldr.2150.
3. Scoullos, M.J. Impact of Anthropogenic Activities in the Coastal Region of the Mediterranean Sea. Available online: http://www.iasonnet.gr/past_conf/abstracts/Scoullos.pdf (accessed on 12 September 2012).
4. Hall, C.M. *Tourism and Global Environmental Change: Ecological, Social, Economic and Political Interrelationships*; Routledge: London, UK, 2006; pp. 142–158.

5. Food and Agriculture Organization of the United Nations. FAO General Fisheries Commission for the Mediterranean. Available online: http://www.fao.org/docrep/012/i0966e/i0966e00.htm #Contents (accessed on 20 March 2014).
6. United Nations. Resolution adopted by the General Assembly. 55/2. United Nations Millennium Declaration. Available Online: http://www.un.org/millennium/declaration/ares552e.pdf (accessed on 12 September 2012).
7. World Summit on Sustainable Development. WSSD Plan of Implementation. Available online: http://www.rrcap.unep.org/wssd/Plan_implementation_4%20Sep%2002.pdf (accessed on 12 September 2012).
8. Du Plessis, C. Action for Sustainability: Preparing an African plan for sustainable building and construction. *Build. Res. Inf.* **2005**, *33*, 1–11
9. Mbohwa, C.; Fukada, S. ISO 14001 certification in Zimbabwe: Experiences, problems and prospects. *Corp. Environ. Strat.* **2002**, *9*, 427–436.
10. Clark, G. Evolution of the global sustainable consumption and production policy and the United Nations Environment Program's (UNEP) supporting activities. *J. Clean. Prod.* **2007**, *15*, 492–498.
11. Butler, R.W. Tourism, environment and sustainable development. *Environ. Conserv.* **1991**, *18*, 201–209.
12. United Nations Economic Commission for Europe. Annual Report Economic Essays. Available online: www.unece.org/oes/nutshell/2009/9_EuroMediterranean.pdf (accessed on 12 September 2012).
13. Khan, Z. Cleaner production: An economical option for ISO certification in developing countries. *J. Clean. Prod.* **2008**, *16*, 22–27.
14. FAO Food and Agriculture Organization. Releases Report on the State of Mediterranean Forests. Available online: http://land-l.iisd.org/news/fao-releases-report-on-the-state-of-mediterranean-forests/ (accessed on 20 March 2014).
15. Ernoul, L. Residents' perception of tourist development and the environment: A study from Morocco. *Int. J. Sustain. Dev. World Ecol.* **2006**, *16*, 228–233.
16. Chiri, A.F. Globalisation and cluster-based economic strategy. *World Rev. Entrep. Manag. Sustain. Dev.* **2005**, *1*, 121–133.
17. Marks, J. High hopes and low motives: The new euro-mediterranean partnership initiative. *Mediterr. Pol.* **1996**, *1*, 1–24.
18. Commission of the European Communities. Communication from the Commission to the Council and the European Parliament. Wider Europe—Neighbourhood: A New Framework for Relations with our Eastern and Southern Neighbours. Available online: http://eeas.europa.eu/enp/pdf/pdf/com03_104_en.pdf (accessed on 25 September 2012).
19. European Commission. Regulation (EU) No 232/2014 of the European Parliament and of the Council of 11 March 2014 establishing a European Neighbourhood Instrument. Available online: http://www.enpicbcmed.eu/sites/default/files/l_07720140315en00270043.pdf (accessed on 5 May 2014).

20. European Commission. Communication from the Commission to the Council and the European Parliament on Strengthening the European Neighborhood Policy. Available online: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2006:0726:FIN:EN:PDF (accessed on 25 September 2012).
21. Browning, C.S.; Joenniemi, P. Geostrategies of the European Neighborhood Policy. *Eur. J. Int. Relat.* **2008**, *14*, 519–551.
22. Bertuglia, C.S.; Staricco, L.; Rota, F.S. *Pianificazione Strategica e Sostenibilità` Urbana. Concettualizzazioni e Sperimentazioni in Italia*; Franco Angeli: Milan, Italy, 2004. (In Italian)
23. Pickett, S.T.A.; Cadenasso, M.L.; Grove, J.M.; Nilon, C.H.; Pouyat, R.V.; Zipperer, W.C.; Costanza, R. Urban ecological systems: Linking terrestrial ecological, physical, and socioeconomic components of metropolitan area. *Ann. Rev. Ecol. Syst.* **2001**, *32*, 127–157.
24. Newman, P.W.G. Sustainability and cities: Extending the metabolism model. *Landsc. Urban Plan.* **1999**, *44*, 219–226.
25. Rees, W.; Wackernagel, M. Urban ecological footprint: Why cities cannot be sustainable and why they are a key to sustainability. *Environ. Impact Assess. Rev.* **1996**, *16*, 223–248.
26. Odum, H.T.; Odum, E.C. Energy systems and environmental education. In *Environmental Education—Principles, Methods and Application*; Bakshi, S., Naveh, Z., Eds.; Plenum Press: New York, NY, USA; London, UK, 1980; pp. 213–231.
27. Dempsey, N.; Bramley, G.; Power, S.; Brown, C. The social dimension of sustainable development: Defining urban social sustainability. *Sustain. Dev*. **2009**, *19*, 289–300.
28. Cuthill, M. Strengthening the 'social' in sustainable development: Developing a conceptual framework for social sustainability in a rapid urban growth region in Australia. *Sustain. Dev.* **2010**, *18*, 362–373.
29. Owens, S.; Petts, J.; Bulkeley, H. Boundary work: Knowledge, policy, and the urban environment. *Environ. Plan. Gov. Policy* **2006**, *24*, 633–643.
30. Pearsall, H.; Pierce, J. Urban sustainability and environmental justice: Evaluating the linkages in public planning/policy discourse. *Local Environ.* **2010**, *15*, 569–580.
31. Blaettel-Mink, B.; Kastenholz, H. Transdisciplinarity in sustainability research: Diffusion conditions of an institutional innovation. *Int. J. Sustain. Dev. World Ecol.* **2005**, *12*, 1–12.
32. Bond, A.J.; Viegas, C.V.; Coelho de Souza Reinisch Coelho, C.; Selig, P.M. Informal knowledge processes: The underpinning for sustainability outcomes in EIA? *J. Clean. Prod.* **2010**, *18*, 6–13.
33. Funtowicz, O.S.; Ravetz, J.R. Science for the post-normal age. *Futures* **1993**, *25*, 739–755.
34. Jurdi, M. Health protection and promotion for sustainable development: An insight on the Eastern Mediterranean Region. *Int. J. Sustain. Dev.* **2003**, *6*, 478–491.
35. Kayal, A.A. National innovation systems: A proposed framework for developing countries. *Int. J. Entrep. Innov. Manag.* **2008**, *8*, 74–86.
36. Richardson, J. Entrepreneurship and development in Asia. *Int. J. Entrep. Innov. Manag.* **2004**, *4*, 469–484.
37. Lewin, K. Frontiers in group dynamics. In *Field Theory in Social Science*; Cartwright, D., Ed.; Social Science Paperbacks: London, UK, 1947; pp. 143–153.
38. Cady, S.H.; Caster, M.A. A diet for action research: an integrated problem and appreciative focus approach to organisation development. *Organiz. Dev. J.* **2000**, *18*, 79–83.

39. Adams, C.A.; McNicholas, P. Making a difference: Sustainability reporting, accountability and organisational change. *Account. Audit. Account. J.* **2007**, *20*, 382–402.
40. Reason, P. Integrating action and reflection through co-operative inquiry. *Manag. Learn.* **1999**, *30*, 207–226.
41. Adams., C.A.; Larrinaga-González, C. Engaging with organisations in pursuit of improved sustainability accounting and performance. *Account. Audit. Account. J.* **2007**, *20*, 333–355.
42. Parker, L. Social and environmental accountability research. *Account. Audit. Account. J.* **2005**, *18*, 842–860.
43. Office of the Minister of State for Administrative Reform, Lebanon. Annual Report, 2008. Available online: http://www.omsar.gov.lb/Cultures/en-US/Publications/AnnualReports/Documents/Arabic%20Report%202008%20(Final).pdf (accessed on 4 October 2012).
44. Daddi, T.; Iraldo, F.; Frey, M.; Bouchra, N. The implementation of an Environmental Management System in a nord-african local public administration: The case of the City Council of Marrakech (Morocco). *J. Environ. Manag. Plan*. **2011**, *54*, 813–832.
45. Maiello, A.; Battaglia, M.; Daddi, T.; Frey, M. Urban sustainability and knowledge: Theoretical heterogeneity and the need of a transdisciplinary framework. A tale of four towns. *Futures* **2011**, *43*, 1164–1174.
46. Chen, M.C.; Ruijs, A.; Wesseler, J. Solid waste management on small islands: The case of Green Island, Taiwan. *Resour. Conserv. Recycl.* **2005**, *45*, 31–47.
47. Davenport, J.; Davenport, J.L. The impact of tourism and personal leisure transport on coastal environments: A review. *Estuar. Coast. Shelf Sci.* **2005**, *67*, 280–292.
48. Battaglia, M.; Daddi, T.; Rizzi, F. Sustainable tourism planning and consultation: Evidence from the Project INTER.ECO.TUR. *Eur. Plan. Stud.* **2012**, *20*, 193–211.

© 2014 by the authors; licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution license (http://creativecommons.org/licenses/by/3.0/).