HOW WILL THE SUSTAINABILITY ASPIRATION OF THE 2007 CONSTITUTION OF MONTENEGRO BE REALISED IN THE DEVELOPING ARCHITECTURAL AND URBAN FORM OF THE BOKA KOTORSKA REGION?

ALAN K DERBYSHIRE

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ALAN KEITH DERBYSHIRE

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Figure 1: *Map of Montenegro*

Abstract

This thesis examines the potential to establish a resilient model of urban development in the Boka Kotorska region of Montenegro (Figure. 1) against a backdrop of dynamic adjustment to economic models, urban form and the cultural identity of local communities. As such, it examines the role of vernacular architecture, ecologies and philosophies as a stimulus for a more indicative model of facilitating healthier ecosystems

within a region that proclaims its ecological ambitions in its post independence constitution of 2007. Developers in the study appear to be quick to market the vernacular as a marker of sustainability based on tradition and supposed innate relationships with cultural heritage. However, the concept of vernacular is founded on its etymological origins, therefore open to interpretation, which can result in ambiguous depictions of vernacular architecture and landscapes within urban developments.

The traditions and cultural heritage of Montenegro and by extension the Boka Kotorska is complex. Montenegro is geopolitically wavering between closer relationships with the European Union (EU) and the North Atlantic Treaty Organisation (NATO) and historic connections with Serbia, Russia and the Eastern Orthodox religion. Additionally, Montenegro is a self-declared eco state, on the face of it committed to ecological values, but the objective of creating this will be compromised if the population is not empathetic to environmental objectives.

Examining areas in transformation within the Boka region this thesis considers the reshaping of urban form and the consequential effect on cultural identity. Accordingly, the primary objective of this thesis is to examine the suitability of existing sustainable and resilience models to the long-term ecological health of the region. Additionally, a pragmatic and accessible sustainable development tool is initiated as a more culturally sensitive marker of ecosystem health. The Vernacular Ecology Index (VEI) is a newly designed assessment method for sustainable urban development. It is composed of five elements (energy, culture, systems, placeness and vernacular) that are indicative of the spirit of the subjective and objective within the context of the urban ecosystem. Within the components there are integrated indicators that aim to reflect and measure the viability of the individual element. When synthesized with their counterparts the index indicates strengths and areas in need of improvement within the designated study subject. Most importantly the index acts as a visual illustration of ecological progress as it is a critical intention to involve communities in the process of ecological appraisal, or

put simply ‘mutual interaction’. One of the primary purposes of the Vernacular Ecosystem Index (VEI) tool is to establish networks of benchmark practice in order to stimulate feedback loops to complimentary regions, ultimately benefitting the broader bioregion. Applying the index to a number of projects in a stipulated locality effectively offers an overview of the urban ecosystem’s health that could potentially pinpoint ecological strengths and weaknesses of the identified region.

If ecological values are to be embedded within the cultural experiences of local communities there should be a collective understanding of what that means regarding urban development. It is therefore a foundational aspect of this thesis to offer a more systematic approach to ecosystem health by identifying a model of system appraisal based on vernacular conceptual foundations.

Content

Chapter 1

Introduction

One of the more celebrated quotes relating to existential meaning is the observation in 1855 by the poet Ralph Waldo Emerson that “life is a journey not a destination” (Emerson, 1855). To chart the journey that has taken me from a position of environmental ambivalence to ecological advocate was not a linear process and involved making repeated meandering manoeuvres and U turns.

From a position of near ignorance of environmental matters to finding myself being in the position of ‘beginning to understanding’ the interconnectedness of the elements of ecosystem existence, though the road ahead still remains uncharted. The matter of fact reality, that the journey is infinite and can be an inspirational or challenging venture depending on the need for absolute resolutions to intricate situations, both environmentally and personally. The process of ‘understanding’ the nature of environmental complexities involves acknowledging that personal and environmental positions are not mutually exclusive.

This thesis is motivated by a process of practical and theoretical investigations into the origins of what could be termed ‘green issues’ relating to architectural and landscape form. This process involved coming to terms with oversimplified preconceptions of how ecological practices are implemented within urban settings and the realization that models for ‘authentic’ environmental practices are open to a wide range of interpretations.

What became clearer is that the concept of the sustainable urban landscape was open to the deliberations of a wide variety of actors, ranging from academics to developers, but are all united by disagreement as to the precise nature of the sustainable urban landscape. Arguably, this

‘reality’ informs the manner in which the urban landscape exists in the minds of its occupants, for example the manner in which nature and buildings within urban settings are perceived as separate entities. The conscious separation of these two elements by the humans that live within them runs counter to the concept of the city as an interconnected ecosystem. This recognition prompted further investigations into the nature of sustainability at a local level (Manchester), leading to the realization that the assessment of sustainable development projects is confined to reviewing specific buildings with no reference to the parcels of land in between (see Appendix D). In part this was due to the range of confusing definitions of the conceptual structure of sustainability as an entity, but more often than not by expedient interpretations of sustainable development by vested interest stakeholders. In the belief that this situation could and should be remedied it became clear that it would be more practical as a study theme to consider transitional regions that are undergoing significant change. Reasoning that it would be less problematical to assess the issues with the objective of delivering solutions in a region relatively ‘untouched’ by the pressure from developers, Montenegro was chosen as a potential case study region (Figure 2).

Figure 2: *Location of Montenegro and Boka Kotorska*

The Boka Kotorska province of Montenegro was identified as an appropriate project area for reasons such as familiarity, its shift in

geopolitical status, the rapid development of its coastline and the complex cultural make up of its communities. Additionally, Montenegro is a self declared eco-state and therefore theoretically committed to more ecologically empathetic urban development programmes. The relationship between vernacular and its future resilient development capabilities in the Boka region is due to a number of contributory factors:

- Vernacular influences are already heavily promoted as markers of sustainable development in the region.
- The concept of vernacular is narrowly applied, but is more compatible with ecological values than many established sustainable practices.
- The principle of the vernacular landscape offers opportunities for integrating green spaces with architecture.
- Vernacular architecture is narrowly defined and therefore derivative buildings are limited in scope regarding their potential for ecological effectiveness.

To bring about the actuality of the eco-state it is vital to ‘capture’ the ‘hearts and minds’ of the communities - the living elements of cultural ecosystems. If there is little understanding of the benefits of being ‘in tune’ with environmental values the likelihood of effecting any sense of connection with the broader notion of the eco state is limited. This being the case the inherent value of vernacular approaches to sustainable and resilient objectives is scrutinized within the context of wider cultural complexities. This is a demanding process and in many respects a task with no obvious deliverable outcome, but to borrow a line from John F. Kennedy in 1962, we do this “not because they are easy, but because they are hard, because that goal will serve to organize and measure the best of our energies and skills, because that challenge is one that we are willing to accept, one we are unwilling to postpone, and one which we intend to win (Kennedy, 2010).

The rationalization for this proposal is constructed on the conviction that genuine sustainable and resilient urban development is built upon the cultural assimilation of ecological thinking. In the absence of this actuality sustainable urban development is de facto under the control of developers, governmental agencies and top down policy frameworks that are insensitive to the cultural nuances of ecological communities. Accordingly, this thesis contends that authentic ecological development is more likely to become a reality through building local capacities for ecosystem thinking. In other words cultural awareness is an essential prerequisite to healthy systems. Therefore, the following are indicative of the inquiry process:

Aims

Establish a more accessible model of sustainable development that is able to inform all stakeholders i in a coherent and well-organized framework mechanism.

Objectives

Examine existing methods, practices and philosophies in vernacular and sustainable subject areas.

Identify good and bad practice in sustainable and vernacular subject areas.

Appraise cultural influence and heritage as factors in future potential frameworks for sustainable development.

Evaluate existing settings and driving- influences in the study area of the Boka Kotorska.

Methodology

- Explore the limitations of present sustainable indicators.- qualitative analysis of existing practices by comparative evaluation of the rationale for their application.
- Identify the fundamental components of resilient urban development – identifying the inherent characteristics of the region

such as geo politics, culture, economics and adopted and existing technologies. This will be achieved through interviews with local actors, researching archived materials and analyzing current political and economic affairs of the region.

- Develop a strategy of assessing and monitoring key elements of applicable benchmarks to the study region. – By examining established philosophies and technologies and contextualizing them to the specific requirements of the study region it is then possible to identify the relevant criteria for creating a structured model for resilience. This approach makes possible a more effective strategy for the resilient and sustainable assessment of the key components of ecosystem health. Therefore, this system can be utilized to establish a framework model that assesses and rates the impact of current, future and historic urban developments within the region. -
- Develop a communication device that bridges the gap between ecosystem health and simultaneously engages with local stakeholders and developers in facilitating resilience in existing and future urbanization projects. – Identify potential graphical interfaces that allow easy interpretation and visualization of the pertinent data through the use of freely accessible software applications.

Chapter two of this proposal focuses on theoretical and pragmatic approaches to sustainable development in its broadest sense. It debates the actuality of sustainable outcomes and considers the effect and compatibility of resilient thinking as a contributory feature of ecological development. The relationship between sustainability and the concept of place is introduced as a fundamental component of future theoretical frameworks for appraising the potential for sustainable development. Additionally, contemporary and ‘historical’ designated markers of ‘success’ are discussed in relation to their potential value to future progress.

Chapter three considers the traditional interpretation of vernacular in the context of the case study area and discusses the potential for more innovative vernacular philosophies as possible alternatives to conventional narratives. To illustrate the contrasting 'interpretations' of vernacular concepts the proposal profiles a number of instances of conflicting suppositions on 'inherent' vernacular characteristics. This ambiguity is considered within the context of existing and future developments within the Boka region and in regards to the potential for wider environmental wellbeing.

The fourth chapter investigates the cultural complexities of the region and contemplates how this state of affairs is compatible with a transitional nation such as Montenegro. The evolution of the Montenegrin identity is evaluated regarding its historic differences and commonalities with neighbouring states and corresponding ethnic tensions are contextualized. The impact of foreign leverage on the geopolitical and urban landscape is ongoing and is therefore reviewed in relationship to cultural and ecological resilience within the Boka municipalities.
The key focus of chapter five is the interconnectedness of many of the issues raised in the first three chapters on the ecological viability of the Boka Bay area. The impact of foreigners in regards to tourism and environmental policy in conjunction with the approach of Montenegrin policy makers and environmental stakeholders to the ethos of the eco state is discussed. The potential impact of all these factors will inevitably create a knock on effect in terms of urban development. The chapter concludes by reviewing alternative measures and theorems as a way of alleviating possible disruptions to regional ecosystems.

The sixth chapter draws upon the substantive issues presented in the previous chapters and broader ecological philosophies to propose an alternative model for the development of the region. As part of this process the role of existing markers of progress are critiqued and evaluated in regards to possible cross over approaches being adopted in

the project area. Accordingly, the proposal outlines its stratagem for building a more robust model for ecological urbanism.

The final chapter profiles the system for the assessment and rating of existing and future sustainable projects. By employing pilot studies to demonstrate the efficacy of the process, the proposal highlights the flexibility of a vernacular approach to rating designated buildings, landscapes and developments and their broader ecological fit.

The resulting outcome of this thesis is what could be reasonably considered to a significant addition to methods of assessing urban resilience and sustainability within the Boka Kotorska and wider.

Chapter 2

The Potential of the Vernacular

2.1 Introduction

Attempts by architects, planners and developers to reappraise or attach a distinctive nature inspired design sensibility to new or brown field urban developments are a rarity.

The role of vernacular technologies as drivers of bona fide sustainable urban development can be viewed as an antidote to the homogenizing influence of globalization as they contribute towards distinctive regional identities. Consequently, it is contended that by establishing a greater communal recognition of traditional vernacular approaches to urban development and regional cultural values, local communities will become more accepting of ecological design initiatives. A vernacular approach to urban form is a more viable marker of sustainable design development than ‘one size fits all’ current practice in developing regions.

The notional value of sustainable development is a continually evolving process and not immediately obvious to the communities that are projected to benefit. In many ways the term sustainability has become an indistinct catch-all phrase adopted by an expansive range of agendas and have consequently contributed to the formulation of overly complex and conversely superficial interpretations of sustainability.

The implementation of this patchwork of policy, ideology, science and practice often results in environment projects being devoid of a recognizable identity and that many so called sustainable developments fail to adequately establish a connection to local cultural traditions and regional character. The built environment design professions play a key role in establishing these material attachments to places and spaces. They

can either lift or depress the spirit, make us feel closer to or detached from nature, and reflect our cultural identity, in other words are central to the habitability of urbanity.

The process of establishing culturally vibrant and livable urban environments is not straightforward. Top down design criteria that ignore non linear dynamics at varying scales contribute to the establishment of unintended outcomes, not least of all the alienation of local communities from the design process, however well intentioned. Establishing design models that both recognise and incorporate commonly accepted scientific/environmental theory and policy and also embrace local vernacular technologies and traditions should be regarded as an innovative step in the right direction. Bioclimatic features such as solar control and shading devices and cross ventilation systems found in traditional Japanese housing are good examples of the ecological benefits vernacular technologies can furnish (Kimura, 1994). Vernacular architecture and ecological principles offer the potential to establish genuinely sustainable and culturally accessible alternatives to the 'one size fits all' association with the homogenized outcomes associated with top down policy.

Recognizing cultural sensitivities during the design process is more inclusive and ultimately more sustainable as this approach fosters the notion of ownership with the associated benefits to the environment.
It can be argued that there are many barriers to effecting a genuine sustainable evolution of many urban environments. The idea of integrating ecological principles within urban settings, particularly adopting a more trans-disciplinary approach to linking science and aesthetic processes is broadly regarded as a move in the right direction. This approach however, is principally confined to theoretical and rhetorical deliberations of the issues and practical outcomes are not commonplace. This is reflected within some of the so-called modern vernacular developments in the Boka Kotorska region, where at best there is a flirting with tradition and superficial imitation of traditional forms based on commercial factors.

Vernacular technologies have much to contribute to the practical realization of innovative development projects concerned with creating more progressive and culturally empathetic design solutions. Using local materials and ecologies in the designing, planning and building process contributes to a more identifiable relationship with indigenous traditions, aesthetics and topography. This consequently creates a sense of ownership, care and sustainable heritage amongst communities. Much can be learned from vernacular traditions in regards to responding to local culture and climates, for example window area decreases the nearer one lives to the equator as people avoid the glare of the sun (Fathy, 1986). Oliver (2003) also notes that many cultures do not leave the responsibility of designing dwellings to architects that have no local understanding of culture, craftsmanship and the potential to adapt them as “social change requires”.

The dynamic nature of vernacular forms and how such forms occur are largely determined by local and external factors. It is this ability to respond to vigorous change in an incremental manner that suggests a vernacular response is a viable resolution to the objective of preserving a distinctive regional identity and culture. Vernacular technologies should not be associated with anachronistic notions of vanishing cultures and societies, but rather as an integral tool in the process of redefining the context of cultural heritage in specific urban developments.

2.2 Sustainability – A Matter of Definition

Sustainability within the context of the built environment professions has become an indistinct overarching phrase. On one hand the term can be interpreted and applied as an authentic set of environmentally beneficial principles to projects at varying rates of scale. At the other end of the spectrum, claims of sustainable development are no more than a

commercially driven green wash marketing measure by unscrupulous developers.

An attempt to define the nature and underlying principles of sustainable development is determined in the often-cited World Commission on Environment and Development (WCED) (also known as the Brundtland Commission) 'Our Common Future' report in 1987. The maxim that: -
"Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs" is consistently referenced in relation to sustainable development. Though this is a useful over-arching catchphrase and a ubiquitous feature of many studies on the subject of sustainable development, it does not adequately chime with the complexities faced in implementing sustainable practice within the built environment.

The notion of defining sustainability has become an academic inquiry in itself (Selman, 2008; Toman, 1992), correlating this complexity and confusion into its meaning leads to uncertainty. As Walker (2006) emphasises, defining sustainability is not a linear process. For example, according to Kunszt (2002), an architect would view the efficient utilisation of energy and resources as primary concerns. Smith (2001) also makes the point that the primary aim of the architect 'under the sustainability banner', is to heighten the comfort levels within buildings for their inhabitants. This should occur while simultaneously minimising the reliance on fossil-based energy. By using techniques such as thermal mass, insulation, natural ventilation, and active solar optimisation, energy costs can be significantly lowered. By contrast, Selman (2008) contends that the landscape may be defined in terms of its economic, social and political sustainability.
(a) Economic: in that the maintenance of visual aesthetics encourages recreation and tourism.
(b) Social: as the role of landscape with its origins in the phenomenological tradition, it is reasoned, encourages inclusivity and participation (Moore-Colyer and Scott, 2005).

(c) Political: as the role of the state and corporate structures in the development of cultural landscapes is intimately connected to production of distinctive landscapes and as such has a wider sustainable impact.

Antrop (2006) proposes that the whole notion of the sustainable landscape is open to contradiction. He suggests that landscapes are continuously evolving 'in more or less a chaotic way' as they reflect social and economic needs. In his view, landscapes have the potential to contribute to sustainability, but are not sustainable in themselves. From the perspective of Rees and Roseland (1991) an efficient use of urban space, reduction in the consumption of materials and energy and a planning process, which thoughtfully deals with ecological and socio-economic matters, are essential features.

The diverse perspectives and complexities of the interpretation of sustainability contribute to a sense of confusion, which is inevitably reflected in the planning and development process of project development. As McGlynn and Murrain observe, the real power brokers in the development of urban form are the landowners, developers and funding agencies. The influence of architects, designers and planners exists in the substance and conviction of their arguments. Good design can only prevail in parallel with a set of values held by a group or individual; consequently these values need to be understood and effectively communicated. The need for clarity is acknowledged and analysed in the Egan review (Egan 2004a) into the skills needed to deliver the vision and aims of sustainable communities, facilitating a debate into more effective ways of communication by built environment professions. Generally, the review demonstrates that to turn things around a common goal is needed to deliver better communities. This requires both the professional skills of architects, planners and designers, but also a set of more generic skills such as governance of communities, communication, risk taking and leadership. The magnitude of the task in implementing coherent sustainable development practices from a British perspective is highlighted in some of the reactions to the Egan review (Egan, 2004b). In their

response to Egan, Inspire East (2006), the regional centre of excellence for sustainable communities, reported 'The word sustainable is used in many different contexts, leading to confusion and lack of thinking between various sector organisations'. This lack of clarity and communication of commonly agreed sustainable practices ultimately contributes to the maintenance of disparate interpretations of the subject and the consequential preservation of the status quo. In 2012 the United Kingdom (U.K). government commissioned the 'Farrell Review of Architecture and the Built Environment'. Although this review did not specifically focus on the matter of sustainability many of the issues reviewed reflected the apparent lack of architectural awareness amongst stakeholders. Planning procedures are criticized as "our planning system has become too reactive and relies on development control, which forces local authority planners to spend their time firefighting rather than thinking creatively about the future shape and form of villages, towns and cities". Importantly, the notion of place was identified as a significant aspect of any development project and the idea that planning issues could be resolved better by collaborative forums that reviewed applications in the context of PLACE – Planning, Landscape, Architecture, Conservation and Engineering. This would arguably "ensure that all aspects of the built environment are given equal consideration" (Farrell Review, 2012)

2.3 Placeness – A Critical Component of Sustainability?

Notions of sustainability and place are connected by the shared complication of how to define their fundamental meaning adequately. The creative application of both concepts is critical to the establishment of genuine sustainable urban design objectives. If developments lack the potential for dwelling and a sense of ownership they are essentially unsustainable. Emotional responses to the landscape are complex, but in order to create a broader dialogue and connect with the public sustainable urban habitats need to connect visually and emotionally (Motloch, 2001). The creation of 'placeness' is an integral element of built environment

design processes when attempting to re-negotiate the character of sites. Places are perceived to include psychological, social and human activities rooted within a physical setting (Brandenburgh and Carroll, 1995; Relph, 1976; 1997). Put simply, placeness is the collection of symbolic meanings and the collective or individual attachment with a spatial setting. According to Lynch (1960), we attribute meaning to landscapes and consequently become attached to the meanings. Establishing 'placeness' is integral to the process of achieving genuine sustainable communities; it is the foundation on which the components essential for sustainability can be set. Without an emotional connection there is no sense of ownership. As a consequence people will feel disinclined to look after property and the parcels of land between buildings and structures (Nassauer, 1997). It is therefore necessary that the marriage of sustainable principles and the notion of place are harmonious.

To begin to make sense of the critical nature of place and the parallels with sustainability it is worthwhile contemplating Heidegger's perception of place. Heidegger's specific references to architecture, building and dwelling have arguably informed the attempt to define place within the teaching of design pedagogy. Heidegger is a controversial figure and for some this invalidates his work (Sharr, 2007), but many of his insights in the seminal 'Building, dwelling, thinking' when relating to place also have an identifiable and pertinent connection to sustainability. 'With the banks, the bridge brings to the stream the one and the other expanse of the landscape lying behind them. It brings stream and bank and land into each other's neighbourhood. The bridge gathers the earth as landscape around the stream.'
(Heidegger, 1971).

This refers to the role of a bridge as a piece of human construction in the transformation of space into place. The place of the bridge's construction is now understood differently because of its being. It is also necessary for the materials used in the construction of the bridge to be local as Heidegger challenged the perception of the earth as a commodity (Sharr,

2007). To Heidegger the ability to dwell is dependent on the individual's need to build or make, this could be in the form of a ritual as banal as setting out the dinner table. Topographic connections between the earth and materials such as clay, wood, steel and sand (materials from the earth) are intrinsic to his notions of dwelling and place. Materials are the tangible substances of place. Space is rearranged into place by the activity of building. The bridge spanning Heidegger's stream is a material construct: without materiality place within the context of the urban landscape does not materialise.

Christian Norberg-Schulz (1976) draws and expands on Heidegger's reasoning and other works such as Husserl's 'The idea of phenomenology' (1936) to develop the notion that people can find meaning in the physical elements of spaces and places. Norberg-Schulz reasons that the dogmatic and mixed messages of modernism, combined with its universalising nature, are incompatible with creating a unique physical character and the essence of place. Broadly, he proposes that designers and architects should 'concretise' the physical characteristics of place by identifying and contextualising notions such as materiality, texture and sensory experience in the design process and are considered as fundamental to creating the character of place. By re-examining the four elements of dwelling in correlation within a structural template of typology, topology and morphology, Norberg-Schulz attempts to organize a structure of 'being'. This framework for 'being' is maintained and visualized in the form of architecture (Habib, 2012). Accordingly, the typology of a grouping of buildings representing a place will have conventional recognisable motifs such as doors, windows and roofs: material constructs. When transposed from one place to another the motifs act to bring character and space together, therefore challenging the perception of recognizable boundaries between places. The link between buildings, neighbourhoods, cities and the landscape become more identifiable, connected by the concretised elements of place (See Chapter 7).

Materials used for building have traditionally been acquired locally and have consequently created unique regional identities and a sense of place. Utilising local materials is an integral feature of the establishment of the narrative of placeness, but also a benchmark for sustainable practice. The embodied energy (total of all energy required to produce the materials) cost of local materials is lower than imported alternatives; they are more recognisable and, as a result, help to create a sense of connection to the places they are employed.

Thompson and Sorvig (2008) identify five elemental benchmarks for the application of hard landscaping materials. They are fundamental to the establishment of genuine sustainability, but are also philosophically and contextually associated with the local region

(a) whenever possible specify locally produced products
(b) use less processed materials
(c) produce a rough estimate of energy required to produce
and transport materials
(d) explore recycled materials
(e) avoid petroleum-based products.

The paradox that buildings can be constructed from materials that are at face value representative of the local region, but supplied from other regions, is illustrated by the example of stone quarrying in the U.S.A. Accordingly, ninety per cent of dimension stone utilised within the USA is now imported from worldwide locations (Calkins, 2009) and this is symbolic of the wider matters of sustainability and place. Effectively, the materiality of place within contemporary developments, has its origins in locations situated hundreds or thousands of miles away. This acts as a fundamental barrier to genuine place based sustainable design practice, in part reflecting the homogenising nature of globalisation, and consequently the dilution of place-based objectives.

The application of sustainable landscaping materials, however, is often limited and constrained owing in part to unenlightened attitudes and cost.

The absence of authentic local sustainable products and the importation of cheaper quarried products such as Chinese granite raise sustainability issues as well as ethical concerns regarding labour conditions (Weyzig et al., 2008). The use of imported stone frames the dilemma of the aspiration for genuine sustainable material application within urbanity. Tighter regulation has led to increasing costs of local mining/quarrying and production, particularly in Europe and the United States of America (USA), resulting in economically unviable production and subsequent plant closure.

2.4 Sustainability - Structure

Elements of place-based theories are integral to notions of cultural identity, well-being and the resilience of communities and are therefore should be regarded as an integral feature of the sustainability equation. The idea that place should be regarded as an element within the multi dimensional construct that is sustainable development is beginning to elicit greater resonance with academics and more enlightened stakeholder professionals. Establishing a concept of place within new developments is problematic and the question of whether this is even desirable within the context of sustainability remains moot. This is further complicated by idiosyncratic interpretations of the spirit of the concept of placeness. Defining sustainability and place is a complex affair, but necessary in order to identify a functioning structure for the implementation of working models for urban development.

The sustainability debate largely has its origins and subsequent divisions in the environmental movement. Broadly speaking the demarcation between this ambivalence centers on the anthropocentric and non-anthropocentric world views (Pepper, 1996). On one hand, the anthropocentric view of sustainable development places its' faith in technical and managerial solutions to environmental problems, therefore predicating a 'baby steps' approach to developing patterns of change. The

non-anthropocentric view is doubtful of the reliance on large-scale technical developments and the claims of environmental ambitions of large corporations.

Non-anthropocentric theory is also skeptical of the notion of nature having value as a contrivance for human interests. It broadly concludes that nature has intrinsic value (McShane, 2007). The WCED definition of sustainable development as gauged by anthropocentric and non-anthropocentric criteria is distinctly anthropocentric in spirit. The WCED report essentially views human needs as conflicting with environmental restrictions and as a consequence the three established pillars of sustainable development (environmental, social and economic) it is argued does not reflect the effect of nature on society. Moreover, Merchant (1980, 2006) resists the notion that culture and nature are dualistic in character and argues that as a result of a three-pillar structure nature can be subdued and dominated by science, technology and capitalism. The distinction between nature and society is according to Macnanghten and Urry (1998) mistaken; as for most part nature is a societal construction. As such, the devastation heaped on communities from environmental catastrophes such as tsunamis, earthquakes and most recently in 2014, flooding within former Yugoslavia self evidently directly connects nature with culture.

For the sake of argument, if it is assumed that policy surrounding the WCED definition and report into sustainable development is adopted by stakeholders and actors as a foundational element in the complex aggregate that is sustainability, it is reasonable to assume that environmental policy is grounded in the anthropocentric axiom. Governmental or top down approaches to models of environmental policy and sustainability indicators are effectively scientific in origin and as such identify benchmarks of good practice through economic and quantitative indicators. These may include measuring the consumption of utilities or local election turn out to attempt to define complex systems (Turcu, 2012). In other words by attempting to evaluate complex dynamic environmental

circumstances the anthropocentric assessment model does not adequately address what is important to local communities.

Identifying appropriate Sustainability Indicators (SI's) is of course an essential aspect of bringing about authentic sustainable development. Top down models have been shown to fail to reflect regional perspectives, such as Zejil-Rozema and Martins (2010) analysis of E.U. indicators. There is generally a wide agreement that communities should play a more important a role in the establishment of any specific regional SI's. Community led governance (bottom up) is a more inclusive model for insuring against 'broad stroke' policy implementation, but is far from a panacea measure. Citizen led models of assessment are prone to examine 'soft indicators' such as individual behavior linked to notions such as community spirit, activity and satisfaction within given regions (Eckerburg and Mineur, 2003). Understanding communal context when defining local indicators is beneficial to the process of creating a more dynamic and inclusive barometer of assessment, though this approach has its own limitations. For example, municipal or provincial control is not helpful if not accompanied by an understanding of the wider ecological context and the understanding of the possible need to change behaviours. Community institutions could become as dominant and subsequently as monolithic in thinking as governmental agencies (Turcu, 2013).

Finding the balance of between top-down WECD prompted policy and SI's and community led input into any prospective model for urban development is a challenging process. Tensions between expert and citizen led methods of resolution may inhibit the use of any SI's, making it more problematic to minimize the existing gaps between stakeholder policy and end user experience.

A possible solution to this issue is to create an inclusive process at the beginning of setting the context for urban development at local scales (Reed et al, 2006). However, Reed also suggests that expert led methods in indicator development be used to evaluate and disseminate the relevant

data and indicator models etc. Nevertheless, in practice there are very few examples of this cooperative approach being practiced (Kelly, Moles, 2002).

2.5 Resilience - the New Sustainability?

The concept of resilience or at least the term itself, has been adopted by a host of governmental agencies and Non Governmental Organisations (NGO's) as a desirable antidote to a wide range of issues ranging in scope from unemployment, terrorist attacks, natural disasters and anti social activities. Resilience is becoming a ubiquitous catch-all buzzword, replacing sustainability in much the same way the environment now plays understudy to the leading "hegemonic imperatives" of climate change (Davoudi, 2012). It appears that resilience is broadly regarded as good. And, if applied with appropriate and supportive implementation strategies the outcomes can make significant contributions to over arching sustainability objectives. Consequently, the debate challenges built environment professions to process and effectively administer the potential ecological and consequential environmental benefits associated with resilience. In common with sustainability, conceptual interpretations of resilience are hard to define and open to the misrepresentation and abuse commonly attributed to green washing as in the case of sustainability.

As such, according to Walker et al (2004), resilience is " the capacity of a system to absorb disturbance and recognize while undergoing change so as to still retain essentially the same function, structure identity and feedbacks". Conceptually, resilience was originally introduced as method of understanding the "capacity of ecosystems with alternate attractors to persist in the original state subject to perturbations". Put simply, the ability for an entity to return to normal after a shift or deviation of a system due to outside factors such as climatic abnormality. Naturally there could be many factors (natural or man made) occurring over a period of time that could affect the stability domain and consequently contrasting to its

original state. This is regarded as being “qualitatively different” from its initial form and ecosystem resilience has been influential in emphasizing this difference (Folke et al 2010).

There are some that reason that resilience should be limited to ecosystem resilience as a marker of conceptual clarity - a practical application of theory within ecosystem management and science (Brand and Jax, 2007). Nevertheless, many of the problems associated with natural resource usage and management are precisely because of the lack of acknowledgement that social and ecosystems are impossible to separate. As such, social-ecological resilience is about people and nature, communities and their environments. The increase in human activities worldwide makes this an issue of global scale, making it nonsensical to attempt to appraise and analyze the social and ecological as separate beings.

At a global scale, evidence suggests is that if current development paradigm patterns continue at the same rate, there will be a potential tipping of the human – earth structural balance into a fundamentally unfamiliar predicament (Steffen et al 2007).

2.6 Resilience Thinking

According to Walker et al, 2004, there are four fundamental characteristics of resilience.

1. Latitude: the limit to which a system can be altered prior to reaching a threshold before losing its capacity to recover.
2. Resistance: how resistant are systems to change and the degree of difficulty in affecting change.
3. Precariousness: how near are present systems to thresholds.

4. Panarchy: the effects on systems from alternate scales (above and below) such as climate change, politics or financial/market irregularities.

Resilience applied to a specific set of circumstances or shocks to a pre-existing system or state is regarded as specific resilience. Where associated with a variety of traumas, stakeholder managers would define this as general resilience. General resilience would also be the state associated with unexpected or novel abnormalities within particular systems. In other words, “all parts of a system to all kinds of shocks” (Folke et al, 2010).

Transformability and adaptability are terms closely associated with resilient thinking. Resilience and adaptability are closely related to the dynamics of a system or set of intimately associated systems. The adaptability element refers to the main actors of a particular system to influence resilience. Within a Social Economic System (SES) this effectively denotes the capacity for humans to manage resilience. Therefore, as humans are the predominant actors in SES’s the adaptability of a system is dependent on the social component i.e individuals or groups affecting to influence the system (Walker et al 2004).

Transformability involves changes in the prevailing nature of a stable landscape, social networks or any other established domain where new defining variables are introduced. This can happen at a multi scale range of conditions and can be deliberate or enforced by circumstances such as changes in personal lifestyle due to employment change or a regional shift from one type of economy to another.

Transformational change is similar in nature to general resilience in the breadth of influencing factors such as institutional landscape diversity, stakeholder networks and learning platforms and the influence of governance in supporting paradigm shift. Fundamentally, it is the capacity to create a new system in the event of changing economic, social or economic conditions.

Importantly, transformational change can involve the shifting of perceptions within communities, local governance and other associated stakeholders. Intentional transformational change can be administered at various rates of scale, from political leadership to more specific institutional orchestration and in an incremental manner. The process of implementing specific policies associated with aspects of transformational change are in some circumstances likely to result in forced transformation. For example, changes in regional tax structures may give rise to transformations from farm-land to suburbanization (Folke et al 2010). Effectively, systems implemented with a high capacity for transformational reorientation will potentially affect the outcomes of forced transformations at macro scales. Where transitional models effectively determine new goals within SES's resilience thinking and application of related methodology allow for clearer and newer interactions to occur throughout the varying scales. As such, experimental learning or vernacular approaches at a local level can effect the transformation of models of development at a broader governance/management level.

The importance of multi scale resilience can best be viewed from the perspective of scale. Viewed in isolation models of specific resilient outcomes may be interpreted as in conflict with broader environmental objectives. However, resilient thinking should incorporate a dynamic interplay of adaptability and transformation at a diverse range of scales to make an effective assessment.

In essence resilience thinking centres us on the three core issues of adaptability, transformability and persistence. The overarching point of reference for resilient objectives is stability. In achieving a stable domain it is necessary to be able to be adaptable to any changing circumstances within SES's, but it is imperative to exist within established critical thresholds.

In order to deliberately effect transformability it will sometimes be necessary to deconstruct the resilience of the old and construct a resilience of the new. As the planet approaches and potentially exceeds thresholds that may bring about a forced transformation to its current Holocene stability it is society's responsibility to nurture flexible methods that enhance Earth system resilience (Folke et al 2010).

2.7 Vernacular Buildings - Lessons for Sustainability?

The relationship between cultural identity and the rapidly evolving global and local influences over the urban spatial characteristics of the Boka Kotorska is a potential source of discord or opportunity. The challenge for stakeholders is to conceptualize regional identity and expression as a bold and inclusive cultural process. The connection between cultural conventions and regional environments lie at the heart of vernacular architectural theory and philosophical reasoning. Much of the corresponding literature draws attention to the interconnection between the principles of vernacular technologies, ecology and sustainability.

In many respects the perception of vernacular architecture is impaired by the idealized notion that structures are formed from such materials as bamboo, mud bricks, or reeds and canes within some of the literature. This view of vernacular form is presented by Steen et al (2003) in 'Built by Hand: Vernacular Buildings Around the World'. The book consists of hundreds of images of settlements, construction details and buildings and effectively illustrates the worldwide diversity of traditions and illustrates the importance of architecture as a cultural artifact. The main focus of the book is of buildings made from natural materials such as grass, earth or wood and consequently highlights the use of natural resources and handcrafted technologies. However, this version of vernacular tradition does not acknowledge materials such as concrete, corrugated iron and plywood as valid components of vernacular form. The inclusion of many of the images emphasize the aesthetic in preference to focusing on who built

them and why, who lives in them now and how do the buildings relate to cultural and social determination. As Vellinga (2005) observes “the aesthetic approach of Built by Hand offers little understanding of how these buildings traditions relate to the cultures they form part of”.

In common with Steen et al, Paul Oliver’s book ‘Dwellings: The Vernacular House Worldwide’ (2003) features numerous seductive and beautifully photographed images of settlements, buildings and diagrammatic representations of vernacular forms. However, Oliver digs deeper than aesthetic and functional values and illustrates how dwellings are reliantly interlinked with cultural values and economic factors. Accordingly, Oliver accentuates the influence of design pragmatism over “indigenous dwelling types and patterns”, consequently highlighting the contrast between architectural practicalities and the bond between indigenous builders and their dwellings. Significantly, Dwellings draws attention to the “desire of communities to retain their own identities” in regard to the disintegration and partition of countries such as Yugoslavia. This is viewed as a necessary step in the process of regaining local management of education, employment, housing and the economy. Perhaps of greater importance is the attention Oliver draws to contemporary issues of urbanization, resource management and technology transfer and the mitigating role of vernacular form. He reasons that vernacular traditions should not be associated with anachronistic notions of vanishing cultures and societies, but is an essential feature of culturally sympathetic sustainable architecture.

Heath (2007) considers the task of assessing regional identity during periods of change and the consequential contribution that vernacular traditions have to play. This study considers the fragmentation of regional identities brought about by matters such as globalization and “shifting migration patterns” and examines the propensity of “the maker and user alike” to idealize notional places “inhabited by coherent and homogenous communities”. Heath attempts to contextualize the notion of place in response to the increasing influence of external pressures on the

landscape at a global and local scale. He reasons that the challenge for vernacular traditions is to “conceptualize regional expression as an inclusive and dynamic cultural process”. As part of this undertaking he contends that the landscape is “the product of ever evolving human and environmental factors” and as such architectural responses to this evolution should not be perceived as lacking integrity. Heath contends that such adjustments to architectural and landscape form are part of the activity of redefining “cultural heritage” that express an alternative account of “habitation and a new collective identity of place”. The challenge for the architectural and planning professions from Heath’s perspective is to either disregard “the extinct vernacular” or embrace the present state of multiple cultural identities, realities and “transformative states of social change”.

Rao and Schierle discuss the proposition that connections between the notion of place and sustainability and the role of technology and science are essential features of the vernacular. They assert, “that all architecture has to be vernacular to attain sustainability”, reasoning that historically vernacular form has responded to climate, nature and indigenous materials and culture. Technology, they argue, has a fundamental role to play in quantifying the relative merits of naturally available resources, hence minimizing usage of nonrenewable and non-biodegradable materials.

Glassie (1990) contends that to study matters such as materials and evolving technologies in the context of vernacular traditions should be experienced by the designer. Accordingly, he argues that to understand the wider “dislocation with the modern society” the designer through resolute research of vernacular traditions can contribute to the goal of more harmonious societies.

Buchanan (2006) debates the proposition that quest for sustainability has rekindled a new interest in vernacular forms, place-making and construction. He argues that the rampant overuse of eclectic references

have “eroded the meaning of historic motifs” as a marker for traditional values. Vernacular architecture is a direct alternative response to what already exists – buildings, the landscape and climate and available resources. Buchanan discusses the distinction between the historical and the vernacular and as such is characterized as historic architecture being generally more urban whereas vernacular is “more local in form”. In addition Buchanan discusses the factors impacting the shift from the reductionism of modernism to “greater concern with context and conservation”.

The relationship between context, conservation and sustainable architecture at a local level is examined by Vuksanovic (2006) in an expansive study of the Montenegrin vernacular traditions. Accordingly, he charts the evolution of local structures in relation to the native topography, culture and resources, providing diagrammatic and photographic examples of traditional construction methods. Vuksanovic draws attention to the undeveloped potential of vernacular form as a guiding principle for contemporary developments and is critical of “inappropriate approaches by investors and architects followed by wrong architectural attitudes” in local modern projects. He is most scathing in his assessment of the disjointed relationship between innovation and the activity of urban planning, noting:

- Aberration from the character of local architecture and lack of knowledge regarding local heritage.
- Disrespecting elements of local architecture with aesthetic criteria owing more to market mechanisms.
- Mistakes in the application of construction materials – traditional and modern.
- Flirting with tradition – superficial imitation of traditional forms based on commercial factors.

Through citing examples of contemporary forms determined by vernacular traditions Vuksanovic targets what in his view are good and bad examples

of the genre and makes appropriate technical and structural recommendations.

The concerns of Vuksanovic are largely represented in the promotional literature of developments such as Porto Montenegro (Figure 3). Where according to Adam Consultancy, an independent business and property rental consultancy, (2012) the layout of the marina village is meant to replicate the style of a typical Montenegrin village “combining the sophistication of a super yacht destination with the picturesque vernacular of Montenegrin architecture”.

Figure 3: *Tivat, Porto Montenegro*

The creation of ersatz tradition as represented by developments such as Porto Montenegro lies in sharp contrast with the village of Gornji Lukomir as surveyed by Nikolic and Logo (2011). On the face of it, the village gives the appearance of being established in the eighteenth or nineteenth centuries, but this is not the case. The villagers who chose to leave their

homes in a valley nearby to move to higher ground constructed the village in the 1950's and 1960's. The geographical isolation of the village, with relatively little interaction with the outside world, offers an opportunity to observe and assess customary interactions between culture, buildings and the environment. As such many of the historical and cultural influences of the region and corresponding vernacular influences have been condensed in Gornji Lukomir into a period of twenty years. The resulting buildings features and formal characteristics are analyzed and discussed in detail. The authors underline the issues commonly associated with the dissolving vernacular rural settlements – rural depopulation, outside interference, poor policy of protection and in the case of this region, war damage. Though some of these matters are being addressed it is possible it could be a case of too little too late.

Themes such as vernacular forms and characteristics described by Nikolic and Logo within the context of a remote village are similarly considered by Kapetanovic (2006), although in relation to the restoration of a traditional Montenegrin stone house. Keptanovic sets out to establish the restoration of the house as a model for conservation and development processes for traditional rural houses. The study considers historical, architectural, ambiental and ethnological factors and the interrelationship between emotion and cultural identity. How these issues contribute to conservation philosophies and potential models for appropriate use, such as restoration work camps and appropriate (hikers and campers) touristic purposes are reviewed. Keptanovic concludes that the sustainability of the site "will not be easy to achieve", but ultimately this is the fundamental goal.

2.8 Resilient and Sustainable Architecture

The relationship between human beings, the limited resources of the earth, climate change and the eco-systems in which we exist has broadly framed the discourse of sustainable urban environments. The notion of sustainability has undoubtedly influenced the general movement of built

environment stakeholders to embrace measures that on the face of it reflect the three pillars of sustainable thinking though this has not been consistent in regards to urban development. Accordingly, it has been observed that the S word (sustainability) is more and more being superseded by the R word that is resilience (Juniper, 2012). Put simply, whereas sustainability attempts to address issues of social and economic equality in coexistence with a changing environment, resilience differs in that it highlights the need to manage major shocks, some of which will be impossible to predict. Both words have influenced and will continue to impact on urban form in the foreseeable future.

It has been argued that modernism's influence on the architectural form of technology and the architects apparent need to associate building form with high tech representations of functionality, have neglected the natural environment as a more ecologically relevant typological influence (Sorkin 1994; Wines, 2000). Though sustainability has recently become more influential in regards to design criteria it is argued that there is still some way to go and there is still the need to better understand the expression of ecology through design (Lomba-Ortiz, 2003). This is a difficult process, as to create a design that is distinctive and also inclusive of the requisite components of ecological viability is not straightforward. As such, it needs to integrate aesthetics with environmental technology and resource conservation. In order for an architectural feature to achieve longevity, as well as being constructed from materials that are durable there should be a desire to preserve the building in the first place and should therefore be perceived as beautiful (Wines, 2000).

Integrating architecture in an ecologically sympathetic manner is not a new phenomenon. The observation of intuitive or vernacular approaches to building in nature has inspired architects from Frank Lloyd Wright to Walter Gropius and Le Corbusier. Frank Lloyd Wright stating to the effect that such buildings fitted into the environment by people who intuitively knew how to, in contrast with intellectual "academic attempts at creating beauty". According to Wright, the indigenous populations of local and

regional environments were more likely to determine authentic characteristics in keeping with qualities of the environment, local culture and the nation (Alofsin, 1993). Wright was the leading pioneer of what could be termed organic architecture in that the architecture begins from within and extends outwards, in other words the architecture grows as a consequence of stimulus from the local environment. On reflection Wright's philosophies and approaches to design were ground breaking, but arguably were largely disregarded in the march towards modernism. Accordingly, Wines argues that that part of the reason that the organic approach was neglected is in part due to the difficulty in copying Wright's approach without looking like a pale pastiche of the original. The architecture of Le Corbusier and Mies van der Rohe was more formal, tidier and neatly packaged and consequently more compatible to imitation. The difference between the approaches and philosophies of Wright and modernist architects is probably best summed up by Wright when responding to Le Corbusier's description of a house as a "machine for living in". Wright responded with the insightful "just like the heart is a suction pump" (Wines, 2000).

The use of technology as an integral feature of the architecture is on the face of it a valuable element in the ecological identification of buildings as a visual and environmentally sympathetic statement of purpose. Technology is regularly viewed as a means of providing solutions to a wide range of issues not least of all reducing the environmental footprint of architecture. Technology is now boldly displayed not just as a stylistic appendage to the architectural form, but in many cases as visual declaration of 'greenness'. Long before the advent of the S word Buckminster Fuller advocated an integrated approach to sustainable design regarding technology as a means of mitigating the effects of pollution, energy use, food production and fossil fuels. He was in effect also ahead of his time and "one of the first modern western thinkers to connect architecture to ecology and the environment" (Green, 2014). Fuller's legacy with the possible exception of his invention of the 'geodesic dome', was not about technological innovation, but more to do with a

“non-hierarchical way of thinking, in which all problems are interrelated and need to be confronted collectively” (Keats, 2012). This approach remains an ever-present feature of architectural theory and practice. Technology is now regarded, as more than a necessary bolt on appendage to an existing design, it is integral to the intrinsic value of the architecture. Architects such as Thomas Herzog have advanced the proposition that the architecture of conspicuous technological styling is more about exhibitionism than on what he terms ‘constructional physics”. As such, he regards technology as a response to matters such as solar energy, site restraints, material values and zoning, drawing on the laws of physics and shifting natural conditions as inherent to the development of architectural form (Wines, 2000). Herzog was an early pioneer of the inclusion of solar panels in buildings. In the 1980’s he was the first architect to include a photovoltaic system in one of his residential buildings. This was followed a few years later by the installation of transparent thermal insulation, geothermal heat pumps and insulating glazing into his buildings. Herzog is probably best known for his ‘wings of glass’ residential projects, which situated the layout of the rooms depending on their heating needs. Consequently, areas needing more heat were situated more centrally or no internal heating at all if situated with south facing outlooks in the case of conservatories. To Herzog, the visual form of the building is not a primary issue, but what is important is its intrinsic properties that are in tune with the environment (Schoof, 2013). In an era when intelligent buildings and cities are arguably de rigueur in current built environment conceptual objectives, Herzog serves as a reminder of the need to be sensitive to the environment and less dependent on gratuitous technology.

Broadly, though sustainable architecture attempts to lessen the environmental impact relating to matters of conservation, comfort and carbon footprints during the life cycle of the building, how the building performs in abnormal conditions is a question of resilience. There is no doubt that energy saving devices and thermally insulating construction materials are environmentally beneficial, but don’t count for much if the

building is hit by a freak flooding, typhoon or man made disaster. Since hurricane Sandy hit the east coast of the U.S.A. in 2012 inflicting havoc on tens of thousands of the population, resilient design has become a stock phrase with architects, planners and policy makers (Fehrenbacher, 2013). A building designed and built with resilience should take into consideration the points of stress of everyday usage, but also pay attention to possible local environmental conditions; consequently, resilient architecture is locally specific. In order to absorb the effects of future stresses and shocks Craig Applegath, founder of Resilient City.Org proposes six strategies for creating a dialogue in dealing with the challenges to resilience.

Growth and Density – Higher population densities – a minimum of 50 dwellings per hectare. Transit oriented development strategies.

Energy Performance - Zero Carbon – photovoltaics, solar water heating, sun/light shades – Liquid metal batteries – Thorium Nuclear.

Local Food Production – Limited production as a result of climate change – Urban food production/vertical approach to farming – high efficiency urban farms.

Modularization: Key Infrastructure Systems – Incapacitation and end of life mitigation – Modular, local power systems – Small and decentralized – E-energy a digital network optimizing energy systems.

Integrated Metabolism – Reduce the need for energy and water – Grouping of water/sewage/ energy systems – Bi products of the system feedback through nutrients – Living machine.

Infrastructure and Building Fabric – Change and increase in severe storm patterns - Learn from past durable structures – Material life cycles – Protective design features – Retrofitting.

(Applegath, 2012)

Applegath's six conceptual tools are intended to "kick start" a dialogue and thinking necessary to implement a resilient plan of action. The toolkit is directed at planners and designers who are able to contribute and influence the general structure of the model depending on the wider context.

Resilience is becoming a significant element within design zeitgeist and is reflected in many development projects. The notion that a building should be able to cope with any eventuality is the focus of architects such as Koen Olthuis, arguably best known for designing buildings that float in regions with rising sea levels (Fehrenbacher, 2014). The need to design buildings that respond to the conditions exacted by climate change is at the heart of architectural resilience thinking. How this is achieved is both challenging technically, but arguably more importantly is how planners and stakeholders implement this in an ecologically empathetic manner.

2.9 Montenegro – Green Building Development and Rating Systems

The Boka Kotorska region of Montenegro has since independence has been developing at a rate that does not always sit comfortably with local communities. Montenegro as a self-declared eco state is on the face of it committed to the credence of sustainability. Building green is clearly beneficial in regards to public health, perception and the broader environment, but significantly increases marketability and "occupant productivity" (Fowler, Rauch, 2006). Accordingly, development projects such as 'Lustica Bay' and Porto Montenegro are promoted as green developments and in the case of Lustica Bay (Figure 4) buildings are promoted as Leaders in Energy and Environmental Design (LEED) with a silver medal rating.

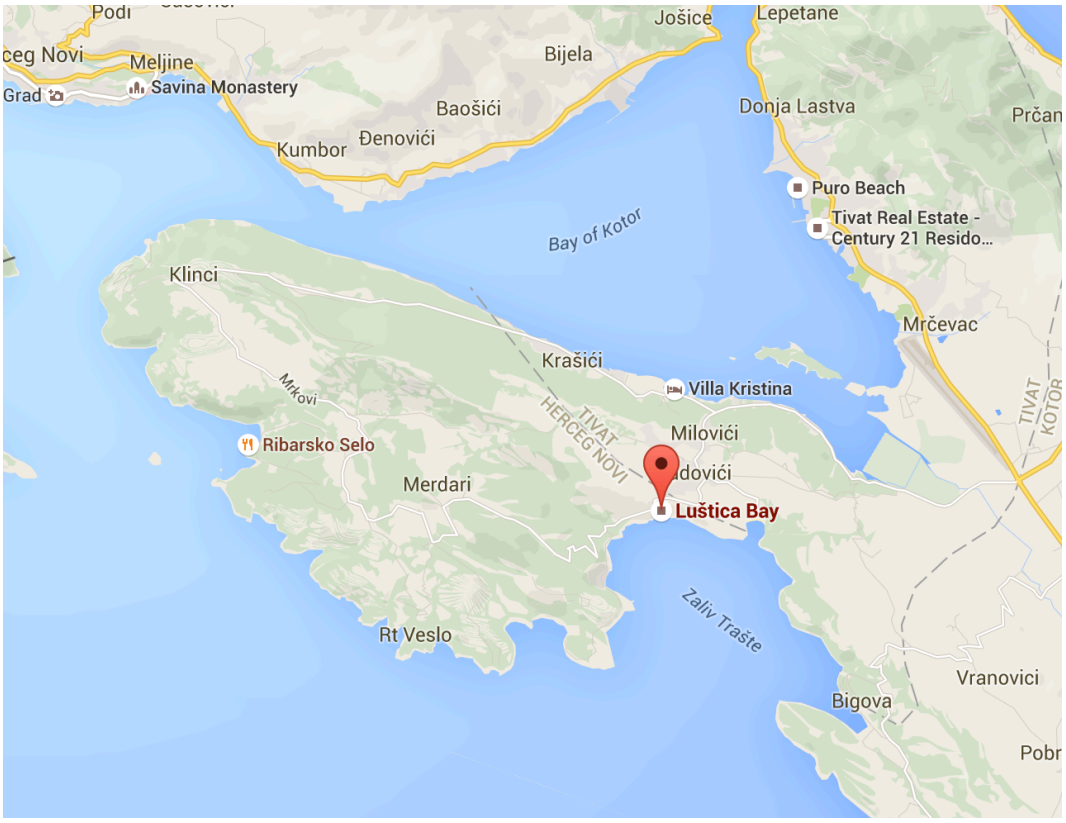


Figure 4: *Lustica Bay*

The international assessment and rating of green building practices varies in accordance with which of the codes developers choose depending on local environmental variables. There are two types of rating tools; one based on a criteria system the other on the Life Cycle Assessment (LCA) methods. The two types of tool can be characterized on one hand as an 'assessment' mechanism for the provision of quantitative performance indicators for design options, alternatively 'rating' tools specify performance based on star classification (Ding, 2007). The Building Research Establishment Environmental Assessment Method (BREEAM) was established in 1990 as the first building environmental rating system and continues to act as an international standard for sustainability operated and applied by local operators and assessors (BREEAM, 2014). The Leadership in Energy and Environmental Design (LEED) rating system is the U.S.A.'s version of the criteria based assessment method as is the GBTool in Canada, Ecoprofile in Norway and Environmental Status in Sweden. In the late 1990's environmental assessment tools that

included a more significant use of LCA methods were adopted. These systems focused more on building design and materials, local utility and waste disposal options and energy and transport. As such, Beat is the Danish version, Bees the American, KCL Eco in Finland and EcoQuantum in the Netherlands (Hikmat, Nsairat, 2009). One of the more culturally sensitive LCA methods is the Sustainable Project Appraisal Routine (SPeAR) devised by Arup in 2000 and released for licensing for its users in 2012. The SPeAR method has twenty three core indicators of sustainability based on the three pillar sustainability paradigm and uses a visual traffic light system i.e. green representing good outcomes and areas in need of improvement are amber and red. SPeAR is flexible as it can be applied to a broad range of development projects from large port developments to individual buildings (Arup, 2012). Despite its visual accessibility SPeAR is a complex system as the twenty three core indicators can be sub divided into secondary indicators and consequently professional assessors are required to score the given development project.

In terms of which assessment method would be a good fit for Montenegro, or in other words which tool is the most appropriate for a developing country Gibberd (2005) observes the following.

• Infrastructure: Required to increase access to productive resources – to meet sustainable objectives.

• Capacity: Low levels of capacity and education – require education and capacity building programmes to establish appropriate frameworks that manage potential impact and are sustainable.

• Participation: Involving local communities in the process of development in order to identify and understand the needs of the people that will be directly affected.

• Social exclusion: Address the requirements of the old, poor, uneducated and disabled people whose needs may not have been addressed by existing approaches.

• Social priorities: Address urgent social priorities – health and education.

• Economic priorities: Address urgent economic priorities – unemployment

and inequality.

• Development limitations: Address limitations such as water/energy shortages and lack of financial resources.

• Indigenous systems: Draw on existing indigenous systems that are sustainable – cultural and knowledge.

(Gibberd, 2005)

Though Gibberd emphasizes the social and cultural elements of development he stresses that environmental issues should not be overlooked and new infrastructure projects should be “developed correctly”. To be effective there needs to be a proactive approach to sustainable principles in the building industries and will therefore require an “easily adoptable approach”. As such he recommends two components to the assessment process – a framework for assessment and a “set of processes that ensures that the framework is used to guide action in buildings and construction” (Gibberd, 2005).

The LEED assessment model is evidently the favoured framework for sustainable developments in the Boka Bay region of Montenegro. As previously noted the Lustica Bay development is LEED certificated and this system is to be replicated in the current Kumbor Marina project. The Kumbor development or the future resort of ‘Portnovi’ as it will be known is built around a 250-berth super yacht marina. New buildings will include 550 residential villas and 150 commercial units. The Montenegrin government in partnership is financing the construction of the resort with the Azerbaijan state oil company (SOCAR) (McCabe, 2015).

There are numerous commonalities between all of the building assessment methods as some countries have developed their own systems based on the structure of BREEAM, but have adapted elements to suit their requirements such as Greenstar, BASIX and Accurate in Australia (Ding, 2007). The two most widely recognized environmental assessment models used internationally are LEED and BREEAM and as such have overlapping assessment features. The prescriptive elements in

BREEAM are more onerous than in LEED with the targets in BREEAM usually being linked to particular technologies. LEED is less prescriptive allowing greater leeway for designers to use their discretion in meeting required standards (Inbuilt, 2010).

Both BREEAM and LEED have different versions of assessment criteria depending on the building type. Accordingly, all of the criteria based tools could be chosen on the basis of the desired results. This approach has obvious associated issues as if one gives better results the related tool could be promoted by users preferring particular criteria therefore negating the reliability of the assessment method (Haapio, Viitaniemi, 2008).

Generally it is acknowledged that the assessment tools do not adequately engage with the wider social and economic aspects of sustainable development (Gibberd, 2005; Haapio, Viitaniemi, 2008). As such, Haapio and Viitaniemi consider the potential of the sustainable building as rated by current sustainable assessment tools being the “low quality building of the future”.

2.10 Green Building Council - Eco House

Montenegro’s Green Building Council was established in 2008 and is one of a network of national councils that make up the World Green Building Council (WGBC). As such, the WGBC aims to support national councils by facilitating strong leadership and organizations that promote green building and respond to environmental issues such as climate change.

Effectively, the primary objective of the WGBC is to foster relationships between NGO’s, commercial, academic, governmental and other associated built environment stakeholders that facilitate an increase in sustainable development awareness. This influence (projected) in turn will bring about an increase in certified green building projects and outcomes from the current building stock at 4 percent to 40 percent over the next

decade (WGBC, 2015). However, the WGBC does acknowledge that once a green building is handed over to the client the feedback loop is effectively closed and more need to be done regarding wider social and cultural impact.

The president of the Montenegrin Green Building Council (GBC) is James Collins a retired British diplomat. He and his wife settled in Montenegro in 2006 and began the process of looking to buy a house and settling down to retirement. Through an evolutionary process combining the frustration and disappointment involved with local real estate negotiations they eventually decided to build their own property and to German Passivhaus standards (see Figure 1). Passive houses are developed on the principle of low energy usage by employing “excellent insulation prevention of thermal bridges, airtightness, insulated glazing and controlled ventilation” (Feist, 1998). James Collins and his wife Anke are now owners of the first Passive House in Montenegro although internationally there are estimated to be about 30,000, the vast majority being constructed in Scandinavia or German speaking countries (Rosenthal, 2008). During the construction of the house James and Anka kept an online blog of their experiences, which prove to be a valuable insight into the problems of building green in Montenegro (Figure 5).

Figure 5: *Location of Risan*

Figure 6: *Passive House*

The house is situated in Risan district of the borough of Kotor in the Boka Kotorska (Figure 6). The particular area that the house is being built has very high levels of rainfall. Despite this Collins believes there will be water shortage issues in the future, as Montenegro in general does not

adequately conserve water, therefore contingency water harvesting is being planned especially for the summer months. He also plans to recycle as much as possible by developing a grey water systems in the form of a septic tank that converts washing machine run off from anaerobic to aerobic wastewater. In regards to energy, he would like to include photovoltaic panels in the future, but at the moment is constrained by the cost.

The general specification of the house is in accordance with the Passive House requirements for Passive House certification.

- **Space Heating Energy Demand** is not to exceed 15 kWh per square meter of net living space (treated floor area) per year or 10 W per square meter peak demand.
- **Space Cooling Energy Demand** requirement roughly matches the heat demand requirements above, with a slight additional allowance for dehumidification.
- **Primary Energy Demand,** the total energy to be used for all domestic applications (heating, hot water and domestic electricity) must not exceed 120 kWh per square meter of treated floor area per year.
- **Airtightness**, a maximum of 0.6 air changes per hour at 50 Pascals pressure (ACH50), as verified with an onsite pressure test (in both pressurized and depressurized states).
- **Thermal comfort** must be met for all living areas during winter as well as in summer, with not more than 10 percent of the hours in a given year over 25 °C.

(Passiv-Haus Institute, 2015)

The main obstacles to realizing the ambition of constructing the first Passiv-Haus in Montenegro are arguably predictable – bureaucracy and communication issues with contractors. The ability to test certain systems such as airtightness is another area of concern (Collins, 2015). However on balance and despite the difficulties involved, the project can broadly be gauged as successful.

2.11 Conclusion

Urban sustainability requires active participation from humans. The interconnection of town and city dwellers and the urban landscape is part of the broader process of achieving genuine sustainability. If the concepts of resilience and sustainability are to gain traction and therefore resonate with people, it is essential that the fundamentals of sustainable development are clear. This is not the case. Fuzzy and expedient interpretations of environmental policy can be traced to overly complex and often ambiguous interpretations of the three-pillar paradigm and resulting patchy ‘green’ design outcomes. Vernacular practices have much to offer in terms of engaging with societies, however vernacular principles are open to similar misinterpretation by developers and built environment stakeholders. If genuine sustainable development within the study region is to be a meaningful reality it will be necessary to create an accessible and clear understanding of all of the foundational components of what it means to be ecologically viable.

Chapter 3

Urban Landscapes, Modernism and Vernacular

3.1 Introduction

Until the late 1960's in the Boka region, the inhabitants of the villages located around the three main towns of Tivat, Kotor and Herceg Novi (Figure 7) were growing crops such as maize, wheat and tobacco. Villagers regularly supported cultural activities within the village social club and regarded themselves as being self- determining communities. The growth in tourism in the region effectively ended this economic and cultural autonomy as many of the villagers moved to the towns for employment within the tourist industry. Accordingly, population densities in the coastal regions of Montenegro were 52.4 per square kilometre in 1961 and have steadily risen to 91 persons per square kilometre in 2003 (Ministry of Economic Development, 2007). More generally, humanity is transforming from a predominantly agrarian to a mostly urban species. In the year 1900, 14% of populations were urban dwellers, rising to 29.1% in 1950 and 47% in 2005 (United Nations 2004). Given this continued increase, urban areas will effectively be the primary source of habitation for human beings. The remaining occupants of the surrounding villages are in many cases now being assimilated into expanding urban centres as a result of tourism, foreign property investors and developers and increasing population growth. Put simply, those that chose not to move to the towns are now being absorbed into them whether they like it or not.

Figure 7: *Locations of Herceg Novi, Tivat and Kotor.*

On the face of it, increasing development and the corresponding increase in population densities can be responded to by 'tried and tested' models of urban development. However, whether these models are appropriate for the Boka region is a moot point. Many of the new developments do not appear to reference the cultural heritage, the landscape or architectural character of either the existing urban hubs or the village vernacular. The relationship between building form and the landscape lies at the heart of this thesis. In particular, the concept of vernacular approaches and contribution to the objective of enabling communities to build healthy and distinctive environments. Consequently, the possibility of alternative perspectives on generally held assumptions of architectural and landscape sustainable practices are reviewed within the context of broader sustainable paradigms and suitability for the development of the subject area.

In urban regions in the U.K. developers have successfully marketed their projects to appeal to aspirations of sophisticated metropolitan lifestyles, reflecting a perception of culture change in favour of towns and cities. The

increase in urban densities is viewed as a valuable component of sustainable living by governments, planners, architects and other vested interest groups. High-density, compact living is regarded as a marker to sustainable living. As such it is argued that compact cities encourage and promote social and cultural interaction and inclusion, enhance local economic development and engender improved transit. It is also contended that the negative features of density can be mitigated through effective design. The notion of high-density living measure is now a mainstay of global urban development philosophy and is evident in developments throughout Montenegro a region in transition, coming to terms with inconsistent cultural and urban development.

3.2 Densities and Mixed Usage

Higher density living is generally considered to be a valuable component of sustainable urban development (Jenks et al., 1996: Williams et al., 2000). Higher urban densities are viewed as conducive to creativity and vibrancy, in contrast with suburbia, which is perceived as monotonous (Elkin et al., Unwin and Searle, 1991). Compact cities help reduce the tendencies to peripheral urban sprawl, which is associated with a heavy reliance on automobiles, the sapping of local resources and the destruction of open space.

The rationale for higher densities within urbanity in connection to the aspiration of sustainable living are well established, and advocated in government planning (U.K.) and guidance documents, accordingly, 60% of all new development is destined for brown field re-use (Williams et al., 2000). Brown field regeneration is for the most part regarded as a better use of land resources. Even so, the move towards increasing densities is not without controversy. Arguments against include the notions that rural communities would be economically neglected by the focus of activities within existing towns and cities (Breheny, 1992). Additionally, social segregation would increase as a result of high cost of accommodation in

the city centre and more well to do suburbs (van der Valk and Faludi, 1992).

The debate into the credibility of higher urban densities is undoubtedly a vexed issue though multi use complexes are now a familiar architectural characteristic within metropolitan areas globally. The self-contained box, combining ground floor retail, leisure and restaurants with upper-floor dwellings and gyms, are a now commonplace feature of metropolitan centers.

Though there are obvious benefits in the revitalisation of previously forgotten areas of urbanity, the diminishing role of civic authorities in the creation of public spaces is a cause for concern. The emergence of mixed-use developments by multi national corporations in partnership with provider city authorities, has contributed to the perception of the homogenisation of urban spaces. These complexes are often designed by signature architects in effect to create a brand, in order to bring about an awareness of corporate identities to a wider public consciousness. The term 'Brandhub', denotes a form of self-contained space designed to reflect a brand at an international scale. They are arguably overly influential, contributing to the generic homogenisation of urbanity. Conversely, it is reasoned, they have the potential to establish an image as a socially responsible institution. As such, the Potsdamer Platz in Berlin owes its 'new' image as an urban entertainment destination, to Sony and Daimler Chrysler, who in turn will benefit from its historical associations and favoured location (Lehrer, 2002; Klingmann, 2003; Hoeger, 2007).

Nevertheless, there are those that dispute the objectives of 'the compact city', regarding suburbs as a successful way of managing and reducing congestion as roadways are able to redirect traffic from congested areas (Gordon and Richardson, 1997). It is also suggested that new industries are developed outside of city boundaries and therefore workers should be able to commute locally to their place of work. This line of rationalization is countered by the assertion that this essentially free market ideology, which

is overly accommodating of “short term economic logic” and ignores the distortions attributed to “concentrated power” (Ellis, 2002).

The landscaped areas between newly built multi-use developments within U.K cities such as Manchester and Liverpool are typical and indicative of a more corporate inspired urban landscape form at a macro scale. Designed nature within the public spaces in new multi purpose developments are symptomatic of the perception that most landscape designs are replications of one another (Bell, 1999). The design quality of the public spaces in many urban regeneration developments does not appear to be a primary issue. Accordingly, Rogers (2005) observes that the perceived lack of vision at the outset of the design and planning stage is compounded by a fragmented procurement and delivery process. The focus on site delivery rather than the quality of the design is unfortunate. The role of designed nature in establishing ‘placeness’ and a sense of public ownership (Nassaur, 1997) is increasingly important given the rise in urban population thresholds. Mistakes made at a macro level are being duplicated within local developments and as such, communities with multi ethnic cultural backgrounds are being served generic planning and design outcomes. Within the context of Montenegro the nature of recent urban developments in the capital Podgorica reflect the focus on mixed usage architectural solutions. This approach is also evident in developments in towns on the coast such as Budva and Tivat, although similar developments are beginning to filter into more rural regions.

3.3 Landscapes, Health and Well-Being

With increasing numbers of people inhabiting urban communities the need for imaginative design responses to the implementation of green spaces becomes more relevant. In the case of the Boka region the manner in which urban form integrates with landscape and existing vernacular dwellings is intrinsic to notional values of identity. The interaction between nature and culture is regarded as a critical characteristic of landscapes

(Naveh, 1995; Antrop, 1997). Within towns and cities the diversity of cultural landscapes, aesthetics and a sense of place are central to the objective of a more sustainable urban landscape form. It is also important to recognize the underlying connection between art and science in urban landscapes and the positive and negative affects on health and well-being that can be created by design choices. Effective or poor design outcomes can either depress or lift the spirit. Therefore, it is proposed that humans respond positively to designed nature and that green spaces within urban areas boost health by restoring mental fatigue (Kaplan, 2001).

Stress related illnesses have become a global health matter. Mental health issues and cardiovascular related diseases are expected to be two major contributors to illness within all age groups of both sexes by 2020. If people are unable to find restoration from the effects of stress their health will be adversely affected. The World Health Organisation (WHO) rates stress and physical inactivity as two major causes of death in the developed world (WHO, 2008).

The relationship between the perceptions of the surrounding environment through our senses can appreciably affect human health (Kaplan, 2001). Consequently, the longer people spend in urban parks or nature reserves, the greater the restorative benefits are to improved mental health (Mitchell and Popham, 2008). In spite of this, it is overly simplistic to suggest that creating greener spaces within urban developments are conducive to promoting notions such as well-being. Characteristic factors such as educational backgrounds, health and marital status are influential matters when appraising subjective well being (SWB), though research suggests that personality traits are more instrumental in determining cultural well being (DeNeve & Cooper, 1998). Nevertheless, the effects on SWB by non-trait issues are equally as important. For example, bringing about pleasing moods by altering environmental conditions, personal circumstances or even a trip to the cinema can lead to considerably increased feelings of sociability (Cunningham, 1988). Therefore, long-term

high levels of positive effect could conceivably induce greater sociability (Deiner, et al. 2003).

Cultural traditions and political perspectives can also influence the general outlook and life expectations of communities. An example of the manner in which cultural heritage can impact on a sense of well-being are observed by Oishi (2001). Generally, she identifies studies where European Americans and Asian Americans perceptions of their experiences of the previous week were generally regarded as positive or negative on a weekly basis depending on cultural background (Oishi, 2001).

The variance of types of cultural philosophies or politics, play a significant part in establishing certain attitudes to positive and negative outlooks. Consequently, thinking about one's group membership in collectivist political/cultural environments elicited negative consequences such as avoidance or focus on loss. Conversely, focusing on one's self independently of others i.e. the individualism usually associated with capitalist western cultures, brought about more positive attitudes such as focus on gain (Elliot, et al.2001).

What is clear, is that culture has a significant part to play in how we feel as human beings, man is connected to nature and society and consequently part of a living environment. How humans experience landscapes is broadly determined by how they feel about them. The cultural identity of the Boka Kotorska is broadly consistent with Balkan and Southern Slav traditions. However in the movement to E.U. accession and the changing face of the cultural and spatial landscape brought about by foreigners the status quo is perceived to be under threat.

To evaluate or explain the phenomena of our visible surroundings it is necessary to be cognizant and understand their value, which involves making a judgment of its personality (Makhzoumi, Pungetti, 1999), or in other words have a conscious understanding and awareness of our immediate surroundings. Designers, planners and local stakeholders

determine the impact of the landscape within the urban landscape. Consequently, the feelings and experiences evoked by artistic interpretations and design of nature are fundamental to the communities inhabiting urban domains. “Since art is necessary to man and landscape necessary to art, landscape becomes a relevant feature in mans life” (Makhzoumi, Pungetti, 1999).

The cultural value of the Montenegrin landscape is not lost on policy makers and commercial organisations within the Boka region. As such, the Montenegrin government is on the face of it is committed to the protection of ecosystems and habitats being regarded as ‘natural capital’ of the state. This commitment acknowledges traditional biodiversity values as preservers of “natural balance” and “favourable living conditions”, but tellingly, also draws a connection between landscape and tourism (Government of Montenegro, 2012). The interrelationship between urban form and landscape is fundamental to the successful evolution of ecologically empathetic development and is therefore a central characteristic of a viable ecological state.

3.4 Characteristics of the Designed Landscape

Montenegrins are proud of the diversity of the landscape and although foreign investment in tourist and infrastructure projects is generally regarded as positive, anxieties exist over the increasing development of the region (Zekovic, 1999). How urban form integrates with landscapes is a source of contention amongst built environment stakeholders. The rationale for more considered applications of ecology to facilitate more restorative spatial characteristics is persuasive, as western societies are living their lives further away from nature. Designed nature is an integral component of more livable and therefore more sustainable urban form.

Establishing aesthetically engaging but environmentally viable landscape designs has polarised landscape design theory. This has inevitably affected the quality of design and consistency of many shared public landscaped spaces and is a fundamental feature of new developments within the Boka Kotorska.

Generally, the debate circles around the opposing contextual visions of a modern structured approach and, a more natural world inspired model for landscape form. The notion that nature should inspire design philosophy is not a recent phenomenon. Over forty years ago Ian McHarg published the seminal Design with Nature (1969), which has since inspired generations of designers, academics and environmentalists. McHarg argues that nature has been 'designing' for much longer than humanity and the idea that we can improve on nature is deluded. The notion that architects and designers can design for the environment without having a deeper understanding of the fundamental biological processes (plants, animals, micro organisms etc.) i.e. interacting systems, can be ecologically detrimental to the specific locality. McHarg dismisses architects as prima donnas and modern architecture regarded as anything but modern as it fails to utilize any significant knowledge established in modern times.

In common with McHarg's disparaging judgments on architectural design Michael Hough (1984, 1995) challenges the conventional aesthetics of the formal designed application of urban spaces. Accordingly, he contends that the landscapes of nature, with their origins in poverty and necessity hold significant lessons in the pursuit of a more sustainable urban form. He acknowledges the validity of the vernacular landscapes of forgotten places, rooftops, pavements or wherever a foothold can be gained. This natural processes driven ecological approach to designed urban ecology runs counter to the established designed landscape of mown turf and regimented planting, but ultimately frames the dilemma in establishing a "new paradigm". As Hough sees it, the challenge for the urban design professions is to channel existing knowledge structures in creating a radical renegotiation of placeness within such spaces. McHarg and Hough

bring to light their concerns on the subject of the education of built environment professionals, particularly in regard to lack of understanding of biological processes.

The relationships between the landscape and an artistic understanding of the processes that shape them have a presence in the form of land art. Artists such as Robert Smithson, Dennis Oppenhiem and Richard Long were pioneers of the conceptual and philosophical relationships between humanity and the landscape that have informed the works of others such as Andy Goldsworthy and Anthony Gormley. Land art is a visual reminder of the realization that humans are inextricably connected to the environment in which they exist.

David Orr is fundamentally concerned at the general state of education relating to awareness of environmental and ecological matters. Orr (1994) considers the nature of intelligence in the context of our relationship with the earth and suggests that landfills, eroded soils, polluted rivers and acid rain are evidence of a “learning-disabled species”. Orr proposes an alternative model for greater ecological intelligence and consequently he suggests:

- Questioning the standard model of pre-ecological intelligence.
- Rewarding intelligence in a more creative way.
- A first hand educational experience of nature.
- Enhancing liberal arts with subjects such as ecological engineering, agriculture and solar technology.
- Encourage professions associated with the environment into education as mentors and role models.
- Attempt to learn from what we imagine the earth might teach us – humility, obligation, wildness.

The holistic approach espoused by Orr may appear to be fanciful in the mind of the seasoned sceptic, but landscape design academics and practitioners repeatedly address the fundamental issues he highlights in

response to scientific awareness. Accordingly, Robert Cook (2000) reasons that a “new paradigm” has emerged due to the dynamic change in the underlying assumptions supporting an understanding of the natural world. He contends that a greater understanding of ecology aids the designer as design projects usually involve intervention and rearrangement of the land. A biological understanding of the consequences would help and predict the control and outcome of the intervention. In other words the designer is able to identify an aesthetic that will have minimal impact on the ecological function of the site. Additionally, the narrative of the ecology and feelings provoked by an ecological perspective, could serve as an aesthetic and therefore inspirational challenge to the design process. This effectively trans-disciplinary amalgamation of design and landscape ecology and its application to urban planning developments is subject of much discussion (Turner, 1989; Hersperger, 1994; Ahern, 2005; Wu, 2008). The science of landscape ecology is a potentially welcome addition to the urban planning process, due to its emphasis on the interface between humans and nature. Herperger reasons that what differentiates landscape ecology from the traditional planning approach are the focus on biophysical and socio-cultural activity in the process of spatial change. The trans-disciplinary, new paradigm approach on the face of it has much to offer to the development of a potentially more sustainable urban landscape form. Nevertheless, progress has been slow in practice, despite designers and architects expressing more enlightened attitudes to landscape ecologists, and vice versa. Ahearn suggests a three-stage process to facilitate the practical realisation of a trans-disciplinary approach.

- The first stage is the articulation of basic theory and first principles, synthesizing the knowledge base, and framing questions for future research.
- Secondly, planners and designers ask intelligent questions of scientists based on their understanding of landscape ecology theory and principles.

- The third stage should be an integrative reciprocal process involving the exchange of principles and knowledge relating to how science informs design and design informs science.

According to him, the result could be prescriptive and descriptive resulting in more ecologically consequential designs. In reality, if the urban landscape is to engage with and enhance the restorative experience of its inhabitants, therefore connecting people with nature, new paradigm objectives should present a more concrete design model than expressions of rhetorical intent. In emphasizing the issue of rhetorical intent Ahearn identifies the fundamental issue of the paucity of practical outcomes, which is echoed by Nadenicek and Hastings (2000). They argue that within the field of landscape architecture various polarised rhetorical positions have been expressed on the preservation, ecological and integrative nature of the subject. In reality however, despite countless perspectives on environmental issues being expressed, for most part professional practice does not support the rhetoric.

3.5 Integrating Architecture and Landscape

A more proactive approach to a more nature inspired to urban development is dealt with by the 'Landscape Urbanism' agenda. Fundamentally, Landscape Urbanism identifies the landscape as a theoretical model for urban form rather than architecture. Charles Waldheim is closely associated with formalization of the philosophical principles underpinning Landscape Urbanism. The "Landscape Urbanism Reader" is edited by Waldheim and is comprised of a series of essays by leading academics and designers connected with the conceptual origins of the proposition. Consequently, James Corner's essay observes that some architects, urban planners and designers are beginning to move to a shared form of hybrid practice where the landscape is a formative element. Corner argues that this represents a departure from the

traditional view of the landscape being separate to the city. The notion of the ecology of the city and the cultural, social, and economic consequences of this symmetrical existence are still to be fully researched and understood.

The emergence of “landscape urbanism” is a reaction to the polarising arguments of pro and anti urbanisation ideologies. This unorthodox approach to landscape study and practice is not newly exclusive to contemporary design disciplines. A more progressive approach to ecological urbanity can be formulated through existing knowledge structures, such as rethinking the nature of place in small patches of urban space within what Berger (2006) describes as “drosscape”. Berger attaches no value system to these post-industrial spaces; they are neither bad nor good, but in need of new conceptualisation. Though there are parallel points of issue, this should not be confused with the Junk-scape of Rem Koolhaus who also challenges ‘received wisdom’ attitudes from the perspective of the architect between architecture and urbanism arguing that:

“it will no longer be concerned with the arrangement of more or less permanent objects but with the irrigation of territories with potential; it will no longer aim for stable configurations but for the creation of enabling fields that accommodate processes that refuse to be crystallized into definitive form; it will no longer be about meticulous definition, the imposition of limits, but about expanding notions, denying boundaries, not about separating and identifying entities, but about discovering unnameable hybrids; it will no longer be obsessed with the city but with the manipulation of infra-structure for endless intensifications and diversifications, shortcuts and redistributions - the reinvention of psychological space."

(Koolhaus, Mau, 1995)

The ownership of the parcels of land existing between buildings is reviewed and contextualized in relation to establishing sustainable places,

by Joan Iverson Nassaur (1997). From the proposition that “people take care of what they own”, Nassaur Iverson discusses the notion in the context of “creating new habits” in establishing a greater understanding of the ecological health of the landscape. In creating a pride of ownership of particular parcels of land she reasons that traditional aesthetic expectations could be enhanced with indigenous eco-systems without compromising the public’s perception of aesthetic customs. Citing several case studies Iverson Nassuar illustrates the effect of introducing indigenous ecologies within conventionally valued landscapes, consequently making the case for bolder applications of indigenous species. However, the continuing debate concerning the relative merits of aesthetics pertaining to sustainability is as Nadenick and Hastings observe, not reflected in the output of practical ecologically viable designs.

Although examples of academically consonant relationships between landscape and urban form are on the face of it infrequent, there is evidence of radical, pro-active applications of designed nature within contemporary urban developments. The existence of green roofs and living walls is evidence of a more inspired adoption of landscape and architectural processes and are comprehensively examined by Stephen Cantor in ‘Green Roofs in Sustainable Landscape Design’ (2008). Cantor details a diverse range of applications in a disparate range of conditions and locations and defines the distinctions between various types of applications. Practical factors such as relative merits of conventional versus green roof technology are presented with the assistance of diagrams, charts and photographs. Cantor provides definitive descriptions of the range of vegetation that are applicable to varying climatic conditions and presents a series of case studies reviewing the context and concepts relating to specific design requirements.

The potential for such approaches in the Boka region is debatable. Broadly, most developments within the coastal region (tourist or otherwise) reflect a conservative approach to implementing green space. For example, within ‘Porto Montenegro’ trees are planted in rows, horticulture

in confined to designate box formats with little integration with architectural form. In short, green spaces appear to be an afterthought. This overly conservative approach to embracing the landscape is discussed by Corner (2006) when reflecting on the historic inability of architects to draw trees. However, the growing awareness of environmental and global ecological issues has rekindled an appreciation of the landscape as a model for dynamic sustainable urbanism.

3.6 The Significance of Design and Green Spaces

The application of diverse ecologies within cities is viewed as a valuable addition to energy conservation and also a fundamental element in establishing unique regional identities. The estimated exponential rise in urban population densities (United Nations, 2004) raises distinct sustainability concerns. Given the dramatic increase in city inhabitation it is increasingly important that people feel ownership and responsibility for shared public spaces. The emotional, cultural and social well-being of urban communities is dependent on numerous considerations and factors. The establishment of a sense of place and the role of ecology in achieving this is a primary element in the ambition of urban sustainability.

The conceptions of urban settlements as vehicles for green corridors, ecological-networks, green wedges and greenways (to borrow from fashionable terminology on the subject) have begun to take traction in urban landscape planning. On the face of it there are some stakeholder professionals willing to embrace green technological solutions to issues such as carbon emissions, waste management and water resource management. However, the rise in urban growth and higher density living present challenging conceptual predicaments for planners and architects wishing to apply bio-diverse and ecologically functioning green spaces.

The restorative qualities created by designed green spaces are all important to the ultimate objective of sustainable urbanity. As population thresholds increase, how the emotional health of urban dwellers is assisted through the deployment of imaginatively designed green spaces, becomes a marker for livability. Increasing nature within the city connects humanity with nature establishing regional identities and a sense of place. Furthermore, green spaces are a formative element in supporting energy conservation, economic benefits and reduction of the urban heat island effect as they mitigate the effect of higher urban temperatures. As new developments are constructed, carpeting urban areas with more impervious surfaces and reducing water infiltration, offsetting this effect is significantly assisted by urban green spaces. For example, in forests 95% of rainfall is absorbed whereas only about 25% is absorbed in cities (Scholz-Barth, 2001). This has obvious implications for flooding, but also for the retention of heat, contributing to the urban heat island effect. If water is not retained as a result of run off from impervious surfaces, the quantity of water available for evaporation is reduced.

Increasing the scale and scope of green spaces is a major challenge for architects, designers and planners. The process of marrying environmental principles with well-designed and aesthetically engaging green spaces is a fundamental issue. As such, green roofs are increasingly being viewed as a cost effective way of introducing environmentally dependable features within new and existing structures. London has installed 230,000 square metres in the last four years (Martin, 2009), and Chicago now has approximately 278,700 square meters of green roof space (Cantor, 2008). They are also described as eco-roofs, living roofs and brown roofs, but essentially provide an option for the adoption of a holistic, multi-disciplinary move towards the notion of living architecture.

The constituent elements of green roofs can vary depending on the needs of the client and location of the building. Generally, they are comprised of a substrate material usually composed of local non-organic materials that primarily act as a drainage medium. This underpins a vegetation support course of predominantly organic material, acting as the growing medium. The plant materials can vary depending on climatic and design requirements, but are typically sedum mixtures, herbaceous materials and grasses.

Living walls are a vertical correlation of green roof processes. Living walls can improve indoor air quality by removing toxic chemicals and carbon dioxide and can insulate against summer heat and winter cold (Cantor, 2008). They are a visible reference to living architecture and also connect urban dwellers with nature. Although construction materials and installation techniques are similar regardless of location, different climates and economies can determine local substrate materials and plant materials. The use of local materials and ecologies affords the architect and designer the opportunity to create corresponding regionally distinct living architecture. The living wall's principle benefit when compared with green roofs is its visibility. If people are to engage and feel ownership of a more nature inspired urban landscape they need to feel part of it, visually attached to the ecology of place.

The notion that 'placeness' can be realised through utilising the fortuitous landscape of forgotten places has been a source of theoretical deliberation for designers, planners and academics. As such, Hough (1984, 1990, 1995) argues that the creation of place is dependent on its regional identity. Connected to local ecological values and principles, the natural urban plants of forgotten places within the city, such as cracks in the pavement, walls, rooftops, or wherever a foothold can be gained. This natural process driven ecological approach to landscaping urbanity runs counter to well-established pedigreed landscapes of mown turf and formal

planting.. The theories expounded by Hough, Berger and others offer an alternative model to fixed conventions. Nevertheless, in practice for most part urban landscaping follows the traditional modernist method of applying vegetation and ecology. The conspicuous absence of less traditional approaches to designed urban ecology is indicative of negative perception of aesthetic accessibility. This is combined with a culture of the play it safe approach within civic authorities and built environment professions. For all of that, there are imaginative projects and developments that point to a more progressive move towards a more sustainable, culturally welcoming spatial landscape form.

In contemporary developments in the Boka Kotorska such as Porto Montenegro and Lustica Bay some attention has been paid to placing indigenous ecologies within architectural settings as recognition of ecological consciousness. Nontheless, this is more in the spirit of environmental corporate responsibility rather than the creative recognition of the potential for adding value to existing urban structures. As such this duplicates the general lip service paid to ecological values in many western developments that are in many respects confronted in projects such as the ‘High Line’ in New York City.

Originally an iron clad raised freight train track built 30 ft. above the street in the 1930’s until its disuse in 1980, the “High Line” has been transformed into a public park. The rail runs north to south from the terminus on 30th Street to the meatpacking district and is a visually distinct reference to post-industrial age resilience. Rail tracks and planted sections harmoniously co-exist with engineered sections and designed paving systems. The plantings are inspired by the fortuitous self-seeded landscape that grew in the track’s period of dereliction. Grasses trees and shrubs were chosen for their colour, texture and sustainability, with the focus being on local species. Perhaps surprisingly, the radical complexion of the development was embraced by the city, and the risk appears to have paid off (Martin, 2009). Crickets can now be heard in lower

Manhattan and the public has responded positively to this connection to nature. The “High Line” provides a potential benchmark for the future development of post industrial or brown field sites. It demonstrates a more nature driven approach to urban landscape design and establishes the function of the vernacular landscape in establishing a regional identity. As such it provides a radical alternative to the corporate modernist designs that are such a familiar feature of the contemporary multi-use urban developments. The “High Line” is the inspiration for other green developments within similar settings of urban deterioration. La Petite Ceinture in Paris for example is an abandoned secion of rail track running between the Porte d'Auteuil and the Gare de Passy-la-Muette. The first section open to walkers was opened in 2008 and is promoted as a haven of a rare bio-diversity of flora and fauna. Though the track does not ‘benefit’ from developers and designer input as yet, the track is becoming increasingly popular with tourists and further sections of track are to be made available to the public in the near future.

Dubbed Mexico’s High Line, the Chapultepec Project invokes obvious visual comparisons with the High Line – an elevated garden walkway running through a densely populated and developed urban environment (see Appendix A). The fundamental difference between the two is that the Chapultepec Project will be built from scratch. The ‘bridge’ will link a metro station to the Chapultepec forest also known as the lungs of the city. The walkway is viewed as an arm of the forest, designed to be family friendly and is routed to dip under existing roadway intersections.

The High Line is indicative of both a willingness of civic authorities and designers to take calculated risks and the inclination of local communities to embrace an aesthetic previously associated with inaccessibility. In common with many successful projects the High Line has prompted what have been pejoratively termed ‘copy cat’ developments such as in Mexico City and Rotterdam. However, the underlying message should be viewed as positive additions to a more bio-diverse urban environment.

The integration of ecology and design holds great promise for a more nature inspired urbanity. The marriage of logical and intuitive thinking and science, designed landscape pattern and ecology, provide a basis for the planning and design of sustainable environments. In reality, for most part the spatial and formal characteristics of cities continue to be determined by modernist and postmodernist design sensibilities. Attempting to define both narratives is a complex piece of business, though it is necessary to endeavor to represent their philosophical influence on everyday existence.

3.7 Modernism and Postmodernism – The Boka Context

Modernism has shaped the character of the urban form of the Boka Kotorska as the post war development of the region was in accordance with the Yugoslav model of urban development. Modernism is largely viewed as the antithesis of vernacular traditions owing to the universalizing nature of its ideology. On the face of it the vernacular traditions of the Boka Bay and the modernist structures that are a feature of its urban heritage are at odds with each other. This would be a simplistic supposition given the nature of how modernism evolved within Yugoslavia (see Chapter 4). It is the relationship and ambivalence between the two that could potentially form an elemental component to establishing a distinctive identity in the region.

The origins of modernism are a source of great debate. Philosophical supposition on modernity as an existential entity can be traced back to Baudelaire's seminal essay 'The Painter of Modern Life'. Accordingly, he muses that: "modernity is the transient, the fleeting, the contingent; it is the one half of art, the other being the eternal and the immutable" (Baudelaire, 1863). In addition to this it is reasoned that the shift from Descartes's maxim that " I think therefore I exist" to Rousseau's "I feel therefore I exist," prompted a switch from the rational and pragmatic to a more aesthetic approach to enlightenment (Harvey, 1990). This can be

broadly characterized as a more structured, intellectual and rational method of deduction, assuming reality has a rational structure i.e. a rationalist process. Conversely, an empirical approach emphasizes the role of experience, evidence and sensory perception in the construction of ideas. Individual interpretation of these positions could influence the manner in which cultural evolution could be directed politically, aesthetically and socially.

For most part modernism is an urban phenomenon and depending on where one is standing – Chicago, Moscow, Berlin or Paris one will experience a diverse range of interpretations of the modernist credo. The need to address the diverse range of problems connected with urbanization was the environmental petri dish in which modernism germinated. It is argued that this non-standardized translation of modernist principles was primarily as a reaction to the notion of placeness (Harvey, 1990). Not simply down to the architects acquaintance with local materials and traditions, but wider political, cultural and technical relationships with regional and provincial characteristics.

The obligation to deliver socially responsible urban settlements is a fundamental feature of architectural and planning strategies within modernist developments globally. Many of the principles relating to social justice have historically been linked to Le Corbusier's promotion of the Athens Charter. The origins of the charter were conceived in 1933 by the self styled Congress for Modern Architecture or Congres Internationaux d'Architecture Moderne (CIAM). Congress participants included Fernand Leger, Lazlo Moholy-Nagy and other luminaries in the world or art science and architecture. The principles outlined in the charter have influenced architects and planners for the major part of the 20th century with mixed results. It is reasoned that the charter does not address factors such as ecological, economic and social matters as thoroughly as other issues (Sert, 1973).

Whereas modernism responded to the challenge of creating social order in

mass societies through functionality and structure, its focus on the architectural object rather than the requirements of the site (Ellin, 1996), runs counter to notions of ecological integration. Post modernism, by contrast sought to address the wider needs other than the rigid adherence to form and function. In other words there was an attempt to address the relationship between human experience and architecture, a regard for architecture within the context of society (Huxtable, 1981). Postmodernism advocated a revitalisation of vernacular architecture that responded to social, economic and functional circumstances. Whilst this view of postmodernism strengthened the notional connection with humanity, some looked beyond the aesthetics, playfulness and superficiality to observe something more sinister. Jameson (1991) argues that postmodernism represented "the cultural logic of late capitalism". He reasons that the modernistic inclination to create and produce buildings into ‘virtual sculptures’ have contributed to the disintegration of traditional neighbourhoods. Consequently, introducing a ‘radical disjunction’ between modernist buildings and their surrounding environment is symptomatic of the elitist and authoritarian principles of associated actors. By contrast, postmodernism can be viewed as a type of ‘aesthetic populism’ and accordingly Jameson reasons that it should be viewed as a concept that embraces the presence and coexistence of disparate and ‘subordinate features’ and not as a style in itself. The notion of style manifesting as an aesthetic commodity, has fuelled an increase in the ‘unconventional’ as marketable product. Architecture being the most economically connected visual art form to the patronage of multi-national corporations is more likely to be dominated by the effects and populist nature of capitalism.

Robert Venturi’s seminal ‘Complexity and Contradiction in Architecture’ discusses the unacceptability of the lack of cultural significance in modernist architecture. Venturi argues that even the lowliest of non-modernist architecture can contribute to the cultural identity of the built environment. Additionally, he observes that the highest quality of formal design cannot replace cultural identity. Correspondingly, architecture fully

embracing and applying functional principles is not acceptable if not accompanied by cultural meaning. By stating the importance of historical and cultural references Venturi restores and re-establishes a value to the past absent in modernist forms. Though Venturi does not provide a template for achieving a more distinctive alternative to the universalizing nature of modernism, his suppositions have been adopted by others, resulting in the reshaping of the character of modern architecture.

Postmodernism uses familiar and borrowed elements from older styles, such as arches, columns and pilasters that are more recognisable and accessible to prospective consumers. This essentially culturally accessible element of post modernism, when lacking contextualisation promotes opportunities for profit making and consumption. Contextualising the origin of postmodern form is inevitably problematic. As such, meanings and references to vernacular forms may not be manifestly connected to the site in which they are developed and therefore lacking an identifiable cultural frame of reference. Accordingly, Portoghesi spotlights the relevance of archetypes in establishing relationships between the spatial characteristics of a region to the cultural experience of the inhabiting communities. He reasons that though some outcomes may not be immediately visually accessible or immediately popular to communities, they are innately more fathomable than their technocratic modernist counterparts (Portoghesi, 1984). The idea of creating distinctive archetypal references is a reoccurring theme within architectural design theory. Aldo Rossi's appraisal of 'type' subscribes to the need for monumentalism or the permanence of structures in establishing greater social aspirations. He rejects the idea of contextualization within urbanization as context and function change over periods of time therefore lacking durability (Rossi, 1984).

The philosophy of typology is a fundamental element in postmodern interpretations of urban design theory. From Neorationalism to

Neoclassicism or Feminism and Environmentalism to the concept of open architecture, the scope for shaping urban form through the process of contextualization is a critical aspect of modification.

In the context of the case study area the interpretation of the vernacular is a primary objective of stakeholders. The desire to establish a distinctive regional identity in tandem with attracting investment into high status developments with preindustrial pretensions have resulted in mixed outcomes. Vernacular design is founded in two reference sources depending on the origins of the design source. For example, in France and Britain vernacular usually refers to regionalism and usually in coalition with the presumption of pre-industrial or rural architecture. Alternatively, in the U.S.A vernacular is more closely associated with the historicism connected with ordinary buildings from an array of historical periods (Ellin, 1996). Whatever the etymological perception of vernacular traditions, the underlying relationship with context is a pivotal consideration in how contemporary vernacular is understood. As such, 'contextualism' as a feature of vernacular urbanism has developed to become an over arching conception of history and culture, stressing the significance of tradition, but also integrating contemporary components.

3.8 Vernacular Modernism and Restoration

The perception that modernism is the antithesis of a more ecology supported urban development process is open to debate. There are those that suggest that although vernacular architecture was absent from modernist theoretical discourse it nevertheless existed in practice. Accordingly, Huppauf and Umbach contend, "vernacular itself is one of the generative principles of the modern condition". They propose that although attempting to define vernacular modernism is problematic due to "semantic problems", its' influence is revealed in execution. In other words they argue that the individual, emotional and regional are constituent parts

of modernist principles as they play a pivotal role in the postmodern belief of the non-identical and non-rational. Correspondingly, they propose that the meaning of vernacular was adulterated by the negative perception of the German word *heimat.* The meaning of modern is universally understood and has comparable equivalence in all European languages. However, this is not the situation with the meaning of vernacular, which is "neither universal or unambiguous" (Huppauf, Umbach, 2005). In order to attain any type of core interpretation of vernacular principles it is necessary to employ an array of regionally distinctive translations. Generally, the core interpretation of vernacular is linked to belonging to the domestic domain rather than wider matters of state. Consequently, the absence of a wider conformity has led to fuzzy and sometimes sinister interpretations of the notions associated with vernacular; for example, the German adaptation of vernacular is heimat. Heimat is essentially related to the home and with distinctive associations with the spatial and societal characteristics of regions. The accompanying referral to emotional and abstract sense of belonging was open to subversion by the German National Socialists in particular. By purloining the notion of heimat and exploiting its ambiguous derivation, the Nazi's established a corrupted narrative associated with homeland and the exclusion of others.

The desire to avoid the trends of globalization and cosmopolitanism were as strong in post war Germany as in the rest of Europe, but the "reactionary connotations" associated with heimat contaminated the role and potential influence of the vernacular not just in Germany, but in the rest of Europe and the U.S (Huppauf, Umbach, 2005). German thinkers such as Ernst Bloch though unsympathetic to anti-modernist notions of the local and provincial associated with heimat, nevertheless attempted to separate the intrinsic association with place from nostalgic and political affiliations. For Bloch, heimat is not a place that can be invented or constructed; it is a place in the imagination or within dreams. He uses the metaphor of childhood to illustrate his version of the vernacular. As such, trust, security and happiness are its lifeblood, the elements of which come from lived experience and is continuously emerging, therefore offering no

fixed conceptualization for political misappropriation. The vernacular of the imagination to Bloch, is no less potent because of its implicit separation of vernacular from place. Conversely, notions of vernacular achieve cultural and political distinction particularly when acknowledged connections with place are disturbed. Accordingly, it is his beliefs that only through the practice of projecting the future in regard of “what is, what has been and what could be” can we engage in building a world “in which we are at home and realize humanistic deepest dreams” (Kellner, 2009). He reasons that we should take more notice of the progressive themes within artifacts and phenomena usually associated with ideology. Within these ideologies can be found images and figures associated with utopian depictions of a better world. This may involve the enhancement and embellishment of existing features in order to coexist with specific utopian visions of future home and happiness. Broadly, Bloch’s vision focuses on expression of the positive as a stepping-stone to an idealized hope for a better world.

The nature of the relationship between modernism and the vernacular may be open to thoughtful examination, but there can be no doubt that modernism expressed within the urban environment has shaped our emotions. The universal characteristics of international modernism continue to resonate within communities for a variety of reasons. Whether from the perspective of the occupancy of a post war high rise, to the configuration of the design layout of a school building, the effect on the collective emotional subconscious is significant. Paradoxically, the effect of modernism on our sense of ‘heimat’ and consequently our emotional perceptions of our immediate surroundings, shape the way we evaluate the built environment and awareness of psychological attachments to it. Counter to modernist principles modernist forms can be equally as evocative as their vernacular counterparts in establishing a sense of place. Or in other words modernism has become a cultural norm and its inherent forms are now a feature of the vernacular landscape.

To this end, the preservation of modernist structures has become a step in the direction of sustainability and urban restoration. Appraising modern era

buildings in regard to making them more energy efficient and reducing their environmental degradation is an obvious marker to a more sustainable form. However, the identity of a structure within particular communities and its relationship with the individual and collective sense of heimat is equally as valuable as a notable marker of vernacular. Transforming 'traditional' modernist structures to green buildings is problematic. As such, poor materials used in the original design combined with the reliance on fossil fuels (inexpensive at the time of construction) in order for them to be habitable are taxing topics. These matters combined with the assumption by the builders that the structures would be demolished on completion of their projected use are fundamental issues that factor into preservation schemes. Ultimately, preserving modern-era buildings will be driven by sustainability factors. The throwaway mindset is still a feature of contemporary culture and this paradigm is still evident in the application of refitting modernist buildings. For example Elefante (2008) suggests that the idea that most of the components of 'traditional' buildings are outmoded is erroneous. He identifies windows as a case in point comparing existing wooden frames that perform well and are easily repairable in contrast to modern replacement windows when considering their lifecycles. Modern aluminium windows with a potential lifecycle of centuries are fitted with seals with life expectancies of twenty to thirty years and are "nearly impossible to repair". He persuasively reasons that many of the supposed 'improvements' being applied to modernist buildings will be problems for architects within two decades as the limitations of "these hopeful technologies" are exposed.

The debate into replacement components or re-conceptualizing existing aging industrial elements within modernist architecture is contentious. Some of the earliest modernist landmark architecture was practically hand built Mies van der Rohe's Barcelona Pavillion for example. Nevertheless, for most part the architecture associated with international modernism utilized industrial processes and materials in construction. Whereas traditional materials such as stone, wood and non-ferrous metals acquire gravitas through aging and patina-affected aesthetics, industrially

produced materials are another proposition. Accordingly Fixler (2008) debates the pros and cons of time added value to contemporary materials such as composition board, fiberglass and aluminium. He argues that although contemporary materials lack longevity when compared to traditional materials there can nevertheless be engaging aesthetic outcomes created through aging and weathering processes. Fixler acknowledges the received wisdom of wherever possible restoring existing materials, but highlights the philosophical associations of “cutting-edge technology” as a symbol of modernist architecture. He therefore advocates the use of technologically innovative materials within the restoration of modernist structures presupposing their sustainable merits. He reasonably contends that modernist structures have historically been vehicles of cutting edge technologies and are therefore an intrinsic feature of the restoration process.

3.9 Post Modern and Rustic Vernacular - Ecological Alternative?

Within the Boka Kotorska as a whole the numerous rulers and administrators beginning with the Romans and Illyrians to Venetian rule and the Austro Hungarians have indelibly marked the local architecture. In general, typical Montenegrin houses are built from local stone with a ground floor separated into cooking and living area and in some cases a loft (Kapetanovic 2006). Within urban settlements in the mountains surrounding the Boka Kotorska the most common characteristics of the houses are usually in rows lined on either side of the street with rectangular base, a ground and second floor separated with lines of “symmetrically distributed doors and windows” At the street level there were shops, bars and craftsman stores, with each house having a garden and a yard (Vuksanovic 2006). Traditional coastal architecture around the region of the Boka Kotorska are characterized by the use of “large or small ashlar limestone, either of local origin or imported from the Dalmation islands”. The restoration and conservation of these traditional structures has in the past been hampered by damage as a result of the 1979

earthquake, vandalism and extraction of stone materials. Some owners it is alleged deliberately wait for the buildings to collapse in order that they are able to replace them with larger buildings This practice is an obvious concern regarding the desire to maintain an indigenous identity.

Since the 2008 global financial crisis and the corresponding downturn in tourism related economic activities in the coastal towns, people are once more viewing surrounding villages as economically viable and are beginning to restore traditional buildings within the villages. Two such villages and better examples of the influence of the geological morphology and cultural variance on the vernacular form of the mountains that outline the Boka Bay are the villages of Krusevica and Sitnica (Figure 8). Both are situated on the edge of a plateau bordered by a mountainous limestone perimeter. The houses and livestock buildings back onto the steep rock face of the mountain, which acts as the rear wall of the buildings. The structures are built from native stone with the older structures also having layered stone roofs reminiscent of Italian ‘Trulli’ houses though not conically constructed with the exception of the local church. No mortar is used in the construction of the roofs as the roof was also meant to ventilate the smoke from the internal open fire. Windows in the buildings are exceptionally small as the Turkish occupiers demanded higher taxes for larger windows. The rule of most of Montenegro by the Ottoman Empire occurred between 1459 and 1858 (Middleton, 2005). The exact dates of the construction of the buildings are unknown although Nedjeljko Radovic a local historian (see 4; Appendix B) estimates them to be a minimum of 300 years old.

Figure 8: *Location of villages of Herceg Novi*

Across the plateau approximately three kilometres from Krusevica is Sitnica. The buildings within this closely neighbouring village are similar from a distant viewpoint, but on closer inspection demonstrate significant differences. The structure of the rock here is more striated than the rock formation in Krusevica (see Figures 9 and 10). Consequently, the buildings though still being constructed from stone are more linear (see Figure 11) in appearance is contrast to the block like structure of the buildings in Krusevica. Windows are also much larger than in Krusevica as in the shifting administrative boundaries of the region Sitnica (see Figure 12) became more influenced by the Venetians who according to local folklore were much more relaxed about building taxes.


Figures 9 and 10: *Krusevica Houses*

The notion that vernacular architecture can contribute to the sustainable development of a region is manifest given the utilization of local materials, craftsmen and the maintenance of regional identities. Perhaps it is therefore not surprising that the reference to vernacular architecture is a distinctive feature of the promotional material for major ventures such as Porto Montenegro.

Figure 11: *Rock formation near Sitnica*

Tivat is one of the smallest municipalities in Montenegro, renowned for its geo-strategic position and was a formative reason why the area developed as a main military navy base since the rule of the Austro-Hungarian Monarchy. The establishment of a military arsenal contributed to the creation of a village whose centre consequently developed around the

military complex. The town has evolved during the twentieth century, in particular during the period between the Second World War and disintegration of Yugoslavia, during which the economic power of the military was a remarkable factor in creating strong migration to and subsequent population growth in Tivat.

Figure 12: *Stone roofed houses in Sitnica*

As a town Tivat was built and developed spontaneously with the first urban plan dating only back to 1936. The first contemporary urban and regional planning documents were made in the years after the catastrophic earthquake of 1979 (Tivat Borough, 2011). The rapid development of Tivat's borough in recent years was an unforeseen phenomenon when compared with the other more established towns of the Boka Kotor bay. Accordingly, Tivat's urban form is an eclectic assembly of styles ranging in scope from utilitarian modernism, neo Venetian and Austro Hungarian (see Figures 13 and 14). Tower blocks rub shoulders with naval barracks and newer vernacular inspired buildings along the town's seafront.

Though the metropolitan area of Tivat is around 7 times smaller than of Kotor and is a fifth of the size of of Herceg-Novi, nevertheless, in terms of number of approved construction applications it closely follows recent trend of vigorous development of the Boka bay. This can be explained by the redevelopment of the Naval base and subsequent foreign investment to develop the ex military facility into Porto Montenegro. Nautical tourism is recognised as a favoured type of tourism and the increasing demand created by this kind of tourism given the natural beauty of the coastline, is viewed as economically sustainable and environmentally desirable as the

function of a marina is deemed to be less harmful than its previous function (Spatial Plan of Montenegro, 2008).

Porto Montenegro's deep-water docks, according to its developer and main investor Peter Munk, are "twice as wide as anything in Monte Carlo" (Munk, 2011). This statement offers an illuminating in-sight into the strategy for the promotion and marketing of Porto Montenegro. The former naval base has been developed and aggressively marketed to appeal to a 'jet set' clientele. On a visit to the resort Montenegro's then prime minister Milo Djukanovic stated "This is better than St. Tropez" and went on to say "Montenegro, will become one of the most elite tourist destinations in the world." (Thomas, 2010).


Figures 13 and 14: *Tivat dwellings*

Much of the architecture reflects the homogenised nature of aspiring developments aimed at the 'well heeled' with the obligatory designer retail outlets and luxury mixed use dwellings. The layout of the marina village is meant to replicate the style of a typical Montenegrin village "combining the sophistication of a super yacht destination with the picturesque vernacular of Montenegrin architecture" (Adam Consultancy, 2010). To others however the village "atmosphere is Miami-meets-Venice with a healthy dollop of Soviet chic: models in thongs, men with spray tans, and four-story apartment buildings" (Bloomberg, 2011).

Figures 15 and 16: *Porto Montenegro*

For most part the buildings are constructed in a standardized earthquake resistant reinforced concrete box structure (see Figure 15). Insulation is provided in the form of expanded external polystyrene boards that are rendered in a range of earth tone surface treatments. There is no evidence of any adaptation of traditional craft or vernacular processes in the architectural form and the construction of the newest phase of the project resembles any scene within urban development projects. The use of vernacular as a descriptor of the style of the buildings in regard to indigenous Boka architecture is not immediately clear (see Figure 16). On the other hand, the diversity of vernacular references is in keeping with the disparate typology of Tivat. The vernacular of Porto Montenegro is in keeping with Aldo Rossi's notion of the 'analogous city' and as such here the vernacular should be appraised in terms of a broad-brush adoption of local vernacular traditions.

The design and implementation of trees and horticulture within the parcels of land between the buildings reflects a traditional adherence to modernist principles. As such, trees are planted in rows and appear to have been chosen for perceived aesthetic appeal rather than demonstrating an imaginative use of local species. Given the nature of the development (traditional aesthetics) it is of little wonder that there is no evidence of the adoption of more ecologically inspired design principles as identified by McHarg (1967), Hough (1984; 1990), Corner (2006), Wu (2008). In common with many contemporary commercial developments much of the

greenery appears to have been applied as an after thought (see Figures 17 and 18). For example, individual owner/occupiers have placed planters in and around retail and office spaces as a method of claiming ownership of public areas. However, of more concern in regards to embodied energy matters is the importation of foreign horticultural species, accordingly, promotional literature boasts of the shipping in of “over a hundred full-grown palm trees from Uruguay” (Kingsmill, 2011).

Porto Montenegro in many ways represents the vernacular through the perspective of the developer looking to bring added ecological credibility through association with vernacular traditions. Though the architecture of the ‘village’ of Porto Montenegro does reference some elements of broader vernacular heritage such as Dalmatian and Venetian building styles the broader concept of ecological vernacular is largely ignored.

Figures 17 and 18: *Porto Montenegro landscaped areas*

In stark contrast to the overtly commercial Porto Montenegro project, the Eco-Camp is a commercial venture with a radically different agenda. The Eco-Camp site is situated on the North coastal area of Boka Bay near the border with Croatia and was established within 8,000 square metres of rural land in 2010 (see Figure 19). The camp was created by two foreign European émigrés to Montenegro wishing to develop the project as ecologically appropriate sustainable tourism enterprise.

The land was completely off grid with no supplied water, no electric and no sewerage system in place. The issue of providing a water supply was

central to the development of the site given the obvious needs of tourists to shower and use toilet facilities etc. and also to supply an organic kitchen garden. In the absence of sewerage systems and a philosophical opposition to septic tanks the owners opted for the installation of compost toilets. This simple but effective technology was inspired by the Centre for Alternative Technology (CAT) and informed the development of the constructed shower and toilet block (CAT, 2010).

Figures 19: *Camp Full Monte*

Figures 20: *Camp Full Monte landscaped area*

There is a diversity of species of vegetation on the land such as Cypress, Oak, Pine, Bay, Juniper Elm and Hornbeam trees. Shrubs include Myrtle, Broom and Lavender amongst others and have added plants commonly found in the local region. Much of the horticulture is in accordance with the vernacular of the fortuitous species advocated by Hough (1995) and as such allowed to retain the character of the neighbouring landscape. The kitchen garden also supports a herb garden including Thyme, Sage Oregano and Basil, the only exception to species not indigenous locally are a selection of northern European flowers, perennials and annuals, but as yet their response to the local climate has been difficult to gauge (see Figure 20). Recycling is a significant matter for the owners and invariably attempt to solve problems by considering how to achieve their aim by recycling materials. Consequently, most of the finishing of the communal shower/toilet block by using waste and discarded materials such as floor tiles, off cut tile samples, glass bricks, scrap metal, bottles and several old iron baths provide a key component in the distribution of 'grey' water for irrigation. As the owners reflect, "we know we could have done more to reduce the impact of our campsite on the environment. Availability of materials and prohibitive costs are two big factors in Montenegro". Though they don't consider themselves to be 'eco warriors' they do regard their adopted environmental principles as "having greater empathy with nature".

Though the owner's preference would have been to build with traditional methods that more closely reflect local cultural values this has proved difficult. Where possible they have utilized recycled non-standard building materials such as glass bottles the major part of the structure follows standardized building practices (re-enforced concrete) in the region.
The owners expressed a level of frustration with local governmental and civic authorities in terms of a perceived lack of understanding as to their contribution to the Montenegrin ecological objectives. There was also a level of disappointment expressed at the availability and prohibitive price of sustainable materials and technology amongst other things. To summarise, the main concerns can be characterised as:

- Sustainable materials are not available locally and the environmental impact of getting them into the country was considerable.
- Unavailability of local craftsmen to work with non-standard materials.
- No guidelines available in order to build with non-conventional materials such as straw bales or rammed earth. Standard earthquake tolerant building regulations are seemingly the only option.
- No local governmental initiatives or support offered or available.
- The perception that in terms of planning permission that “it’s easier to beg for forgiveness than ask for permission” and in reality translates to “ it’s cheaper to pay for forgiveness than pay for permission”.

Though the existing buildings are debatably vernacular in spirit though not in appearance the Eco Camp is predominately indicative of the vernacular landscape of Hough and McHarg. In many respects the existence of the Eco Camp in the region is indicative of an absence of joined up thinking in the application of vernacular values. In other words, good practice is not disseminated or adopted which in the context of the values of the eco state is a missed opportunity.

3.10 Conclusion

As species humans are natural ecosystems engineers, it is in our nature to create and maintain our habitats. As stakeholders of urbanity we have a fundamental choice to make. Do we continue to ignore or eradicate natural ecosystems replacing them with concrete, bricks and unfamiliar ecologies, replacing biological intricacy with environmentally damaging construction systems and sterile environments, or take an alternative route forward? If the paradigm shift necessary for the realignment from the actuality of

ecology in urbanity to the notional ecology of urbanity is to materialize, then rhetorical expressions of environmental principles need to be substituted with practical applications. Proponents of more nature inspired development strategies make convincing arguments for alternative approaches highlighted by Hough (1990) to the development of urban form, but on the face of it have failed to win the bigger argument. Within the study region there are examples of good practice that have not been adopted within contemporary developments and as such serve to illustrate the distance that exists between good practice and actual practical outcomes.

Chapter 4

Culture and Society

4.1 Introduction

Given the relatively small population of Montenegro of just 630,000 the complex ethnic make up of its society is a fundamental factor in the future cultural identity of the Boka region. As the 'newest' independent state in Europe Montenegro is in the process of making critical choices in establishing an inclusive society for its citizens. This is an enormous task for actors at a national and civic scale and has obvious implications for the development of urban form. In order to facilitate workable and sustainable planning processes that inform and educate the general population in conjunction with being accountable to them is prerequisite to promoting resilient communities. Harmonizing the intricate and juxtaposing philosophies, tensions and historical factors is at the heart of the issue. Whether this can be achieved is a tricky proposition, but ultimately makes the region such a rich subject for examination. Consequently, establishing the notion of identity within the Boka region is an integral element in the process of determining a formal vernacular narrative for any potential urban form. In other words, what is the collective identity of the region given these complexities and the associated impact on creating a distinctive regional character?

4.2 Montenegrin Identity

Currently there is no majority of peoples within Montenegro, the collective ethnic make up is 43% Montenegrin, 32% Serbian, 7% Bosniaks, 6% Albanians, 5% Muslims and 1% Croats. Though there have been historical squabbles between Serbs and Montenegrins they are connected by a shared language, culture, history and religion (Eastern Orthodox). Despite

these commonalities there are those that argue that the collective orthodox religion is a way of papering over deeper political and cultural disparities (Pavlovic, 2003). In order to have a greater understanding of the influence of the cultural variables that impact on present-day vernacular traditions and shared identity it is essential to consider the historical singularities of Montenegro.

The independent Montenegro was recognized in 1878 at the Congress of Berlin, though by and large Montenegro continued to exist as a tribal society. Today the (post 2006 referendum) notion of nationhood is once more in its relative infancy in the newly independent pre E.U. accession state. The question of whether the 'new' Montenegro has a clearly definable ethnic identity remains debatable.

This is not only a contemporary phenomenon, 17th or 18th century Montenegrin tribesmen were not aware of themselves in national terms if they were even cognizant of the concept of national identification at all. Any collective notions of shared identity for most part would be as a result of shared religious beliefs amongst members of individual tribes. Cooperation between the tribes was essentially limited to military alliances against common foes such as the Ottomans as a matter of shoring up local boundaries rather than defending 'national' interests. Accordingly, during the 17th and 18th century the tribe was the source of protection and acted as a foundation for social structure amongst its members. The tribe was highly valued, acting as the wellspring of any sense of awareness of individual or collective identity. Any consciousness of the demarcation between national borders and neighbouring states came about in a generalized national homogenization process (Pavlovic, 2003).

In 1860 prince Nikola I Petrovic Njegos began his reign of Montenegro and was to last until 1918. His governance is regarded as a period of modernization characterized by improved infrastructure –roads, schools, postal service and banking services etc. This historical chapter contributed to the establishment of a more centralized administrative structure, but

generated some negative reaction. Predictably, some tribal leaders were not overly enthusiastic about their diminishing authority and abandonment of what they regarded as the 'old ways' and the dismantling of traditional values. Prince Nikola established a national constitution in 1905 formalizing the constitutional rather than parliamentary monarchy, and subsequently declared the kingdom of Montenegro in 1910. The independent kingdom was however short lived as after world war one Montenegro was effectively merged with Serbia and incorporated into the Kingdom of the Serbs, Croats and Slovenes (SHS). The consequence of this process that involved the restructuring of geographical boundaries (Montenegro was reduced in size) resulted in far reaching repercussions for 'national' identity. The specific local tribal interests were not easily accommodated into the imposed boundaries enforced by the post war European powers. Additionally, this process was further complicated by the reality that even within tribal structures individual and family interests did not necessarily chime with the tribe as a whole. Inconsistent expectations and needs at a local level conspired to make the already problematic objective of national homogenization even more difficult. The issues and political conflict associated with Montenegro's ties with Serbia in the early 20th century is another factor in the shaping of Montenegrin national identity. The main political parties at this time were the 'Peoples Party' acknowledged as being hostile to the policies of King Nichola I Petrovic and fervently in favour of unification of Montenegro and Serbia. In contrast the 'True Peoples Party' supported the notion of Montenegrin sovereignty and independence and endorsed the policies of the king. Broadly speaking the two parties did not contest the inherent ethnic sameness between Serbs and Montenegrins, though elements of the "True Peoples Party' regarded themselves as distinctly Montenegrin (Pavlovic, 2003).

The Kingdom of Serbs, Croats and Slovenes was renamed Yugoslavia in 1929. From this period till halfway through the second world war the disputation as to the identity within and affiliation to Yugoslavia remained as vexed as pre 1914 political discord within Montenegro. The Zelenasi (or

Greens) argued that Montenegro should be a distinctive constituent part of the Kingdom of Yugoslavia and not as an adjunct to Serbia. On the other hand the Bjelasi (or Whites) constructed their reasoning on the basis that Serb and Montenegrin people were one and the same. The opposing differences of opinion were characterized as the Greens advocating a separate Montenegrin identity and the Whites that essentially Montenegrins are Serbs in heritage. During the Second World War Montenegro was occupied by the Italians who were initially supported by the Greens. However, this was relatively short lived, the Greens subsequently joining forces with the partisans and liberated Montenegro from the Italians. On the other hand, the Whites were closely connected politically and militarily with Serbian nationalist forces known as Chetniks. Initially resisting the German and Italian occupation the Chetniks began to regard any alliance with the Partisans as being at odds with their long-term objective of the restoration of the monarchy and consequently collaborated with the occupying powers.

The post war Socialist Federal Republic of Yugoslavia (SFRY) was made up of six distinctive republics. Attempts by the ruling communist elite to suppress regionally specific cultural values in the name of national 'harmony' resulted in mixed outcomes. On one hand regional cultural traditions were reduced to harmless folklore. Correspondingly, the communist government silenced hegemonic and chauvinist nationalism. Broadly, the notions of unity and tolerance during the communist period were superficial, lacking any meaningful adherence to the ideals of brotherhood proselytized by the communist authorities. As part of this process the authorities marginalized the national distinctiveness of the Yugoslav constituent republics by reducing cultural observances to cultural mythology. Issues connected to regional identity were submerged in "ideological conformity" into cultural stereotypes (Pavlovic, 2003). These can be general characterized as Montenegrins – lazy, Bosnians – stupid, Macedonians – parsimonious etc. and many of these stereotypes are still freely expressed by elements within the wider post Yugoslav populations.

4.3 The Serbian Shadow

The relationship between Montenegro and Serbia is a fundamental aspect of any conceptual construction of Montenegrin identity. The essence of this complex kinship is regularly articulated in the conviction that Montenegrins are 'the best of all Serbs'. This questionable narrative was in part established as a reaction to the legacy of the Ottoman invasion and occupation of the Balkans. Montenegro was effectively regarded as a bulwark of the Eastern Orthodox religion, a resistant outpost of soldiers to the Turkish invaders. To the vanquished Serbs the Montenegrin 'noble warriors' were portrayed as the purist of the Serbs in the struggle against the Muslim oppressors. Whereas Serbia was fully integrated into Ottoman jurisdiction, Montenegro was more autonomous with some coastal provinces never being defeated by the Ottomans. The inhabitants of Montenegro were regarded as Serbs living in the geographic region known as Montenegro by the suppressed nation of Serbia. To Serbs the notion of Montenegro existing as a nation state was as absurd as the region of Bavaria being a separate state to Germany (Pavlovic, 2001). The Serbian view that once the Ottoman state dissolved there was no reason for the state of Montenegro to exist continues to colour the dialogue of Montenegrin culture and identity. Montenegrins understood that their sense of 'Serb-hood' differs from their broader neighbours understanding of Serb-hood, in that Montenegrins recognize the associations established through a shared religion, but their individual distinctiveness is determined in the same way as other south Slavic groups. This perception of what it means to be a Montenegrin Serb forms part of the foundation of national identity. The collective national consciousness it can be argued has evolved in a more systematic manner due in part to the warrior culture – isolated and untouched by the 'corrupting' influence of outsiders (Cagorovic, Carmichael, 2006, Tomasic, 1948). The idea of Montenegro as a traditional warrior society permeated the view of observers of its culture. As such, Milich notes that many of the primitive and distressing tribal practices should be viewed in the context of the warrior society (Milich, 1995). Pavlovic (2001) argues that the perception of Montenegrins

as Serbs is fundamentally wrong as this notion is founded on the belief by some Montenegrins declaring themselves to be Serbs during the Petrovic Dynasty. To him it is specious reasoning to establish a “nonexistent absolute continuity with the early inhabitants of the Balkan Peninsula”. Additionally, Pavlovic questions the dogged “appropriation of Montenegro by the Serbs” and is skeptical of the reasons for any claims to possession. The need for Serbs to appropriate Montenegrin culture as an extension of Serb-hood stems back to Ottoman rule as identified earlier. During this period culture and traditions in Montenegro largely progressed unimpeded by Ottoman interference in contrast with Serbia where all aspects of life were subject to the directives of the invader. Thus the Montenegrin freedoms and cultural evolution were positioned in Serbian mythology as a means of creating a stop-gap for the years of Ottoman oppression.

Prior to Montenegro’s recent independence from Serbia the arguments for the continuation of the union pivoted around pre First World War political dialogue and general enthusiasm of the Montenegrin population for the union and issues of communist rule. As such, it was contended that Montenegro is largely an ideological construction, more of a contrivance of Stalinist national policy (Ash, 2000). Alternatively, the arguments for independence focused on the historic Montenegrin statehood and the reality that Serbia emerged as an independent state during the 1800’s whereas Montenegro had known 400 years of separate independence.

The nature of the debate and associated tempestuous pro and anti rhetorical expressions of conviction inevitably resulted in the polarizing of political and ideological positioning within the general population. In light of continued antagonism between Montenegrin independents and Serb unionism the international community were largely reluctant supporters of independence. After so many years of conflict in the region it was feared that a positive plebiscite for independence would result in further fracturing and division. The memories and emotional scars associated with the Milosovic administration were still resonant just six years after his removal from power. However, the election was broadly strife free with 55.5% of

the electorate committing to independence. Though Serbia reacted with reticence to the outcome of the referendum it did not revert to the rhetoric and policies associated with the igniting of ethnic tensions that led to the wars of the 90's. For most part the Montenegrins were relieved to be no longer associated with the persistent political issues identified with Serbia (Hockenos, Winterhagen, 2007).

4.4 Post Independence and Civil Society

The legacy of Montenegro's historical relationship with Serbia impacted on the already complex process of separation in the manner of any messy divorce. Moving forward from this association will inevitably be problematic given the shared recent history of Serbia and Montenegro. The notion of the Montenegrin as the noble warrior was made a nonsense of during the wars of the 90's. Largely supportive of the nationalist and expansionist policies of Belgrade, the Montenegrin led Yugoslav army participated in the sackings of dozens of villages in Southern Dalmatia including the shelling of Dubrovnik. Though Montenegrin authorities expressed regret for its role in 2000, claiming it was mislead, the repercussions are still evident amongst the inhabitants close to the Croatian/Montenegrin border. Accordingly, owners of cars with Montenegrin license plates regularly complain of vehicle vandalism (key scratching) when travelling in Croatia. Though relations between the governments of Zagreb and Podgorica are 'officially' amicable and both are determined to move forward proactively, the reality of the strength of feeling at a local level is still a source of tension and mistrust.

It is argued that the reason for the successful outcome (from a Montenegrin perspective) of the pro independence vote was in part due to the promise of the creation of a civil rather than nationally defined state (Hockenos, Winterhagen, 2007). This model chimed with the Montenegro's 'ethnic minorities' (Bosniaks, Albanians etc.) as they would be recognized as citizens with equal rights - a state composed of equality

for all its citizens. Nevertheless, many Serbs in Montenegro object to the governmental distancing of the relationship between Serbia and Montenegro. This resonates at a local cultural level, principally in connection with language, local symbols and religion. The description of the language as Montenegrin is a sore point as Serbian and Montenegrin languages are virtually identical. The issue of identifying the Serbian Church explicitly in the constitution and creating a national flag denoting associations with Serbia were also bones of contention.

There is no misunderstanding about the challenges facing the nation of Montenegro in its aspiration of creating a civil society. It is generally supposed that the process of making good the mistakes of the past and fashioning a tolerant society with a clear sense of what it is to identify oneself as Montenegrin, is an onerous undertaking. Establishing solid foundations for the existence of civil society is a fundamental ingredient in the elaborate process of forming a distinctive national character. In contrast with a centralised national government model, within a civil society there is an assumed partnership between the state power and civic authorities. This relationship is founded on the understanding that without a lawful and well-ordered state it would be impractical to create the conditions for a functioning civil society. To Keane (2003) the nature of the complex ensemble of non governmental organisations essential to building such a dynamic, non violent and self reflective society will be in need of a structured framework instituted by the state.

Within the context of recent Montenegrin history the normative sense of defining the civil society is a challenging political objective. Theoretically, the civil society performs the function of defending individual, political and social rights by administering values of justice, equality and freedom. Consequently the establishment of these values within communities will be instrumental in instituting qualities of cosmopolitanism, tolerance, pluralism, non-violence and humanitarianism (Vujadinovic, 2002). Be that as it may, the ambition of transformation from a society conditioned by

generations of authoritarian and totalitarian regimes into a functioning liberal democracy will inevitably be a challenging process.

Vujadinovic reasons that in states where liberal democracies are not the established model (as was the case in former Yugoslavia) the "emancipatory of everyday and family life" improves the possibility for engendering a civil society. In the 1960's and 70's within Yugoslavia there existed a hybrid of Western and Eastern models of modern society. In the institutions of everyday life such as culture, education and communications there were liberating shifts in the nature of practices contributing to the development and ultimate liberation of the individual from the confines of communist rule. Arguably, the foundations for the civil society in the newly formed states of former Yugoslavia were forged during this comparative period of emancipatory progress.

One of the defining features of the civil society is the capacity and tolerance of the ruling political establishment to manage effective non-violent responses to civil disobedience. Paradoxically, civil disobedience was an effectual constituent in the disintegration of the former Socialist Federal Republic of Yugoslavia (SFRY). In contrast with the relatively peaceful transition of former 'socialist' regimes to models of liberal democracy, Yugoslavia endured years of bitter conflict. From 1991–2001, the conflict impacted on significant parts of the country prior to eventually achieving relative stability since the cessation of hostilities. This variance to the paths taken by fellow socialist regimes (post fall of the Berlin Wall in 1989) is on the face of it unexpected given the relative freedoms of the Yugoslav citizens in comparison to the inhabitants of countries such as Hungary, Poland and Czechoslovakia. Arguably, this is in part a consequence of the attitudes of the subjects of 'proper' (Poland etc.) socialist countries to the Marxist political paradigm and by contrast, the fanned flames of nationalism under the Milosovic administration.

In the majority of Eastern Bloc countries there was an effective tacit social contract between the political elite and the populace. The official regimes

did not insist on the belief of official ideology, just the pretense of accepting the principles. Accordingly, the subjects of the states were under no illusion as to the realities of received doctrines and in turn developed an unofficial social life know as parallel polis or “living in truth” (Vujadinovic, 2002). Therefore, when the pretenses of belief in ‘official’ principles were abandoned, individuals and communities were able to adopt the previously casual unauthorized social conventions. In short, as Eastern Bloc socialism disintegrated, countries such as Czechoslovakia and Poland were able to put into place social practices already functioning in an informal manner.

The Yugoslav citizens’ experience and understanding of its political order was different to other socialist nations. It is debatable to suggest that the more westward leaning socialist model of the SFRY created a more empathetic frame of mind to state policies. However, the reasoning that the general population generally bought into the official version of socialism is convincing. In return for acceptance of ideology certain ‘privileges’ were afforded that are normally perceived as universal values such as freedom to travel. Additionally, nationalism was a systemic aspect of SFRY socialist ideology filtering through numerous aspects of political and social life. Consequently, as the SFRY edged into fully blown crisis the normative cultural and political mind set of most Yugoslavs was nationalistic in flavor and broadly supportive of varying ethnic authoritarian interpretations of national and ethic identity. Cultural identity was effectively misappropriated for nationalistic political expedience reducing the nuanced, complex issue of national identity to rudimentary tribalism. Accordingly, the detoxification of cultural and national values is an intrinsic feature of establishing a pragmatic vernacular character within the project area and beyond.

4.5 Future Steps

On the face of it and despite many contentious obstacles to progress, Montenegro's future stature as an independent, autonomous state looks bright. In October 2007 Montenegro signed a Stability and Association Agreement (SAA) a precursor to the European accession process. Prior to this Montenegro became part of the United Nations and despite continued negative pressure being applied by Russia and general lack of enthusiasm of its citizens, Montenegro is edging towards N.A.T.O membership. After years of restricted travel in December 2009 Montenegrins were also granted visa free travel status within E.U. Schengen states as an acknowledgement of their progress to future European integration.

Prospects of Montenegrin integration into the E.U. though positive have been undermined to a great extent by the Greek debt crisis. There is little appetite in E.U states for further expansion and it is expected that in the years ahead Montenegro will face stiff economic challenges (Morrison, 2011). Nevertheless, the goal of further cementing ever growing closer relations with the E.U. and the United States of America remains high on the political agenda. The importance of creating a functioning civil society is a central theme of European accession procedures. The European Commission consistently outlines the importance of Civil Society Organisations (CSOs) in documentation pertaining to accession stipulations. Accordingly, the standard of CSOs are principal facets of the social, cultural and environmental evolution of Europe's newest state's case for membership.

To a large extent Montenegrin steps to establishing a realistic and functioning environment in which the civil society flourishes, are still informed by recent history. The ripples from the split from Serbia remain a consistent determining issue. Politically, Montenegro has effectively been a one party state since the 1990s. The governing Democratic Party of Socialists (DPS) was formed as an offshoot of the League of Communists in Montenegro in 1991. Since 1998 the DPS has governed Montenegro

with its junior coalition partner the Social Democratic Party of Montenegro (SDP). Throughout the campaign for independence pro-independence parties, intellectuals, journalists and civil society activists, largely supported the DPS. The DPS was led by Milo Djukanovic, a divisive figure in Montenegrin politics as a consequence of his personal business dealings (thought to include cigarette smuggling), but for the sake of unity this heterogeneous company of political and non-political factions rallied round the independence cause. Though independence was the primary objective of the collective it was also supposed that an independent Montenegro would lead to greater democratisation and the consequential reduction of the dominance of the DPS. However, the hope of the transformation of the political status quo based partly on the hope that there would be an increase in outside scrutiny by the diplomatic representatives of foreign governments proved to be somewhat ingenuous. Whilst being a supportable channel for independence, Djukanovic proved to be the main obstacle of genuine democratic reform. Though some argue that despite his polarizing effect on public and political attitudes there was a stabilizing effect on Montenegro during a period of great upheaval (Morrison, 2011), he was effectively obliged to retire in 2010 in part as a consequence of continued controversy over links with organized crime.

Djukanovic was replaced by Igor Luksic who was generally perceived by the international community as a reformer untainted by the shady machinations of the 1990's. The democratic evolution of Montenegro through the process of electoral accountability remains unhurried. Most political change comes from within the system and the DPS and SDP is effectively unhindered by effectual opposition. The development of civil society remains an aspirational objective and is an underlying necessity of future E.U. accession requirements. To facilitate the harmonization process of E.U. standards CSOs feature in the process of establishing and enhancing accountability and expertise in creating constructive channels of communication with the public. Currently however there is a significant lack of trust towards state institutions and confidence is still in decline.

According to public opinion polls conducted in 2011, trust in political parties was 35%, although conversely trust in NGO's was at 46% (Drakic, Kajganovic, 2002). Accordingly, NGO's such as the Network for the Affirmation of the NGO Sector (MANS) were 13 times more likely to have incidents of corruption reported to them, rather than to state authorities such as the police or the Directive for Anti-Corruption Initiative (MANS, 2012). On the face of it the Montenegrin position of supporting the inclusion of civil society principles in the accession process remains resolute. Nevertheless, in practice there are a number of troublesome issues concerning the structure of the negotiation bodies in the Montenegrin delegations. Furthermore, there is perceived to be a lack of transparency in the appointment of the officials within the negotiating parties and apparent relegation of NGO's to peripheral players. This type of secrecy and treatment directed at NGO representatives impedes their role as interlocutors between the state and the general population (Drakic, Kajganovic, 2002).

4.6 Agenda 21 and Civil Societies

As an interface between governmental, administrative, corporate organizations and the general population CSO's and NGO's are integral elements to building and developing lines of communication demanded for sustainable development. CSOs are capable of mobilizing stakeholders and driving change by encouraging lobbying and advocacy, legal action, research campaigns and such like (Lingan, Wyman, 2013). The importance of civil society as a pivotal constituent in the evolution of the sustainable community is acknowledged in the WECD report 'Our Common Future' in Agenda 21. Agenda 21 highlights the relationship between national policies and governance at the regional and community level. Accordingly, Agenda 21 was created as a notable aspect of the 1992 Earth Summit as an expansive statement of the necessary work program required to achieve the desired sustainabilty goals in the 21st century. The document is 700 pages long embracing all areas of

sustainable development and aims to restore the twin objectives of a healthy environment and economy. To some Agenda 21 has sinister objectives and is viewed as a tool of the 'new world order' plot of the United Nations to control every aspect of one's life. Effectively, Agenda 21 is portrayed as a socialist scheme to increase the role of the state in the life of the individual and to facilitate the disintegration of family life, as we know it (Femine, 2013). To the angry bloggers, Agenda 21 is a source of contention for a number of far reaching matters ranging from unemployment, increased fuel bills, multiculturalism and the closure of post offices. Much of the barbed rhetoric aimed at Agenda 21's intentions is a construct of right wing conspiracy theorists. Nevertheless, in the era of the Google search paradigm, the scope for the contamination of sustainable objectives by inflammatory misinformation should not be underestimated within the context of Montenegrin parochialism.

Despite the seditious nature of some of the general denunciation of Agenda 21 the normative understanding addresses the importance of individual behavior and the affect of those behaviors in the context of local governance (Portney, Berry, 2011). Accordingly, local authorities are most likely to be in the best position to take into account distinctive local conditions and anomalies and therefore best placed to adopt a leadership role in the management and control of the development of the urban environment. However, in practice there is little correspondence between particular areas of an ecosystem and the boundaries of towns, districts and regions. In recognition of this the notion that any given local authority can effectively manage the sustainability of an ecosystem is put into perspective. It is therefore reasonable to assume that a larger sphere of influence over development policy would be more environmentally beneficial. However, there may need to be several legislative provinces overseeing environmental development and therefore there should be shared political intentions regarding environmental policy.

To a large degree, the growth of urban development in Montenegro will by extension be shaped by the principles of Agenda 21. Developed nations

such as Australia, Canada, U.S.A., Germany and Japan have adopted the principles of Agenda 21 in environmental legislation. Correspondingly, E.U. accession preconditions for environmental development reflect the central themes of the three-pillar paradigm of Economic, Social and Environmental sustainable growth. Agenda 21 expressly calls upon nations to implement national plans to harmonize existing social, economic and environmental projects existing at varying scales (United Nations 1993). Motivated by the need to disseminate the principles of Agenda 21, chapter 28 calls upon local authorities universally to "enter into dialogue with their citizens, local organizations and private enterprises" as a mechanism for connecting local issues with broader environmental matters in the hope of creating greater awareness and understanding of sustainability globally (United Nations 1993).

Agenda 21 is undoubtedly far-reaching and ambitious in aspiration. It can be argued that the sweeping range of its aims is a potential source of bewilderment for policy makers. This being the case, the conceptual framework for sustainable development at a national level could be interpreted as incompatible with environmental policy. For most part the default notion of sustainable development for international policy makers and stakeholders is shaped by the objectives of social equity, economic efficiency and environmental protection (the three pillars). Consequently, the broad range of associated policies required to deliver national development objectives may identify a wider range of factors that for example need to take the social impact of delivery into account. On the other hand, environmental policies are for the most part narrower and more tangible, but are often vague in detailing timetables and quantifying objectives determined by sustainable development agendas. In addition to the two distinctive interpretations of the catch-all term sustainability, the relationship between NGOs can also be a complicating matter when devising and delivering environmental and development policy. Governments are under no obligation to comply with strategies developed over many years by environmental NGOs (Meadowcroft, 1999). Clearly, there are no guaranteed successes of national environmental policy even

with close and cooperative partnerships between NGOs and governing bodies. As Meadowcroft observes, processes and initiatives are tested, adopted or abandoned in the early stages of development. As such, "even within the parameters of single process, considerable innovation may occur between one phase and another" (Meadowcroft, 1999).

Formulating strategies for sustainable and environmental policy has proven to be a labyrinthine system of rationalization, negotiation, compromise, consensus and frustration. Clearly, an onerous undertaking for policy makers and stakeholders in mature democracies let alone fledgling models of civil society in the Southern Balkans.

4.7 Communities and Connectedness

The Montenegrin historic cultural identity has to a large degree been moulded by the factional, but conversely tightly knit construct of the tribal society. Paradoxically, the potential for the development of ecological communities is both favourable and problematic. On one hand the family oriented societal structure is a primary constituent of contemporary community life. The social well being of such networks provide a solid foundation for communities in periods of transition. The conceptual values of what 'community' amounts to are clearly open to discussion. On the other hand, the disparate assembly of ethnic and political factions embedded within Montenegrin society is a variable in the heritage of the notional 'noble warrior'. Additionally, the standardizing influence brought about by the demands of E.U. accession procedures is another significant determining ingredient in the alchemic compound of cultural identity.

Social groupings are a core aspect of what we generally understand to be community. The collective participation at places of work, neighbourhoods and clubs are what Etzioni describes as "the webs that bind individuals, who would otherwise be on their own", contribute to the maintenance of "civic social and moral order" (Etzioni, 1993).

Community is to many, the activity of sharing with and participation of commonly held goals that inspire a sense of shared stewardship of neigbourhoods. As such, its important to know ones neighbour, interacting with them, feeling safe, and experience at least a sense of support through communal networks. This phenomenon is what Hiss has described as 'connectedness', in other words, the adhesive that binds the disparate elements of any community together (Hiss, 1990). In attempting to qualify the notional values of what constitutes a community, it becomes clear that it is almost impossible to communicate the subjective understanding of what that means to the individual. What we do know is when an environment is community deficient the results are plain to see. These are the places of apathy, the areas within urban settings that are void of a sense of understanding of the natural world. As Beatly and Manning observe, "we have experienced the general dulling of the senses that occurs when we feel disconnected from the landscape and our fellow citizens" (Beatley, Manning, 1997).

The interconnectedness of human beings and their environment is a core theme of sustainable development strategies. Whereas in the past environmentalists focused on the 'natural' world i.e. the atmosphere, rivers, seas, etc., the communitarian's area of expertise surveyed societal characteristics i.e. schools neighbourhoods, families etc.. The two parallel conceptual entities are now beginning to merge as a framework for urban sustainability. The cross fertilization of both approaches has filtered into urban planning programs and consequently social justice, equity and philanthropy sit side by side with pollution and ozone depletion as factors of sustainable development. Naturally, the success of sustainability programs and how they are assimilated into communities is largely dependent on cooperation with civil organisations and NGOs. Presently under the banner of sustainability there are a number of NGOs with 'green' agendas in Montenegro. As such, the NGO 'Green Home' aims to protect and conserve the bio-diversity of Montenegro. In cooperation with 'Green Home', Natura 2000 (NGO) aims to promote dialogue and exchanges amongst fellow green NGOs in the region and is supported by the

European Commission.

4.8 Planning

On the face of it, many of the coastal developments in Montenegro are lacking any recognizable influence from CSO's and 'green' NGO's which given the relatively short time frame since independence is not surprising. Substantial stretches of the coastal urban form were constructed in the response to the rapid growth in mass tourism, Yugoslavia's Adriatic coast being a popular destination for Eastern and Western Europeans. Tourist architecture in Yugoslavia during the 1960's and 1970's reflected the experimentation of its architects and was generally well received at an international scale (Mrduljas, et al, 2013). The appeal of Montenegro as a tourist destination is relatively well known: varied coastline, reasonable prices, hospitality and a rich diversity of nature. These qualities are however undermined and potentially threatened by a general lack of awareness in terms of environmental knowledge, corruption, and "the relative financial weakness of the domestic stakeholders", resulting in the poor repair of tourist facilities in prime potential development areas. As a consequence, nearly all of the medium and premier structures and facilities have been built with foreign investment, and therefore are to a large extent governed from outside of Montenegro. The increase in investment and beneficial economic effects and growth in tourism are on balance regarded by Montenegrins as positive, but there is also concern at "the visible changes in the landscape" (Bickert, Goler, Lehmeier, 2011). The uncontrolled expansion of settled areas and subsequent damage to the natural environment is an obvious concern given this is regarded as a fundamental feature of a sustainable Montenegrin tourist industry.

As a society Montenegro has undergone numerous transformations relating to spatial theory and applications, this state of flux is still perceptible and reflected in spatial planning processes. 'Outsiders' have historically influenced the evolution of urban form within Montenegro and it

can be argued that the significant growths of tourist numbers (outsiders) are similarly affecting the development of spatial planning.

The influenced of the Ottomans on planning by the end of the thirteenth century through the impact of Islamic planning and building conventions was significant. For most part settlements had distinct structures including a central designated area for public activities such as trading posts, baths and coffee houses. Residences were constructed around yards surrounded with high walls for privacy. This simultaneously contrasted with the influence of the Renaissance and baroque planning in coastal regions such as Perast and Herceg Novi at that time under the rule of the Venetian Republic. The Austro Hungarian occupation of much of the Balkan region contributed to more rigorous urban regulations, though Montenegro like Dubrovnik remained unconquered and therefore escaped externally imposed planning models (Nedovic-Budic, Cavric, 2006).

Planning between the First and Second World Wars under the auspices of the new kingdom of Yugoslavia coincided with an increased migration from rural to urban areas. Throughout this period Yugoslavia adopted a more radical approach to town planning, embracing ideas from America, France and the U.K. such as the notion of the Garden City, Beaux-Arts and the City Beautiful. Post Second World War marked the replacement of more civic initiated approach to planning to a centralized planned economy focusing on the ascendancy of the collective interest in common with other Socialist republics. The Master Urban Planning Regulation was passed in 1949. However, despite the obvious association with the Eastern European/Soviet political ideology this was drafted following consultation with Western European countries such as Germany, Holland, Britain and France. As a consequence the legal frameworks underpinning the planning strategies were based on an amalgamation of Western models and the Yugoslav model of self-management.

The period from the 1960's to the late 1980's was characterized by an intensive drive in the preparation of plans for a diverse spatial range of

projects on a macro, meso and micro scale from provinces to neighbourhoods to individual sites. This period of progressive and coherent planning objectives underpinned with multidisciplinary and cultivated ideas did not extend into the 1990's, the post communist period. This phase of development could be characterized as an age of stagnation and economic decline. Politics "took precedence over the attempts of planning practitioners to continue to guide urban development processes" (Nedovic-Budic, Cavric, 2006).

As a consequence of the collapse of Yugoslavia its constituent regions began the process of establishing more defined regional spatial identities. The accession of Croatia, Slovenia and potentially Montenegro to the E.U. and the implications of the Schengen agreement have effectually reinforced the frontier between East and West. Many of the achievements associated with Yugoslav utopian modernist form are being forgotten if not ditched altogether in favour of re-traditionalism of the build environment (Mrduljas, et al, 2013).

4.9 Modernisation and Architectural Form

It is not possible to appraise the post war development of architectural form in Montenegro without examining the role of Yugoslav architecture of this period. Montenegrin urban form was regulated and shaped by the centralized planning policies of Belgrade and as such reflects national architectural character and planning systems from the 1940's to 1990's and arguably even today.

Socialist Yugoslavia has been described as one of the "most complicated countries in the world". A nation of four religions, two alphabets and three languages extended over constituent republics it surfaced from world war two as possibly the staunchest ally of the Soviet Union. This close relationship was short lived as Yugoslavia was expelled from the communist block (COMINFORM) in 1947. In common with other

COMINFORM countries Yugoslavia was a centralized planned economy though paradoxically contained elements of a market driven economy. As such, it advanced social welfare whilst broadly supporting a consumer culture (Vulic, et al, 2012).

Similarly, as with many European countries Yugoslavia was in the position of needing to rejuvenate its economy, industrializing urban regions through factory and office construction and not least of all housing the workforce. Consequently urban populations grew rapidly as did the demand for flats, houses and offices etc. Unfortunately the underdeveloped building technology was not equal to the necessary requirements of housing the increasing numbers of workers and their families. The process of addressing the building shortage involved redeveloping construction technologies and harmonizing them and the building designs to the methods of the available industrial production systems (Jovanovic, et al, 2011).

The first structures were relatively satisfactory in terms of their size and levels of equipment and broadly were designed to house the working class. Buildings were generally massive constructions utilising inefficient reinforced masonry fabrication processes. This so called ‘classic’ building system was the primary mechanism of production, involving casting supporting pillars on site as either a skeletal frame or supporting walls in combination with brick layers.

This method of production could not keep pace with the level of demand and consequently alternative solutions were sought in the form of Scandinavian, French and Russian technological innovations. For most part this meant developing prefabricated construction processes. Although Yugoslavia was effectively ten years behind its contemporaries in establishing more efficient building procedures, its construction companies wasted no time including the new production techniques into practice.

A greatly increased level of construction projects during what could be described as the first phase of mass urbanization in the late 1950's and early 1960's in part contributed to the lucrative emergence of the construction industry as a powerful sector of the economy. The Yugoslav economic reforms of the 1960's subsequently helped to reinforce the influence of the building firms on the built environment. In conjunction with the established large architectural offices the development of technical processes became more advanced, but at the expense of design innovation (Mrduljas, et al, 2013). Throughout this period, (casually known as 'crane urbanism') the effects of the technological developments were most pronounced on housing throughout all the regions of Yugoslavia. This period manifested itself in the production of housing blocks and estates that were typologically uniform and almost perceptibly identical environments. Though not exactly archetypal representations of the ideals of modernism, they were however solidly constructed and well organised with relatively large public spaces.

Construction companies from this period to the mid 1980's began to diversify in regard to building technology. Large panel systems became a useful method of fabrication, as this could be easily adapted from the existing 'classic' building method as large concrete panels could be cast on site to specific architectural requirements. This system was usually employed in multistory buildings made up of concrete panels connecting horizontal and vertical planes resulting in the panels enclosing the required room dimensions within the building. Both the horizontal and vertical components act to resist gravitational load in a box like structure. When fastened appropriately, the horizontal slabs act as a diaphragm transferring lateral loads to the walls (Brzev, Pao, 2013).

Accordingly, there are three fundamental arrangements of large panel buildings. In the longitudinal-wall system, walls resisting lateral loads and gravity are positioned in a longitudinal direction. On the other hand, the cross-wall system requires the main walls to resist gravity; lateral loads

being positioned in the shorter direction of the building. In the two-way system walls are placed in both directions (Brzev, Pao, 2013).

A genuinely original prefabricated construction process was developed by the Institut za ispitivanje materijala (Institute for the Testing of Materials) or IMS institute. Put in place by the engineer Branko Zezelje, the IMS system involves fabricating a skeletal or primary structure of pre-stressed reinforced concrete components in the form of columns and slabs. This allowed a greater amount of flexibility as the secondary structure such as partition walls and facades were independent from the primary supporting skeleton (Jovanovic, et al, 2011).

The process of construction of the IMS framework is regarded as an open system. A closed system is a complete building package, in other words all the elements required for the delivery and completion of the building are designed for the specific architectural design. The open system differs in that it allows for the use of separate systems which in turn can be adapted to the site and therefore offer a potentially more flexible and cost effective use of assembly processes (Nikolic, 2013).

One of the most appealing aspects of the IMS system is the potential for the modification of its constituent parts according to the requirements of the design. The building is then able to undergo any necessary change or refurbishment in parts rather than as a whole, this is due to the IMS being a modular system. Typically, the module is made up of four concrete columns and the floor slabs between them; post tensioning connects the slabs and columns. The complete ‘construction kit’ is composed: of columns, normal and cantilevered floor slabs, sheer walls, edge girders, exterior wall panels, stairway supporting staircase girders and steps and partition walls (Nikolic, 2013).

The IMS system was pioneered and delivered in many of the large number of housing construction programmes in New Belgrade, but also in the wider Yugoslav regions. The flexibility of the system was also a major

factor in the domestic take up of the product and also in experimental projects in Cuba, Angola, Hungary and Russia (Jovanovic, et al, 2011). The development of such systems was a characteristic of Yugoslav adaptability, a feature regularly reflected in the building form of the Boka region and therefore part of the regions architectural heritage and therefore a cultural artifact not to be ignored.

4.10 Architectural Legacies

On the face of it the Yugoslav industrialization process was a comparatively straightforward implementation of technological processes in a diverse range of construction projects throughout Yugoslavia. Inevitably the actuality ‘on the ground’ was at variance with the aspirations of policy makers. The lack of a sufficiently trained workforce, limited funding, poor technical prefabrication systems and machinery all contributed to the unsuccessful meeting of deadlines and required standards of the centralized planned economy (Jovanovic, et al, 2011).

The up side of this situation was that much improvisation was required to complete construction projects. Architects, companies and workers needed to think on their feet and in many cases finish the job the ‘old efficient way’, for example laying bricks or building custom moulds to enable craftsmen to make the structure ‘ more beautiful’. Consequently, Yugoslav modernism demonstrates many examples of custom made architecture and though not typical of the spirit of modernization it is quite representative of a communal approach to the modernist motif. In actuality the failure of the construction industry to industrialise itself led to the inception of what would prove to be the Yugoslav architectural brand, that being its non-uniformity (Jovanovic, et al, 2011).

This non-uniformity characterized the Yugoslav architectural cultural model. It was not a product of centralized planning, more of a legacy of its constituent regions. The first three architecture schools were established

in Belgrade in 1897, Zagreb in 1919, Ljubijana 1920, followed by Sarajevo 1949, Skopje 1949 and Pristina at the beginning of the 1980's. The Montenegro University's Faculty of Architecture was not established until 2002. Joze Plecnik was a founder member of the Ljubijana school and is regarded to be the architect that gave the city its modern identity. Ljubijana's urban development is still based on principles initiated by Plecnik (UNESCO, 2015).

Although there were distinctive architectural cultures within the regional schools, they were all united by the socialist modernization agenda, Throughout the post war period till the collapse of Yugoslavia the schools advocated a modernist ideology, but correspondingly drew on local cultures, traditions and vernacular forms. Each had varying international affiliations with leading architects and faculties such as Zagreb with the Netherlands, Skopje with the U.S.A. and Ljubijana with Scandinavia. The Slovene republic nevertheless maintained its idiosyncratic design legacy with the formation of subversive art groups such as Neue Slowenische Kunst (NSK). The NSK were generally associated with emotive and ironic juxtaposing images of Nazi and Yugoslav symbols of political ideology (Arnes, 2002).

However, architects for most part worked within their own republics under the auspices of the professional organisations, which were organized in accordance with the requirements of the individual republics. Relationships between the regional bodies ebbed and flowed, but consistently united behind the modernization programme. Occasionally one republic would produce more unique prize winning designs for a given period such as the Ljubijana School in the 1960's and 1970's. There was also a degree of parochialism in most of the republics, but this for most part was transcended by shared projects, competitions and exhibitions at the federal level (Mrduljas, et al, 2013).

In the aftermath of the dissolution of Yugoslavia many of the achievements of the Yugoslav age of modernization have been ignored in a return to

traditionalism, usually accompanied by political regression. Nevertheless, in recent years stakeholders and actors are once more initiating the cultural and economic connections that were suspended after the collapse of Yugoslavia. To a degree, there is a process of detoxification of the regions shared socialist past and new real estate actors are influencing the development of the built environment. Partly in response to the deregulation of planning procedures and comparatively benign political normalization, there has been significant foreign investment and a corresponding housing boom prior to the recent financial crisis.

Against this backdrop it is argued that the "lessons of previous uncompleted modernism seem superior to the current situation" in terms of concepts and urban development, but also regarding the politics of public space which are becoming less and less about the public good. (Mrduljas, et al, 2013). Accordingly, they reason that the occasional distinctive design indicates a continuity of an architectural culture and current research highlights the role of community participation in affecting the urban development.

Yugoslavia was the in-between state of the cold war period. Its initial connectedness with Russia gave rise to a domestic reaction against attempts to impose the ideology of Soviet realism. The Yugoslav relationship with modernism was a statement of cultural freedom and following the break from Russia distinguished Yugoslav architectural form from its socialist counterparts. Ultimately the Yugoslav model of modernism reflected its national independence and outward looking political values. Moreover, this lead to Yugoslavia punching above its weight as a global actor, a situation that lead to the nation hosting a "series of international events" (Vulic, et al, 2012). As such, Dubrovnik played host to the '10th Congress of CIAM' in the August of 1956.

Unfortunately in the present political climate many of the innovations or alternative approaches associated with the socialist past are dismissed as

utopian idealism and in most cases pure pragmatism is the default urban development paradigm.

4.11 Boka Architectural Form and Cultural Identity

The three towns of the Boka Kotorska are distinctively contrasting in regards to architectural character, reflecting differing historical and cultural influences. The examples represented in the figures are illustrative of the disparate range of architectural form within the region and are representative of the rich and complex cultural heritage within the Boka urban landscape.

The center of Kotor pays testament to the many battles fought by various empires to control the region. The buildings within the 'city walls' such as the St. Tryphon Cathedral, originally constructed when Kotor was an "autonomous city of the Byzantine empire" in the 8th century (see Figures 21 and 22).

Figures 21 and 22: *St. Tryphon Cathedral and old town in Kotor*

Along with being a part of medieval Serbia form 1186 to 1371; Kotor has been under Venetian and Hungarian jurisdiction, briefly an independent republic from 1395 to 1420 and once more to Venetian and then Austrian control (UNESCO, 1979). Effectively, the municipality of Kotor has two

administrative centers, one in Radanovici in the mountainous hinterland and in Risan, covering the bay region. Generally in the coastal zone there has been a significant increase in the number of constructed residential units approximately five kilometers from the shore, amounting in the case of Kotor, to 88 percent of buildings constructed (Ministry for Economic Development, 2007). Visually, it is noticeable that there are two distinctive constituents that make up the town of Kotor, the old town and the expanse of developments (many of which are uncontrolled) that spread from the old town to Risan. The coastal zone in this part of the Boka Bay is a UNESCO protected region and as such is a concern of UNESCOs World Heritage Committee, duly noting that "the uncontrolled urban development in the Bay (in particular Morinj, Kostanjica, and Glavati) could negatively affect the Outstanding Universal Values (OUV) of the property" (Goedkoop, 2015).


Figures 23 and 24: *Great Town Park and pathway in Tivat*

Tivat is by far the most developed municipality in the Boka region since Montenegrin independence, as a consequence of the transformation of the naval dock facility into the exclusive development of Porto Montenegro (as discussed in Chapter 3). There are areas within Tivat that are indicative of the influence of Tivat's Austro Hungarian historical heritage (see Figures 23 and 24). For example the 'Veliki Gradski Park', established in 1892 on the orders of Maximilian von Daublebskog Šterneka the commander of the

Austro Hungarian navy and is home to the largest botanical garden in the southern Adriatic (Boka News, 2015). However with the exception of a few examples of Austro Hungarian styled sea front buildings, Tivat town exhibits the post war modernism associated with the Yugoslav planning model of the period.

Figures 25 and 26: *Tower Blocks in Gomila and Topla*

Figures 27 and 28: *Old Town and Orthodox Church in Herceg-Novi*

Arguably the most architecturally, culturally diverse and interesting ‘city’ in the region is Herceg Novi (see Figures 25 and 26). The town hosts a diverse spectrum of cultural and historical influences, from Ottoman and Baroque fortifications and churches characteristic of the old town (see Figures 27 and 28), to the Austro Hungarian inspired government and administrative buildings that are interspersed between Venetian inspired residences. Locally archived material is indicative of these disparate typologies and serves to illustrate the cultural complexity of Herceg Novi’s architectural form (see Appendix C). The population of Herceg Novi increased by 22.32 per cent between 1991 and 2003 and this increase was accompanied by an expansion of developments many of which were illegally constructed (Ministry of Economic Development, 2008). As a consequence of this, in areas of Herceg Novi such as Gomila (Pile), post war modernist high-rise apartments rub shoulders with low-rise houses and apartments with no obvious consideration or allowance for the mobility of pedestrians or vehicles. Informal concrete walls, pathways and drainage channels are common features of the parcels of land in between the buildings, concrete seemingly the first material of choice for any informal construction.

Until the war in the 1990s Herceg Novi was an all year round tourist destination. Known also as the ‘city of flowers’ and ‘city of greenness’ Herceg Novi displays many plant species that are not as ubiquitous in other regions of the Boka Bay, such as “oranges, figs, dates, almonds, pepper tree, oleander, wisteria, mimosa, camellia, magnolia, aloes, cacti, laurel, cedar, cypress, palm and eucalyptus” (Berberovic, 2015). The reason for this, according to local folklore, is due to sailors bringing back a wide variety of plants and seeds from their travels and planting them in Herceg Novi. Nevertheless, although the tourism season in Herceg Novi continues to ‘improve’ and extend beyond the peak season of July and August it has generally not seen the level of infrastructure investment as towns such as Tivat and Budva. This state of affairs is slowly changing, but many parts of the town are still emblematic of its faded former self and look run down.

4.12 The Culture of the Boka Village

The villages in the Boka region that are still as yet unconnected with the urban centres are more illustrative of the cultural traditions of the Boka region. To some villagers the notion of being from Boka resonates more than being Montenegrin, although this appears to be a feature of the villages closer to the coastal areas. Informal interviews with a local historian and the inhabitants of the villages provide a valuable insight into cultural heritage and corresponding impact on Boka houses and buildings. Accordingly, Nedjeljko Radovic a former educator, local historian and former resident of the village of Krusevica, paint's a vivid picture of life and the buildings in a typical vernacular Boka village (see Appendix B).

The influence of the Turkish feudal system of governance was a significant impact on the way that people lived their lives, particularly on the systems of infrastructure and house construction. Houses were built from stone and all materials locally sourced and the stone was shaped by small hammers that in time were also sculpted by files into more refined forms. The mortar was made by heating up the stone (limestone) for several days till breaking down to produce lime, which was then mixed with the local loam soil and water to produce the 'resin' for construction. The roofs were made from either the straw from the rye grown in the area or from stone slabs transported from a neighbouring village by donkey. There were no drawings or plans for the buildings, but for most part there was a standard house structure. Most houses had two rooms, one used for cooking with an open fire and the other for sleeping separated by a wall to avert the smoke from the fire away from the bedroom. The kitchen was the focal point and the only variation to this format was in terms of size and sometimes the houses were on two levels, these houses usually held livestock on the ground floor. The same principles applied though out the Boka region and wider up to the Dalmatian coast.

According to Nedjeljko, life in the village was hard as there was no electricity and acquiring water was problematic as there are no natural

springs in the vicinity. Consequently, wells were built and the villagers saved whatever rainwater they could with drainage systems and water storage vessels known as ‘bisterna’. There were no roads to the village, just a series of footpaths in and around the village.

Most of the food was grown and sourced locally with each family owning parcels of land for growing fruit and vegetables and raising animals for meat and dairy produce. Everything was utilized, nothing was wasted, and the only items that would have been outsourced were sugar and coffee. This way of life is also mirrored in the memories of Branka Aleksic an inhabitant of Ratisevina, a village on the perimeter of Herceg Novi. Although Branka regards herself as being from Boka first and Montenegrin second, her experiences of village life are practically identical to the account given by Nedjeljko. Unlike Krusevica, Ratisevina has water springs to acquire water from, but other than that her experiences of living within the village are consistent with Nedjeljko’s narrative. However, she does express fond memories of the social gatherings, dancing and singing events amongst villagers and neighbouring village communities in the region.

4.13 Conclusion

The complex and often bewildering nature of contemporary Montenegro as symbolised in its East meets West geopolitical actuality and history is a unique feature of its cultural identity. This distinctive character is evident in the existing buildings that are either dismissed as a reminder of a less individualistic period in history or demolished to make way for more profitable mixed use apartment complexes. The adoption of western sustainable assessment criteria with their inherent limitations in regard to broader cultural influences have contributed to the creation of architectural features that would not feel out of place in a Western European retail complex. Many of the distinctive aspects of Montenegro’s cultural heritage have been ignored altogether and out of the summer season such

development projects are perceived as ‘ghost areas’. If modern coastal developments are to resonate with broader communities a more inclusive strategy within planning procedures should be a priority.

Chapter 5

Europe, Tourism and Ecological Urbanism

5.1 Introduction

The objective of full EU integration and commitment to become an eco state has underpinned Montenegrin governmental policies relating to many economic, social and environmental issues not least the specific matter of spatial growth and sustainable tourism. Montenegro's stated position on sustainability and ecology is unambiguously highlighted in the 2007 constitution document (Constitution of Montenegro, 2007). However, the objective of being recognized as an ecological state does not just reflect Montenegro's attempt to create a distinctive identity as a result of its relatively new found independence. In 1991 whist still a part of former Yugoslavia the constitution of the Republic of Montenegro declared itself to be an 'Ecological State' (Constitution of the Republic of Montenegro, 1991).

An alternative response to the demands associated with increasing tourism on the development of architectural, cultural and urban spatial form is a key sustainability concern. How this is practically achieved is at the heart of the matter, in particular, the capacity for spatial expansion to reflect a distinguishable cultural dynamism whilst maintaining a coherent approach to the growth of ecologically inspired urban form.

In determining the sustainable future of the region, a creative reaction to change is a fundamental requirement to achieve a distinctive regional identity. Successfully negotiating the cultural diversity and expectations of local communities in regards to applying ecological and architectural design innovation is an enormously challenging process. Consequently, appropriate philosophical and practical responses are needed to properly facilitate the establishment of culturally sensitive design solutions.

5.2 Tourism, Sustainable and Otherwise

It is clear that there is a significant correlation between the physical and built environment and tourism. Accordingly, as Inskeep observes, the physical characteristics of a region is the attraction for tourists, tourist facilities and infrastructure are a fundamental feature of the built environment. It therefore follows that tourist development directly impacts on the environment (Inskeep, 1991).

The global growth in tourism from the 1960's and 1970's has in part contributed to the negative perception of tourism in some destination regions and as such has focused attention on the need to direct and restrict tourism in particular places. The principle issues relating to mass tourism focus on global inequalities and the impact on the environment. Tourism is a significant component in the Brundtland Commission's report and post its 1987 publication sustainability is a fundamental feature of tourist development research and policy. In common with many industries the tourism sector adopted many of the environmental terminologies associated with the prevalent 'green' conventional wisdom of the period (Saarinen, 2014).

The concept of sustainable tourism is open to interpretation. As such, sustainability in tourism is linked to ethical consumption and the role of tourism in reducing world poverty. Correspondingly, the World Bank draws attention to the role tourism can play in reviving and developing economies and alleviating or even the elimination of poverty (World Bank 2012). However, sustainable tourism as distinct from mass tourism is regularly associated with the notion of ecological conservation and the maintenance of indigenous cultures in destination territories. Mass tourism on the other hand is broadly associated with the institutionalized gatherings of holidaymakers typically descending on the Spanish Costa's and the Greek Islands during summer months. Some reason that all tourism is by its nature destined to contribute to the ultimate decline of the

destination location. Accordingly, McKercher argues there are eight fundamental truths associated with all types of tourism.

- As an industrial activity, tourism consumes resources, creates waste and has specific infrastructure needs.
- As a consumer of resources, it has the ability to over consume resources.
- Tourism, as a resource dependent industry must compete for scarce resources to ensure its survival.
- Tourism is a private sector dominated industry, with investment decisions being based predominantly on profit maximisation.
- Tourism is a multi-faceted industry, and as such, it is almost impossible to control.
- Tourists are consumers, not anthropologists.
- Tourism is entertainment.
- Unlike other industrial activities, tourism generates income by importing clients rather than exporting its product.

(McKercher, 1993)

In a similar vein, Butler proposes, “destination areas carry with them the potential seeds of their own destruction” (Butler, 1980). This somewhat bleak assessment of the effects of tourism is based on the supposition that as destination areas become more commercialized they lose the character of their original attraction. That being so, he argues that based on the product lifecycle concept, a similar pattern of cyclical evolution can be recognized in the development of tourist areas. Consequently, the first phase of the cycle is denoted as the “exploration stage”. This is identified by small numbers of tourists making individual and irregular travel arrangements, typically they will be attracted to the area by its distinctive natural and cultural features. There would generally be no specific facilities for visitors and therefore contact between travellers and local inhabitants would be significant. There would effectively be no change in the social and physical character of the area.

During the “involvement” stage there would begin to be facilities established for tourists by the locals such as catering resources and contact between traveller and local actors would remain high. Throughout this phase there may be a market for travellers established and the beginnings of advertising for tourist specific events. Additionally, there may be pressure applied to governmental agencies by stakeholders to provide better transport and environmental infrastructure.

Ordinarily, “heavy advertising in tourist generation areas”, a diminished role for local actors in development policy and an increased role for external organizations providing more ‘up to date’ facilities distinguish the third phase as being the “development” stage. There will be recognisable changes in the physical appearance of the local terrain, which will most likely be disapproved of by the local population.

As tourist numbers increase and go beyond the number of permanent residents the fourth phase of the cycle emerges as the “consolidation” stage. Consequently, a large section of the economy will be devoted to tourism; advertising and marketing will be concentrated on casting a wider net regarding tourist origin and efforts made to extend the ‘holiday’ season. Prominent franchises in the tourism industry will be represented and local attitudes to ‘development’ will be hostile, particularly with those not associated with tourism (Butler, 1980).

As peak visitor numbers have been reached and the capacity levels are breached with the resulting social, economic and environmental problems the region enters the “stagnation” phase. The area now has an established image, but is no longer regarded as fashionable. In this period there will be a heavy reliance on repeat visitation and considerable efforts needed to sustain the levels of holiday makers. Typically, the resort is disconnected from the local environment and any new developments will take place on the margins.

The sixth and possibly final phase of the cycle is the “decline” stage. Unable to compete with newer attractions the resort faces a dwindling level of visitors preferring to visit for weekends and short break in contrast to longer vacations. The turnover of properties will be significant and as the area moves away from tourism, associated facilities will be replaced with alternative structures. Property prices will decline and former hotels converted into apartments, condominiums or retirement homes, as the elderly are attracted to tourist areas for permanent residence. The area may well lose its appeal to tourists’ altogether and may even become an area of social deprivation and a cultural ghost of its former self. Alternatively, the region could begin a process of rejuvenation, but this would only be built on a change of the attractions from what the original resort was founded upon (Butler, 1980).

The other option to this existent, but nevertheless stark scenario is to develop a more responsible model of tourist development, in other words a more sustainable form of tourism. Sustainable or responsible tourism is not a new phenomenon. In the early 1990’s the notion of ‘responsible’ tourism was mooted as a more environmentally and socially appropriate alternative to mass tourism. The original conception of responsible tourism has now fully evolved into the promotable ‘idea’ of sustainable tourism. This version of sustainability places the onus on all the stakeholders with invested interests such as tourist business’s and tourists themselves to take responsibility for their actions (Sharpley, 2013).

Independent and also mainstream tour operators have broadly supported the adoption of responsible tourism principles. As Sharpley observes, responsible tourism has many commonalities with “what is more broadly referred to as corporate social responsibility (CSR)”.

For most part responsible or sustainable tourism is travel that cannot be recognized as mass tourism. It is broadly marketed as a niche product to travellers wishing to avoid the associated downsides of mass tourism. As Wheeller puts it “the traveller is preferred to the tourist, the individual to the

group", the independent specialist operators are more acceptable than large firms, indigenous homely accommodation is preferred to hotel chains etc. – basically 'small' versus 'mass' (Wheeller 1991). Wheeller is skeptical of the capacity of responsible tourism to be a remedy for the ailments of mass tourism. He argues that in the face of an "out of control" global expansion of mass tourism small scale, slow and steady development does not add up. Furthermore, the idea that the tourist can be 'educated' in destination awareness is idealistic.

Nevertheless, the growth in responsible tourism or its many other epithets – eco tourism, sustainable tourism, green tourism etc. is a significant feature within a still expanding industry. In 2013 the market share amongst emerging economies was 47% and is expected to rise to 57% by 2030 comparable to 1 billion tourist arrivals (World Tourism Organisation, 2014). Much of the research on the merits of sustainable tourism centers on the need for active community involvement and engagement with the development planning process (McIntyre, et al, 1993; Aref, et al, 2010; Blackstock, 2005).

Depending on the point of view, the understanding of what makes a community can be wide-ranging. Within the context of community and tourism it can be reasoned that geographical location in conjunction with the notion of socially interactive networks are the foundation elements of a community (Dalton, et al, 2001). Community based tourism (CBT) predominantly emphasizes the role of the host community in the planning, development and establishment of the goodwill of residents to tourists. Local stakeholders should therefore include "residents values and visions" as thriving communities are the basis of flourishing tourist environments (Blackstock, 2005).

The rationale for encouraging residents to engage in good will initiation is questioned by Butler, who argues that the "prostitution of local culture; reduction of aesthetics; pollution in various forms" and lack of control of the future destination of communities are not conducive to creating good

will (Butler, 1990). Similarly critical of the ecotourism paradigm Wallace and Russell (2004) contend that ecotourism can be viewed as a type of nostalgia. Citing Rosaldo (1989) they observe the rationale that the market for ecotourism originates from imperialist nostalgia. Effectively these are people from developed nations wanting to escape modernity and return to nature where they crave a particularly selective experience.

If ecotourism is to mean more than a “trendy catch all word applied to almost any activity that links tourism with nature” then clearly it needs a well-defined focus on the environment in association with a process of including local diversity and cultural heritage. Accordingly, Wallace and Russell suggest the phrase ‘eco-cultural tourism’, reasoning that this shifts the emphasis away from simply environmental aspects to local cultural diversification (Wallace, Russell, 2004). Broadly, the continued discourse amongst tourism researchers pertaining to eco-tourism circles around on how one hand ecotourism may help protect nature and meet local economic needs and if both left unmonitored and unregulated it can have a damaging effect on nature and culture (Stronza, 2001).

Stronza concludes that research for most part focuses on the guest and consequently the impact from the perspective of the host is underestimated. As she notes, “too often, we have assumed that hosts are relatively passive and that their disadvantaged position under the powerful gaze of tourists precludes locals from shaping the encounters with tourists” (Stronza, 2001).

A continuing theme within the related literature is the assertion that if sustainable tourism is to become an actuality, something more than a marketing strategy, it must be knitted within the other activities of the host community. Tourism is very resource dependent and if it is to be truly and successfully integrated into the host community as McKercher (1993) emphasizes, there should be an understanding of the “fundamental truths” of all kinds of tourism by all concerned.

5.3 Montenegro-Tourism and Development

Montenegro's commitment to sustainable tourism is perhaps best illustrated by the actuality that the governmental agency responsible is the Ministry of Sustainable Development and Tourism. Montenegro is projected to undergo tremendous tourism growth in the next 10 years. The contribution of tourism to GDP is forecast at 12.6 percent a year in 2014, rising to 17.7 percent in 2024 (World Travel & Tourism Council, 2014). Travel and tourism is a significant source for employment with 8.8 percent of jobs directly supported by tourism in 2014 expected to rise 16.4 percent in 2024. By extension, including employment indirectly supported, tourism provided 51.4 percent of total Montenegrin exports in 2013, forecasted to raise to 52.3 percent in 2024. The total in employment indirectly supported by the tourism industry is 18.3 percent of total employment and this number is expected to increase to 34.5 percent in 2024. In short, the Montenegrin economy is heavily reliant on tourism.

Montenegro is a self-declared 'eco state' and on the face of it the governmental institutions reflect a desire to deliver 'green' policies over a wide range of environmental matters. As part of this process the National Strategy of Sustainable Development Council (NSSD) was established in 2002 and is viewed as a consultative agency to the Montenegrin government. Its remit on sustainable issues are wide ranging, from spatial planning to energy resources and consequently it advises on subjects of tourism.

Broadly the NSSD is committed to poverty reduction at a national level and represents the wider regional sustainable development program associated with the 'Mediterranean Strategy of Sustainable Development' (MSSD). The MSSD in turn has developed its strategies for environmental development in accordance with the United Nations Conference on Sustainable Development (UNCSD) principles (Zupanovic, Kovacevic, 2013). In accordance with this, the NSSD posited five fundamental environmental aims as governmental objectives:

- Accelerate economic growth and development, and reduce regional development disparities;
- Reduce poverty; ensure equitable access to services and resources; of natural resources;
- Ensure efficient pollution control, and sustainable management of natural resources;
- Improve governance system and public participation; mobilise all stakeholders, and build capacities at all levels;
- Preserve cultural diversity and identities.

(NSSD, 2007)

The process of dissemination and education of the population in regard to sustainable development principles are mixed. As such, the quality of education in Montenegro is varied and in particularly the emphasis on sustainable development in higher education faculties most directly affiliated with environmental development is inconsistent (Zupanovic, Kovacevic, 2013). Accordingly, they recommend some alternative measures to curricula with specific associations to sustainable development:

- higher incidences of subject related fields of study;
- introduction of completely new programs dealing with sustainable development;
- scholarships for first generations of students in these programs;
- involvement of experts from foreign educational institutions.

These recommendations are broadly in line with E.U. accession requirements and it is argued that a meaningful implementation of such proposals could aid the E.U. accession procedure (Zupanovic, Kovacevic, 2013).

As things stand at present, despite the unspoiled mountainous hinterland being a potential area of future tourism growth, the Montenegrin coastline is the primary source of tourism revenue. Unsurprisingly, any sustainable

development schemes undertaken in the coastal areas are given prominence in policy review documents and promotional literature. Such an example is the publication ‘Ecological State Montenegro + 20’. Published by the Montenegrin government (2013), it charts the measures being taken and progress made to deliver the measures necessary for eco-state identity. That being so, it highlights the primary tourism issue as the effect of transport on coastal regions. The coastal area “generates over 80 percent of its revenues from tourism”. This has led to undesirable pressures being placed on the environment by inefficient transport ‘solutions’. Consequently, it is believed car dependency and usage should be reduced in tandem with the development of alternative travel methods and a sustainable (non car) mobility system developed. Moreover, town planners are reminded to take into account how future developments will “affect transport flows and try to eliminate problematic spots before they become a real problem”. The main objective of the plan is to introduce an “integrated multi modal transportation system” and attendant services. The upgraded system will, according to the publication, make the coastal areas more attractive and increase breadth of green areas. Cyclists are seen as a major beneficiary of the scheme particularly in relation to healthier lifestyles and establishing cycle lanes it is reasoned, will increase real estate values. Other benefits include better safety, quality of life due to the creation of green spaces, more active lifestyles and economic revitalisation– more jobs, reduced healthcare costs etc.

Figure 29: *Location of Perast*

As an illustration of the steps already undertaken, Perast a historic town in the bay of Kotor (Figure 29) is identified as an illustration of potential good practice. In recent years barriers have been erected to stop cars (non resident) from entering the town during the summer months. Areas on the perimeter of the town have been adapted to create fee paying parking 'facilities'. The use of Segway personal transporters is now a common feature of Perast, though these are predominately used by the parking attendants. The whole coastal transport project is estimated to cost 12 million Euros and forecast to be competed in 2018.

5.4 Foreigners, Geopolitics and Moscow by the Sea

With the exception of Kotor, which is a UNESCO protected region, recent spatial development around the coastal area of the Boka Kotorska has largely been influenced by its growth as a tourist destination. The development of coastal locations in an environmentally and culturally sympathetic manner has and continues to be a cause for concern. Zekovic (1999) discusses the implications for coastal regions with an increasing influx of foreign investment. A diverse range of foreign investment

models is in play in relation to the possible implications for infrastructure, tourist services and industry in Montenegrin coastal areas. The influence of foreigners over matters such as infrastructure, the economy, political and cultural traditions and subsequent dilution of indigenous conventions and practices is a source of local anxiety. Russian investment in the economy of Montenegro is at a higher level than in other former socialist countries and is a source of much rumour and anecdotal narratives particularly regarding buying land and real estate in the coastal region.

The consequences of Russian investment in Montenegro are reviewed by Rojec et al (2007) in an E.U. initiated paper “The Russian Economic Penetration of Montenegro” (2007). The briefing document raises and debates some of the commonly held local perceptions by correlating notional narratives with quantifiable data and consequently debunking some of the myths surrounding Russian dominance of real estate acquisitions. Nevertheless, the document does highlight the local cultural stereotypes of Russian investment as represented by the national and international press. According to Wood, (2006) “In the past two to three years, hundreds of Russians have flocked to Montenegro to buy large stretches of land along the increasingly fashionable Adriatic coast and to build resorts like Hotel Splendid”.

The larger issue of Russian economic political influence over the Balkan region is appraised by Markovic (2011) and in part she concludes “there has also been a misrepresentation of Russia‘s foreign policy in the Balkans, a vision which is based on myths, emotive historical narratives and alarmist views rather than reality”.

The actuality however, according to Hunya (2007), is that individually the Hungarians, British, Swiss and Austrians have invested more in Montenegro than Russians. Nevertheless, anecdotally there is a view amongst the local inhabitants that most of the money invested into property in the region is Russian and that it does not appear ‘on the official books’. This view is understandable given the scale of ‘investment’ in land

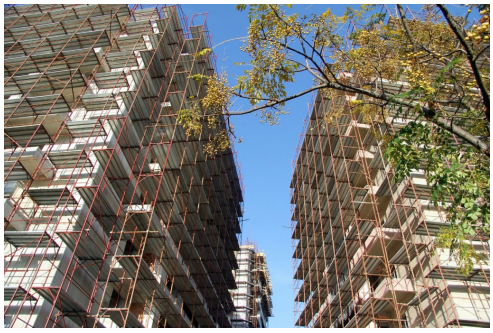
and property and for years before the global financial crisis was instrumental in keeping real estate prices artificially high.

The perception that foreigners could influence the shaping of the country's development informs much of the debate into the dynamic growth of the tourist sector and associated consequences for spatial development. This issue is explored and reviewed by Bickert et al (2011). This is an empirical study concentrating on the stakeholder perspective in relation to spatial developments and tourism. Whilst they underline the positive economic effects of recent tourism growth, they draw attention to local criticisms of the "visible changes in the landscape" and "damage to the natural environment". The ineffectuality of "the under-assertive State" and consequences for laissez-faire urban expansion are evaluated and contrasted with the possible benefits of foreign investment in infrastructure and spatial development. The study concludes that although Montenegro's tourism industry is essential for future economic evolution this should be measured against the "negative effects caused by mono-structuring" and absence of sustainable spatial developments.

To put this into context, not long before the global economic crisis Montenegro had received "more foreign investment per capita than any other country" in Europe. In a large part this was due to Russian investment in the form of wealthy investors buying up extensive parcels of land on the Montenegrin coast. As such, the coast is now viewed as a fashionable alternative to coastal Turkey and the South of France. This occurrence is not confined to beachside leisure investments; the Russian oligarch Oleg Deripaska has made significant investments in the Montenegrin industrial sector (Biliefsky, 2008).

This coastal 'appropriation' is arguably best observed in the town of Budva. Situated south of Boka Bay the larger Budva region is colloquially known as the Budva Riviera (see Figures 30 and 31). Further afield however, the resort is debatably best known for the amount of Russian tourists and property owners inhabiting the area. To many, the town is now

referred to and in some cases better known as ‘Moscow by the sea’. There is much suspicion and conjecture regarding the origins of the money streaming into greater Budva, and accordingly the Russian mafia owns every nightclub in the town if local gossip is to be believed. However, some of Russia’s senior politicians, judiciary and leading luminaries such as president of the Diamond Chamber of Russia, own expensive land and real estate to the raised eyebrows of some (Anin, 2011).




Figures 30 and 31: *Construction and Hotel Splendid in Budva Riviera*

The political fall-out from the not so slow ‘Russianisation’ of this part of the Western Balkans is considerable. In an era when other post Yugoslav nations look to the E.U., America and NATO to cultivate political, economic and security alliances the geopolitical motives of Russia have been questioned. The influx of Russian capital is perceived as a method of maintaining influence on a former communist region. This appears not to be an overly anxious conception of the situation by Brussels and Washington. A senior advisor to the Montenegrin parliament (General Blagoje Grahovac) commented in an interview with the Serbian newspaper Nedeljni Telegraf to the effect that the ‘West’ was being outmaneuvered by Russia stating, “Whoever holds the upper hand economically will also do so politically” (Biliefsky, 2008).

The Russian government largely dismisses western concerns over the issue; the default response usually highlights German investments in Mallorca or the British in Spanish coastal resorts. Similarly, Russians make the point about British and American investments in politically

sensitive regions such as the Gulf nations, to the effect that when it comes to Russian investments it is immediately viewed as political muscle flexing (Biliefsky, 2008).

Paradoxically, when talking about the reasons for living and investing in Montenegro Russians are as likely to cite getting away from state interference in their lives as a motivation. When interviewed, a 30-year-old resident of Moscow, Konstantin Pandipoelovitsj, stated "Moscow has more murders than in Mexico, only cigarettes, vodka and caviar are cheap, and as soon as you make any real money, the KGB appears at your doorstep" (Hunin, 2012). The reality for many Russians living in Montenegro stems from the fact that this country offers something that is not available in other Mediterranean countries – a culture that is strikingly similar to Russia's. The Slavic language is a connection as is religion, both are Orthodox and importantly, there is no visa requirement for Russians (Hunin, 2012). Revealingly, until relatively recently a billboard outside of the airport in Podgorica declared in Russian "come where they like you" (Biliefsky, 2008).

Whether or not Russian investment has to a degree staved off the worst effects of the global crisis in comparison with neighbouring countries (it could be argued Montenegro owes a level of gratitude to Russia), the issue of Montenegrin commitment to joining NATO is souring relations between Moscow and Podgorica. According to Jankovic and Coalson (2014) citing Milan Nic (director of the Central European Policy Institute) "Russian foreign policy has been much more assertive in the Balkans in the last half a year, specifically trying to prevent NATO enlargement" and in Montenegro in particular. In January 2014 the Institute of Experimental Economics and Finance at Moscow State University drew up a report titled "Montenegro: The Price of Eurointegration". Though not released publicly, media reports of the content revealed that E.U. integration policies will account for $1.5 billion over 10 years. Worryingly, the report suggests that in order to convince the E.U. that Montenegro is cracking down on organized crime and corruption the government will begin to oust Russian

firms from the country and confiscate related properties. At present there are an estimated 7,000 Russians permanently residing in Montenegro, Russians owning about 40 percent of Adriatic Coastal properties (Jankovic, Coalson, 2014).

Given the existing geopolitical tensions and Vladimir Putin's intransigence on 'security' and the welfare of ethnic Russians in former Soviet territories, it is logical to assume that this could be a potential future leverage strategy. Moreover, the extent of corruption existing at high-ranking Montenegrin government actors it is reasoned can also make Montenegro susceptible to Russian pressure.

The issue of NATO membership continues to pose a threat to Russian/Montenegrin relations. In April 2014 Mikhail Degtyarev (Russian Duma Deputy) of the Liberal Democratic Party of Russia is quoted as saying Montenegro would be "a legitimate target of Russian missiles" on joining NATO (Jankovic, Coalson, 2014). Montenegro's application to join NATO was rejected in 2014 on the grounds of more work needing to be done, but was given encouragement by Anders Fogh Rasmussen (NATO Secretary-General) in the face of Russian security concerns. As such he stated "let me be clear: NATO's door remains open and no third country has a veto over NATO enlargement". Nevertheless, the NATO issue does not play well with some Montenegrins, demonstrated in low support for NATO membership in public opinion polls (Tomovic, 2014).
Nevertheless, Montenegrin attitudes to Russians are generally ambivalent, as demonstrated by recent diplomatic interactions. Russia protested over anti Russian billboards displaying the NATO logo and "rejecting the Russian boot". Signed by "Montenegrin Patriots" the images refer to the influx of Russian money and consequentially related friction amongst Montenegrins. One billboard in particular quotes Milovan Djilas (a late Yugoslav politician and writer) stating: "Russians have never been friends to the Montenegrins; we've always been bargaining chips to them". By contrast, the Serbian government's attitudes towards Russia is warmer,

despite wanting to join the E.U. Serbia refused to adopt sanctions against Russia in the wake of the Ukraine crisis (Moscow Times, 2014).

5.5 Environment and the E.U.

The Constitution of Montenegro was adopted on 19th October 2007. The document is a comprehensive account of the proposed future direction of a range of themes from human rights, rule of law, division of state powers and the environment. Article 1 within the basic provisions states:
"Montenegro is a civil, democratic, ecological and the state of social justice, based on the rule of law". The document also proclaims that the "state is responsible for ensuring nature protection, healthy environment, sustainable development, balanced development of all of its regions and establishment of social justice".

The governmental objective of being recognized as an ecological state does not just reflect Montenegro's attempt to create a distinctive identity as a result of its' relatively new found independence. In 1991 whist still a part of former Yugoslavia the constitution of the Republic of Montenegro declared itself to be an 'Ecological State'.
(Constitution of the Republic of Montenegro, 1991)

The constitution document has been scrutinized in regards to constitutional law by the Venice Commission (Council of Europe) and its conclusions are generally positive. Though the Council of Europe is a separate body to the E.U. this can be viewed as a foundation stone in the structure of the E.U. accession process. As an arbiter the E.U. plays a pivotal role in establishing parameters and the required necessary discipline as defined by the Multi Indicative Planning Document (MIDP) in establishing and realising objectives. Under the measuring Instrument for Pre-Accession Assistance (IPA) the MIDP is a key strategic planning document. As such it sets out the main areas of intervention and contextualises the requirements of subsequent annual action

programmes. The stated position of the EU Commission within the MIDP on the specific issue of any prospective IPA financed initiatives is unequivocal:

“Environmental considerations will be duly reflected in all IPA financed activities in addition to be supported by specific actions. Environmental impact assessments are compulsory for new legislation or for any investment proposal.”

(COM, 2007)

E.U. initiated environmental parameters combined with Montenegrin eco-state aspirations contributed to the establishment in 2007 of the National Strategy for Sustainable Development (NSSD). The NSSD in its strategy document (NSSD, 2007) emphasises the harmonisation of institutional and legal frameworks and is based on principles such as the Rio and Johannesburg Declarations as well as the E.U. Sustainable Development Strategy.

(NSSD, 2007)

The National Council for Sustainable Development - an advisory panel made up of representatives from all societal structures monitors the objectives set out in the document. The governmental body the Office for Sustainable Development is responsible for ensuring the adoption of sustainable policies and strategies relating to the NSSD. The NSSD is therefore regarded as a key benchmark document underpinning Montenegro’s sustainable growth strategy.

As previously stated, the principal governmental agencies responsible for legislative, administrative frameworks relating to the environment are the Ministry of Sustainable Development and Tourism (MSDT) and the Ministry of Agriculture and Rural Development (MARD). However, the implementation of the ‘Spatial Plan of Montenegro’ comes under the auspices of the Ministry of Spatial Planning and the Environment. The Spatial Plan of Montenegro document outlines and details the plans for spatial growth (Spatial Plan of Montenegro Until 2020, 2008). The first part

of the plan appraises the state of spatial development and reviews any perceived achievements in relation to the objectives set out in the previous plan. The second part of the 2007 plan is a projection of expected spatial development outcomes based on analysis of expected social and economic growth. By their nature spatial plans have normative and development components and for most part are subject to secondary legislation to function and any implementation processes should be scrutinized and monitored. However, spatial planning in Montenegro is implemented both at a national and local level with no apparent coherence or coordination of a common philosophy or strategy (Prelevic, 2008). Poor communication between government bodies is also identified in the Regional Environmental Network for Accession (Stec et al, 2011) document. RENA is an E.U. initiated working group created to assist and improve the ability of the accession country to implement the E.U. environmental aquis. As such the document highlights and makes recommendations on Montenegro's environmental legislation and can be viewed as a method of critically evaluating policies and practical implementation of environmental law. In common with Prelevic (2008) the report highlights the need for greater monitoring and inspection processes in order to successfully apply environmental procedures in tandem with associated planning legislation.

In a similar fashion to contemporary E.U. driven developments in Montenegro historically planning systems have evolved under changing influences and circumstances. The relative success or failures of former initiatives have largely been determined by "imposition versus voluntary adoption of planning ideas". The dynamic nature of the evolutionary planning systems within the region are addressed by Nedovic-Budic and Cavric (2006). Consequently the affect of E.U. harmonization processes is an important element in the evolution of environmental legislation, spatial development and the subsequent effect on cultural identities in the region.

5.6 The Eco State and Wild Beauty

Whether or not the strategy for promoting Montenegro to potential travellers as the 'Wild Beauty' was in the minds of the authors of the 1991 declaration is open to supposition. However, the conventional view it can be reasoned is that the two entities are now intertwined in the awareness of local communities and tourism stakeholders. For example, the 'Wild Beauty Awards' are heavily promoted in local and national media (Analitika, 2014) and have been awarding tourist ventures that extoll the values of the Wild Beauty concept.

Figure 32: *View of the Boka Bay*

There can be no doubt that the spatial characteristics of Montenegro are in keeping with the general understanding of what an unspoiled wilderness may look like. Though there are questionable developments occurring within urban communities, the surrounding uncultivated regions do for most part reflect the untamed images portrayed in promotional literature. The richness of the geomorphological features of the region is a primary reason for increasing levels of tourism. As such, the Boka Kotorska bay is a group of smaller bays connected by channels and is "one of the best indented parts of the Adriatic coast" (Magas, 2002). The bay is surrounded by a karst formed mountainous perimeter, the highest peak being Orjen, which occupies parts of Montenegro and Bosnia and Herzegovina. Due to its ruggedness and relative isolation this region has traditionally been undervalued and uninhabited (see Figure 32). Conversely, owing to the sheltered conditions and deep indentation of the Boka Bay, the coastal region was originally developed as military and seafaring settlements and when situated near to farming areas stimulated urban clusters.

Consequently, the most urbanized region of Montenegro is the Boka Kotorska (Magas, 2002). This is an area of stark contrasts. Within the range of a few kilometers the traveller can be hiking in the desolate mountainous hinterland, boarding in elite hotels or boating in yachts or with a local fisherman.

The branding of Montenegro and by extension the Boka Kotorska, is an important aspect of the economic sustainability of the state. Effective branding can help to attract investment, businesses, visitors and innovators. Alternatively, in the absence of a distinctive marque it is more likely that the perception of potential travellers will be based on stereotypes and inaccurate information. Accordingly, Anholt (2003) contends that country branding can boost self worth and pride and strengthen the 'we' feeling when attempting to unite a country. To him "the vocabulary is immaterial: one can call these principles of soft power 'marketing' or 'branding', but one can equally call them psychology, diplomacy, rhetoric, politics, the art of persuasion, or plain good sense" (Anholt, 2003).

In its early conception the states of the former Yugoslavia placed emphasis on national identity as a broad-brush theme of much of the marketing strategy. This was largely due to the constraints of lack of adequate finance and limited understanding of global market. Additionally, in the post conflict context the marketing of destinations may be influenced by the demand for short-term results and when long-term investment is needed to build a consistent brand. Furthermore, whereas authoritarian governments can impose some control over marketing strategies it is more problematic in free market economies to develop a clear brand in the face of a disparate range of potential products (Hall, 2002). Accordingly, the former member republics of Yugoslavia initiated marketing and branding strategies that acknowledged the needs of a global marketplace. Essentially this involved responding to new market demands and differentiation by encouraging customer loyalty as a means of encouraging repeat visits. In combination with the distancing from the regions' recent

troubles and emphasizing the individual 'Europeanness' of the 'new' states, the former republics identified more 'up to date' marketing straplines. As such, Croatia is the 'small country for a great holiday', Slovenia is the 'green piece of Europe', Serbia possesses 'the landscape from the heart' and Montenegro is the 'ecological state' (Hall, 2002).

In attempting to build upon the concept of the 'Ecological State' the then Montenegro Ministry of Tourism abandoned the previous 'Enjoy Difference' logo (regarded as vague) replacing it with the 'Wild Beauty' destination brand. Correspondingly, the brand makes three specific commitments to travellers:

- A sense of discovery of the wild and romantic, personally challenging yet simultaneously simple actuality of Montenegro.
- The opportunity of experiencing a new county opening up to the outside world.
- To deliver the learning environment and personal enrichment that only travel provides.

Initially local tour operators were reluctant to engage in the branding process, reasoning that Montenegro's geography and cultural history were too complex to be condensed into simple slogans and symbols. Nevertheless, related government officials now see the positive impact of constructive branding as an effective marketing tool (Vitic, Ringer, 2007). On the face of it, the Wild Beauty brand is gaining traction particularly with tourism stakeholders. As noted, the Wild Beauty Awards (WBA) annually recognizes the contribution of various tourist ventures that acknowledge and promote the image, quality and competitiveness of Montenegro as a tourist destination. The scope of the awards extends from best related website design to projects such as best investment developments and beaches. Winners include Porto Montenegro, the Eco Village Kolasin and the Hotel Aman Sveti Stefan.

Although there appears to be a broad remit in terms of types of tourist ventures awarded with the WBA the general perception of the slogan Wild Beauty, broadly circles around the idea of Montenegro's wilderness and natural beauty. Recent research indicates that amongst domestic tourists natural beauty is more highly recognized as an identifiable quality compared to the wilderness. Conversely, the wilderness was more identifiable than natural beauty with international tourists and travellers from neighbouring countries. The notion of the ecological state and the richness in contrasts between mountain and sea were not rated as significantly as the other two features (Stojanovic, 2013). Accordingly, Stojanovic's Strength, Weakness, Opportunity and Threat analysis (SWOT) of Wild Beauty indicates a broadly strong visual identity and clear message, but these are somewhat compromised by a lack of general consensus of tourism stakeholders to improve the quality of service and promote diverse attractions. However, they conclude that emphasis should be placed on marketing the Wild Beauty as a region of contrasts.

5.7 The State and its Ecological Fit

In so far as 'The Wild Beauty' slogan has now become a memorable strap line and established connecting theme to the broader ecological objectives of the state, it can generally be deemed a success. However, once the veneer of public relations and media publicity is peeled away the perception of the reality of the ecological state is less impressive. Recent developments regarding the construction of four dams on the Moraca river (originally abandoned due to international displeasure and lack of investment) call into question the depth of commitment to the principle of ecological development. Accordingly, the revised scheme is dismissed as a marriage of "outdated technologies and unrealistic forecasts". The World Wide Fund for Nature (WWF) and its Montenegro associate Green Home dismisses Montenegro's Energy Development Strategy to 2030 as "window dressing" for the discredited but now revisited Moraca Dam project (WWF, 2014). Such examples of political and economic

environmental expediency is at variance with the spirit of the ecological state, undermining the expressed level of commitment by the government and further fuelling the skepticism of the Montenegrin people.

There is no doubt that the urban areas of the Boka Kotorska face major challenges pertaining to expanding development to meet the 'needs' of tourism and local economies. Whereas 'Wild Beauty' is a concept driven by the economic necessities of Montenegrin tourism, the principles of the 'Ecological Sate' are embedded in the constitution and legislative programs of governmental ministries. The expansion of urbanity in the region is clearly a matter that should be managed in a sustainable manner. How this is achieved in accordance with the actuality of the fundamentals of ecological and therefore resilient objectives is the heart of the matter. Urban communities can be viewed as elemental ecosystems within broader and global ecosystems. As such they provide economic opportunities for their inhabitants within local and also international spheres of reference, but conversely are also conducive to environmental disturbance. How human influenced ecosystems interact with connecting diverse ecosystems is a significant issue at a regional level, but more relevantly at a biospheric scale. The biosphere is the layer on the earth in which all life exists and is essentially made up of a mosaic of complex ecosystems (Newman, Jennings, 2008).

Biological diversity or the term "Biodiversity" is according to Swingland a jargon word invented for convenience, as biological diversity by its origin is essentially indefinable (Swingland, 2001). Nevertheless, he identifies DeLong (1996) as a more comprehensible definition as it offers more adaptability to more diverse contextualization. As such: "Biodiversity is an attribute of an area and specifically refers to the variety within and among living organisms, assemblages of living organisms, biotic communities, and biotic processes, whether naturally occurring or modified by humans. Biodiversity can be measured in terms of genetic diversity and the identity and number of different types of species, assemblages of species, biotic communities, and biotic processes, and the amount (e.g., abundance,

biomass, cover, rate) and structure of each. It can be observed and measured at any spatial scale ranging from microsites and habitat patches to the entire biosphere". Biodiversity therefore is the fundamental foundation necessary for life on earth to exist. It supports the elements of life that are necessary for survival such as food, water, materials, climatic conditions etc. and as a result is an integral feature of cultural character (Newman, Jennings, 2008).

Human beings have until recently had very little influence over ecological systems and biophysical processes when compared to the influence of natural processes. Change in ecosystems and the course of evolutionary processes have largely been determined by changes in natural variability in energy, material flows and natural selection (Alberti, et al 2003). This reality is no longer the state of affairs as humans now dominate the Earth's ecosystems. Given this actuality it is striking that traditional ecological research has focused on the ecological, biophysical and evolutionary processes untouched by the impact of human beings. However, these circumstances are changing and have evolved into a new ecological paradigm, which acknowledges that humans are elements of ecosystems (Picket, McDonald, 1993). Alberti et al argue that humans must be "explicitly incorporated in all aspects of ecological thought" as humans are fundamentally altering the understanding of the "rules that govern Earth" Alberti, et al 2003).

Newman and Jennings (2008) postulate the conviction that the manner in which humans now interact with the Earth when constructing urban environments is effectively another type of ecosystem. As such, urban settlements of various scales are areas where humans interact with each other as well as different biotic (living) organisms and also abiotic (nonliving) elements and are equally as significant to biodiversity. Consequently, they reason that Cities as Sustainable Ecosystems (CASE) can be investigated in terms of flows of energy, information materials and can also be analyzed in conjunction with interactions between human and nonhuman aspects of a system. The CASE approach does not separate

humans from ecosystems, which according to Newman and Jennings is in contrast to what has been regarded a feature of modernist thinking.

For most part the ecological objectives and policy detail of the Montenegrin eco state according to NSSD documentation follow established three pillar aspirations. Environmental, social and economic development objectives conform to generally understood statements of intent, but are detail light. The Spatial plan of Montenegro until 2020 acknowledges the necessary balance of ecosystems in development projects particularly relating protecting hydrological conditions. However, the plan effectively follows a traditional analysis of ecosystem matters in that urban ecosystems as identified by the CASE format are not featured.

5.8 Orientors: A More Ecologically Relevant System of Sustainable Assessment?

The Boka Kotorska region is comprised of coastal and marine ecosystems, which are inevitably influenced and disturbed by the impact of human habitation. Increasing urbanisation and infrastructure developments pose a major threat to marine ecosystems as rapid urbanization has not been accompanied by adequate waste-water treatment. Tourism also exacerbates environmental impact in terms of increased demands and often destruction (forestry) of local resources, but also regarding undermining and endangering plant life such as Halophytes on beaches (United Nations, 2003).

Acknowledging that urban communities are ecosystems that function in collaboration with others is a fundamental feature of resilient thinking. The overriding objective should be to understand that ecosystems are not to be controlled, but rather intertwined with and responded to as a symbiotic activity. Defining and therefore administering models of sustainable development is problematic in part as a result of the many interpretations of sustainable development - estimated at over one hundred (Moffatt,

2001). Though Moffatt suggests there is now a consensus over what is generally perceived to be sustainable development (the three pillars), he nevertheless supports “Bossel’s orientors concept” as a more progressive model of analysis. Accordingly, Bossel’s work highlights the importance of ecosystems to urban development and the potential for developing cities into thriving ecosystems. Using the analogy of a doctor’s diagnosis as an illustration of identifying symptom signals such as body temperature, pulse, reflexes etc. as indicators or ‘orientors’ of health, Bossel reasons that a similar process can be applied to environmental matters (Bossel, 1998). Correspondingly, he reasons that comparable orientors can measure system viability (health) over a range of varying ecosystems and as such he reasons, “any earthbound environmental and socio economic system can be characterised by six fundamental environmental properties” (Moffatt, 2001). These are:

- *Normal Environmental State*: The actual environmental state can vary around this state in a certain range.
- *Scarce Resources*: The information energy, and material resources required for a system’s survival are not immediately available when and where needed.
- *Variety:* Many qualitatively very different processes and patterns of environmental variables occur and appear in the environment constantly or intermittently.
- *Variability:* The normal environmental state fluctuates in random ways, and the fluctuations may occasionally take the environment far from the normal state.
- *Change:* In the course of time, the normal environmental state may gradually or abruptly change to a permanently different normal environmental state.
- *Other Systems:* The behavior of other systems introduces changes into the environment of a given system.

(Bossel,1998)

In order to demonstrate his thesis Bossel applies the basic properties to a wide range of systems such as a forest, the family and an industrial company in order to identify basic system needs and resulting orientors. In the case of the family the '*Normal Environmental State'* means access to shelter and clothing, water, breathable air etc. "*Scarce Resources*" effectively determine the ability to secure resources – earn money, buy fuel, utilize sanitation and medical facilities with acceptable effort. The family will need to address a "*Variety*" of situations – different working or travel environments, general unconventional situations and respond to them with a range of appropriate reactions. The "*Variability*" of life necessitates the need to protect the family from accidents, illness, interruption of food supply etc. The family can be prepared for "*Change*" by acquiring a broad education, make alterations in spending habits and lifestyle if demanded. In order to exist with "*Other Systems*" the family will need to coexist with others, therefore requiring social skills and the understanding of others needs.

The resulting properties are unique to the system environment to which they are applied (in this case the family), but to describe the system in depth all of the categories must be analyzed. The six environmental properties create a basic system need, which can be summarized by a basic orientor. So for example in the case of the family the Normal Environmental State the basic needs of the orientor "**Existence**" could be summarized as access to breathable air etc. Similarly, "Scarce Resources" and the ability to manage them as "**Effectiveness**", "Variety" and the ability to cope with various situations as "**Freedom of Action**", "Variability" and making the resulting system secure as "**Security**", "Change" and learning the ability to achieve "**Adaptability**" and "Other Systems" and the need to coexist with them as **Coexistence**. An additional orientor was included to reflect "**Psychological Needs**" in systems containing humans and as such partners "**Existence**" when identifying basic system needs (Bossel, 1998).

Applying these basic orientors as a simple assessment tool to address the viability of particular systems (according to Bossel) we are then able to make an assessment of the progress of the particular ecosystem. In accordance with orientor theory every category must be appraised through responding to questions of viability of each section. The questions can be answered without the need for extensive data, but people with a proficient understanding of the systems involved should answer the questions. For example, under the heading of Existence the questions could be " is the system able to exist and subsist in its environment"? Followed by does the system share its existence and subsistence with wider systems? Similarly, under the heading of Adaptability the questions could enquire as to the probability of adapting to challenges and if this contributes to the flexibility of wider systems (Bossel, 1998).

At this stage it is not possible to compare systems, but it would be possible to identify areas that require further development. If all the orientors were satisfactory it would be possible to assess the system as viable, or returning to the Doctor's diagnosis analogy, in good health.

5.9 The Role of Orientors to Resilient Thinking

Drawing from the fundamentals of orientor theory and proposing five orientors Newman and Jennings establish that sustainable ecosystems can be distinguished as:

- Healthy
- Zero Waste
- Self-regulating
- Resilient and self-renewing
- Flexible

To summarize, '***Healthy***' ecosystems are regarded as demonstrating the following characteristics:

- Use of Solar energy; incoming solar energy combined with gravity help to drive biogeochemical cycles.
- The ecosystems should be autotrophic in character, in other words have the ability to produce energy internally to fulfill ecosystem respiration requirements. For the most part this involves green plants acting as sunlight to biomass convertors.
- Conserving energy through the proximity of wider system autotrophic systems. For example, rivers and lakes are heterotrophic, in that they cannot produce energy for respiration and need to be in close proximity to autotrophic systems. Nutrients are essential for animal and plant life and as such nutrients are available from rocks, soil, the atmosphere and bodies of water. Such nutrients are circulated between the air, living organisms, soil and water in what are known as biogeochemical cycles. This cyclic system is denoted as a circular metabolism in contrast with organisms that are characterised as linear metabolisms.

Though nutrient cycling conserves nutrients within ecosystems they are still vulnerable to erosion by wind, rain and animals. Therefore, appropriate vegetation is an important antidote to nutrient loss as it inhibits erosion processes.

It is important that there is an integration of functions within the ecosystem. Living organisms acquire their nutrient needs and provide food sources for others. Similarly, seed distribution, pollination and changes in water-flow are fundamental elements of the symbiotic patterns of ecosystems. In what is termed ‘Network coevolution’ (Yamamura, Yachi, Higashi, 2001) it is proposed that there is evidence to suggest that diversity and co-evolutionary processes improve the productivity of ecosystems, thus providing a role for species diversity as “fuel for ecosystem development”.

The ***zero waste*** characterization can be summed up as waste processing, in so far as waste produced by living organisms – fallen leaves, animal

corpses, feces etc. are consumed by detritivores. Therefore, species are interdependent, organisms working together and making the environment congenial for each other. Plants and soil also act as filtration systems allowing for purification processes and reducing biological oxygen demands.

A ***self-regulating*** system is effectively preserved by feedback loops. A feedback loop is produced when an organism acts to generate a consequence to its environment. Information flowing to the organism will either create negative (deterring similar activities) or positive feedback (supporting similar activities). In the case of negative feedback, this establishes stability as important parts of the system are maintained within the necessary parameters for necessary for healthy functioning. Conversely, positive feedback encourages change in the system if required (Marten, 2001). Importantly, negative feedback loops help to keep limits on populations as they cannot grow indefinitely as one or more elements will restrict the number of organisms to what is commonly known as its carrying capacity. In other words the carrying capacity is the size of the given population that can be supported by the ecosystem (Newman, Jennings 2008).

The characteristics of ***resilient and self-renewing*** systems could be summarized as the capacity of a system to experience a disturbance but maintain equilibrium. Although ecosystems need to be able to react to disruption, the actual disruption may be a necessary feature of ecosystem stability. Resilience is strengthened by incidents of nested adaptive cycles and this happening is referred to as panarchy (see Chapter 2). Accordingly, Hollings defines adaptive cycles in terms of four stages – Exploitation (birth phase), Conservation (Climax phase), Release (disturbance phase) and Renewal (reorganization phase) (Holling, 1973). If the four stages are well connected, the ‘connectedness’ of the ecosystem will contribute to a more resistant and stable system in the event of external impact and consequently provide greater equilibrium (Holling, Gunderson, 2002). In other words, “the more resilient a system,

the larger the disturbance it can absorb without shifting into an alternate regime" (Walker, et al 2006).

Flexibility is the fifth characteristic of the system. Although connectedness within an ecosystem enhances stability if there are too many connections this could potentially make the system too rigid and consequently vulnerable to disturbance. Period disturbance therefore encourages flexibility. The more that elements within the system such as nutrients and flows of energy and living organisms are able to function as cooperative networks the more likely the system is to respond positively to disturbance (Newman, Jennings 2008).

In accordance with Bossel's orientor theory Newman and Jennings describe the five categories that are the foundation for sustainable societies. In Bossel's original orientors (six of them) he identified three more characteristics that were later added to the six in order appraise any system containing humans. As such they are covered by the general classification of ***Psychological needs*** and partnered with ***Existence.*** However, in Newman and Jennings they are presented as additional system categories and are consequently cited as Psychological fulfillment, Ethics and Cooperative coexistence.

The ***ethics*** section within the social and institution classification is self-explanatory – an ethic of care through respecting the environment.
Coexistence emphasizes community development, peace, healthy trade and global cooperation.

Significantly, in addition to matters such as civic involvement, opportunities for creativity and meaningful livelihoods the ***Psychological fulfillment*** category identifies cultivating a sense of place as a feature of social and institutional strategies.

5.10 Shaping the Urban Ecosystem

The process of forming urban communities that are reflective of viable ecosystems would be challenging even if all the necessary connected models could be planned and implemented within an untainted environment. In reality the economic, social and environmental history in combination with the political matters of many urban regions contrive to frustrate many of the fundamental requirements for ecological reorganisation.

Urban systems are embedded in wider ecosystems that can be referred to as bioregions, which collectively make up the biosphere. The nature of the relationship between the urban community ecosystem and the broader bioregion frames the issue of any potential for urban ecological resilience. As such, the Boka Kotorska region is comprised of a complex range of ecosystems not least of all the intricate character of its urban development. How these systems knit together as viable system networks within the broader bioregion will determine its claims of ecological statehood. Accordingly, the strategies for affecting an urban ecosystems' healthy and symbiotic relationship with the bioregion are reviewed.

To give meaning to the concept of ecological connectedness it is necessary to develop an understanding of the wider circle of life. The simple practice of encouraging an awareness of the energy flows and the materials that support humanity is a seemingly obvious step forward. As such, Van der Bryn and Cowan (1997) contend that the environment is the best educator in regards to ecological awareness. To them "in a de-natured place, we are likely to develop de-natured imaginations" lacking room for the earths natural wonders (Van der Bryn, Cowan, 1997). In a similar fashion, Grossinger observes that over the past century "we've not only destroyed the original landscape, but we've very nearly lost the collective ability to remember what it looked like before" (Grossinger, 1994). Engaging in activities that stimulate an understanding of the broader environment such as gardening, walking or restorative projects

not only reinforce ecosystem connectedness, but are also socially inclusive. Additionally, food production within urban environments contributes to the essential understanding of nutrient and energy cycles. Furthermore, as Hopkins contends, food production within urban communities can become sustainable and effective if eight basic principles are employed:

1. Promote local wealth – benefits would include utilizing local skills, paid jobs, aesthetically and economically beneficial.
2. Be environmentally sustainable – avoid chemicals.
3. Use and build upon existing community networks – community groups, gardening societies etc.
4. Promote and conserve biodiversity – use 'heirloom' seeds and avoid using hybrid seeds. Protect existing green corridors and allow wildlife to move freely.
5. Be affordable - provide the local community with fresh, affordable, locally grown produce.
6. Integration – water, waste, employment, energy generation etc. into one system. Food production designed within architecture, gardens can purify water and be a social focus.
7. Nurture ethnic and cultural diversity – growing food from their own culture connects people with their cultural identity.
8. Contribute to overall sustainable development – food programme should be an aspect of a wider set of measures such as transport, recycling and employment.

(Hopkins, 2000)

The matter of sustenance from a non-food perspective is presented by Newman and Jennings's (2006) as the potential for solar energy in providing a more self-sufficient energy source in the local and bioregional context. Consequently, they argue that indigenous cultures have traditionally strengthened their energy requirements locally and bioregionally. By employing a combination rooftop solar energy sources supplemented by alternative bioregional sources they suggest that this encourages feedback loops as this reduces the need for the transportation

of “sustenance” and therefore reduces energy needs. Adopting a similar comparison with ecosystem feedback loops they contend that one of the fundamental issues with cities is the ignorance of city dwellers of their place within ecosystems and the broader bioregion. Accordingly, by bringing the elements of the ecosystem such as energy nearer to the users this will bring about a greater understanding of system requirements, as inhabitants are less detached from the natural world. Consequently, more effective feedback loops will operate in local systems and the wider bioregion. Reducing the demands on resources is essential if pressure on ecosystems is to be reduced. Furthermore the perceived riches of the consumer society act as an alternative to vital engagement with the world. Revitalizing local economies and devolving power within a bioregional context, facilitates “greater equity and opportunity” (Newman, Jennings, 2006).

The manner in which urban communities utilize water sources is a fundamental aspect of the evolution of urbanity from a wasteful structure to healthy ecosystem. This is particularly pertinent in the Boka Kotorska as average water consumption in Montenegro is “exceptionally high”. Though this in part can be attributed to climatic conditions, the primary causes are due to inefficient water supply systems and wasteful usage in households and “by other consumers” (NSSD, 2007). A healthier ecosystem procedure involves natural purification procedures and as such biogeochemical cycles have a contribution to make to urban wastewater and storm water management (Ho, 2002). Effectively, the treatment of waste and storm water involves the removal and reduction of pollutants from the water. This is achieved where possible to take steps to ensure that the water does not pass over waste (UNEP, 2000).

To bring about a flexible system of governance that facilitates learning and increases the capacity to adapt to shifts within an ecosystem and by extension the urban ecosystem Folke et al advocate three general recommendations. As such, they are established by applying resilient thinking “in the context of sustainable development”.

1. Emphasize the importance of policy that underlines the interrelationship “between the biosphere and the prosperous development of society”.
2. Draw attention to the essential requirements of “flexible and innovative collaboration towards sustainability”.
3. Highlight policy initiatives for managing sustainability in “the context of social-ecological resilience”.

(Folke, et al, 2002)

Establishing management structures that reflect the fundamentals of resilience theory increases the chances of bringing about sustainable development in an unstable or changing environment. The ability to adapt and respond to unpredictable system volatility by responding to local community feedback (feedback loops) and consequently learning by doing is a counter to top down ineffectiveness. Accordingly, Folke et al reason that resilience building “increases the capacity of a social-ecological system to cope with surprise”. Put another way, people should work together and reconnect at a community and neighbourhood level to make ecological processes more recognizable, for instance setting up replanting groups and recycling centers.

Partnerships are important in enabling cities to perform essential functions such as enabling social and economic functioning and the capacity to engage with wider partners, regionally and globally. This is a fundamental aspect of all ecosystems as the network partnership cooperation between ecosystems determine the health of the wider bioregion.

5.11 Conclusion

If the Boka region is to adapt and evolve into a more resilient tourist destination that is eco-friendly and socially inclusive, its resident communities need to feel ownership based on shared communal values. At present, there is little evidence of the adoption of the fundamental

features of more sustainable tourism models. Although there is the appearance of a community consultation process within the present planning systems, the perceived economic rewards are connected to the financial capacity of the developers, who appear to hold sway. The matter of uninhabited apartment complexes is an obstacle to social and cultural cohesiveness and therefore runs counter to the spirit of the sustainable community. It is difficult to understand how this reality is compatible with a vision of urban form that is representative of a culturally self-confident nation.

Chapter 6

Relationships with Mother Earth

6.1 Introduction

The manner in which humans relate to the environment is a fundamental characteristic of what determines their individual identity and therefore an essential influence in the creation of the communities in which they exist. The constituent parts of the 'natural world' could be described as a synthesis of the 'real' and 'illusory'. Real in that many elements can be measured mathematically for example the size, shape and weight of objects and illusory as in the subjective qualities of sound, taste and colour. Building on the foundations laid by Galileo, Descartes sought to absolve the material world of the subjective experience by extolling the notion of the 'disinterested' or objective sciences (Descartes, 1641). By following objective approaches to knowledge humanity has created many of the technologies that are now taken for granted – vaccines, automobiles, images of the solar system etc. However, it is reasoned that these objective sciences overlook the ordinary and everyday experiences of the world about us and despite all of the technical advances we exist in a "dynamic landscape subject to its own moods and metaphors"(Abram, 1996). Accordingly, we are all subject to the ambiguities of our day-to-day existence and as such the scientist makes the specific choice of field of study influenced in a large part to a range of subjective happenings and encounters outside of the laboratory (Abram, 1996). Whilst to Descartes the reality of our existence and by extension our environment can only truly be measured by objective quantification the experience of most people is formed by arbitrary and spontaneous occurrences.

The world of the hard fact and the limited mechanical and mathematical interpretations of reality were challenged by Husserl's concept of phenomenology. Husserl did not attempt to explain the world, but to describe in the best possible way the manner in which the world "makes itself evident to awareness, the way things first arise in our direct, sensorial experience". This to Husserl was a science of experience, not to control or capture, but the diverse shifting patterns of life were to be observed as a method of articulating the foundations of other sciences, or put another way, a science of the senses (Abrams, 1996: Husserl, 1960). The ambivalent positioning of many of the philosophical discussions on the nature of humans to ecology revolves around the perception of humanity fighting against 'other' organisms, or conversely being in solidarity with nature. It is this duality of reason that in large part frames the discourse surrounding the philosophical understanding of the environment and consequently the ecological development of the urban landscape. The science of ecology combines qualitative and quantitative models of analysis in system 'measurement'. Moreover, examining human beings in ecological terms within project environments could be described as shooting a 'moving target' as indigenous peoples and their interaction with the environment consistently changes (Spoon, 2014). How such changes are compatible with urban sustainability within the context of a developing region frames the objectives of this thesis.

6.2 Clarity in Dynamism: the Limitations of Indicators

One of the fundamental elements that this thesis reflects upon is the examination of the role of communities in a period of dynamic transition, and the consequential effect of cultural drivers influencing the direction of the urban development of the Boka region. The geographical location of the study area is a key element in the manner in which the spatial form has evolved; however many of the fundamental issues related to its resilience and sustainable future are rooted in universal existential conditions.

As is discussed, (Chapter 4) the study region has undergone many instances of cultural and societal adjustment and is currently experiencing significant turmoil in regards to identity. In many respects Montenegro retains many of the geopolitical legacies of the former Yugoslav state. Put simply, Westward looking, but anchored in Eastern orthodox cultural traditions and suspicious of the motives of outsiders. Suspicion of external solutions to Montenegrin matters of identity is arguably no bad thing, particularly in an age where globalized methods in many respects are at odds with local cultural customs. One size fits all may be a good fit for established Western cities and towns with the capacity to accommodate mixed use developments without detracting from the overall character, but developing regions are in need of a more nuanced approach to building on existing cultural traditions.

Identifying areas of good practice and potential problems in transitional regions involved in the complex process of integrating into seemingly demanding E.U. accession requirements whilst retaining the notion of Montenegrin distinctiveness is a step in the right direction. Accordingly, developing a structural visual matrix or set of markers that address sustainability and resilience in an objective, quantitative and pragmatic manner, but equally as importantly in relationship with nature as an influence on identity is at the heart of this proposal (Chapter 2).

The development of sustainable indicators is by no means uncommon. There is a broad spectrum of indicators in use over a diverse range of regions and cities (Brandon, Lombardi, 2005). Nevertheless, there is disagreement relating to the efficacy of such indicators stemming from the lack of consensus on the fundamentals of urban sustainability depending on the understanding of various stakeholders (Derbyshire, 2012). Additionally, the range of indicators selected has been criticized as inadequate for supporting and measuring urbanization proceedings (Seabrooke et al., 2004). The term ‘urban sustainability’ is also open to interpretation, being regarded as a desired objective in the case of the

‘sustainable community’ and ‘sustainable city’. This however should not be confused with ‘sustainable urbanization’ and ‘sustainable urban development’ as they “refer to the process towards the desirable state” (Shen et al., 2011).

What is obvious is that in the Montenegrin context any indicators should be clear, simple and address the social and cultural complexities that are fundamental to the realization of any sustainable development models. There are many available regional and city indicator schemes to reference such as Mexico City’s Plan Verde. Launched in 2007 as a 15-year plan, the model is a ‘communication instrument’ for informing the public about governmental sustainability targets. The plan is separated into seven themes – public space, land conservation, public space, water, air, waste, mobility and climate change and energy. Many of the targets included are in response to warnings issued of an impending total collapse of the city. Consequently, the government aims to convert Mexico City into the ‘greenest’ in Latin America. By contrast, the ‘Sustainable Barcelona’ scheme identifies 10 principles for evaluating the sustainability of the city. Accordingly, these are:

- Efficient use of resources.
- To avoid endangering peoples health.
- Biodiversity
- Diversified Economy
- Service Access
- To preserve the mixture of functions.
- Gender Equality
- Employment
- Social work and leisure
- To establish alliances with other cities.

(Shen et al., 2011)

The Barcelona model is regarded as a benchmark system for other Spanish cities specifically in regards to sustainability indicators. The

Sustainable Civic Forum of Barcelona has produced the indicators and has been ratified by Barcelona City Council.

The Montenegrin NSSD outlining objectives from which to assess the progress made regarding sustainable development are based on the "visions of sustainable development of Montenegro" and include the four goals of:

- Accelerating economic growth and development, and reduce regional development disparities.
- To reduce poverty; ensure equitable access to services and resources.
- To ensure efficient pollution control and reduction, and sustainable management of natural resources.
- Improve governance system and public participation; mobilise all stakeholders, and build capacities at all levels.

(NSSD, 2007)

The references highlighted are on the face of it worthy goals that aspire to facilitate sustainable development strategies. Related stakeholders of each approach could cite projects that demonstrate the success of the 'greening' of urban infrastructure projects inspired by the general backdrop of sustainable development. For example in Mexico City the Chapultepec Project (Chapter 3) is an example of increasing green spaces in the city, in Barcelona 85 percent of all trips made in the city are accomplished by sustainable modes such as walking, cycling and public transport (Pujol, 2013). In the case of Montenegro the outcomes are not as high profile, but the improvements in transport and the limitations on car use in towns such as Perast are referred to as examples of progress.

Broadly, what is clear is that the strategies adopted reflect the particular demands of the specific region. Though there are overlapping themes such as access to resources and waste management the plans are generally ambiguous and open to interpretation. For example the goal of

‘avoiding endangering peoples lives’ in the case of Barcelona is surely a universal objective and it is also unclear as to how intentions can be objectively evaluated. The Montenegrin NSSD document identifies 28 indicators for sustainable development. Consequently, when appraising economic growth and development matters such as gross domestic product (GDP) by region and per capita are cited along with trade deficit, energy consumption, revenues from tourism and investments in infrastructure amongst other indicators. Revealingly, none of the indicators relate to spatial planning with the possible exception of the issue of tourist density along the coast.

The limitations of indicator methodology as markers of development is discussed by Winograd and Farrow (2009) who observe that such methods “provide insufficient information on sustainable development, particularly regarding the viability of development, the implications of rates of change, the importance of temporal and spatial dimensions”. Hammond et al. are equally as skeptical on the reliability of indicators methods noting the lack of “comparable national environmental indicators to help decision makers”. Spangenberg et al. (2002) are particularly scathing about the relevance of many of the existing indicator programs and highlight their inherent strengths and weaknesses. In particular the scale of the indicators, which can broadly be characterized as *nominal*, consisting of two, values where a certain characteristic is given or not in other words a yes or no response. *Ordinal* scales are fundamentally a hierarchy of qualitative classifications and require a significant degree of public participation. *Cardinal* scales are quantitative in essence and linked to quantitative targets. Importantly, in regards to identifying measures that are effectual they draw attention to the need to reduce the complexity and be easy to understand. Accordingly, five specific recommendations are made. Consequently, indicators should:

- Be based on a sound scientific basis, widely acknowledged by the scientific community;
- Be relevant, i.e. they have to cover crucial aspects of sustainable

development;

- Be transparent, i.e. their selection, calculation and meaning must be obvious even to non-experts;
- Be quantifiable, i.e. they should be based as far as possible—but not exclusively—on existing data and/or on data that is easy to gather and to update;
- Be limited in number according to the purposes they are being used for. In particular, communication needs just a handful of indicators, policy monitoring some more, expert scrutiny a lot of them.

(Spangenberg et al., 2002)

In a region with a diverse ethnic heritage, an economy heavily dependent on tourism, inadequate infrastructure and wasteful energy and resource usage the stated goals should be simple and clear. The indicators should reflect the 'real', but it is equally important to reflect the 'illusory' as without cultural context sustainability is diminished. Culture can act as a robust driver of sustainable development. An example of this is cultural tourism that relies both upon tangible and elusive environmental assets which accounts for 40 percent of world tourism earnings (UNESCO, 2012).

6.3 Integrated Strategies

One of the primary motivational drivers of this thesis is the manner in which architectural forms (with a few exceptions) within 'sustainable' developments appear to have little in common with the surrounding and immediate landscape. The notion of landscape can be expanded to include culture, tradition and ecology, however it is proposed that for most part the process of creating 'joined up' developments is rarely achieved and this is in large part as a result of poor integration of disciplines in the planning and outcome procedures.

The manner in which the landscape is viewed in regards to planning is slowly beginning to move in a less human centered direction. The adoption of the principles of landscape ecology concepts into planning has triggered a gradual shift in values towards ecological fit, environmental ethics and ecological integrity. Landscapes over time can shift from stable to unstable as the structure of specific regions and scales can be influenced by its function and conversely their structure can shape and influence the function (Hersperger, 1994).

The manner in which urban design relies on architects and planners to effectively manufacture communities and social patterns by reconfiguring spatial form is no longer viable. As Gurstein (1993) contends, the concept of community is "inferred from the theoretical constructs that are used to legitimize the physical design solutions". If communities are to successfully integrate within local and bioregional ecosystems and maintain traditions, cultural distinctiveness and identity there is a need for a multi faceted approach to development strategies. Gurstein's observations were published over 20 years ago, but are no less relevant today. In the Boka region the new 'sustainable' developments such as 'Porto Montenegro' and 'Portnovi' are reflective of a manufactured community, the spatial character being of a contrived generic village with no obvious roots or reference to local ecological and physical features let alone culture.

The matter of joining up what have in the past been regarded as separate disciplines is a necessary step forward if urban developments are to enshrine the ecological values the developers purport to believe in. Cities and towns may vary considerably in regards to their architectural characteristics and environmental surroundings, but commonly impact on and are impacted by socio economic, physical and ecological activities "within and beyond their boundaries" (Wu, 2008). The landscape ecology outlook views cities as spatially heterogeneous landscapes fabricated from a diverse range of ecological patches that exist within but not confined to city limits (Picket et al. 1997). Wu argues that there have been movements towards combining urban morphology with ecological principles and socio

economic factors by architects, planners and designers. Accordingly, he advocates a multi and trans disciplinary approach in order to affect a viable approach to developing sustainable urbanism. To him, nothing more than a paradigm shift is needed in the way in which cities are studied. The theme of re-evaluating the landscape as a driver for architectural form is a formative element of the landscape urbanism 'movement'. Closely associated with landscape ecology, but with the added element of attempting to integrate design with the 'science' of the landscape ecology ethos, the proponents of landscape urbanism have had some limited success (see Chapter 3).

The interdisciplinary nature of both landscape ecology and landscape urbanism offer "many lessons for urban designers wanting to link structures to specific flows of populations, activities, construction materials and time" (Shane, 2003). The value of this approach is its inherent vernacular philosophy, what Hough (1995) describes as fortuitous ecologies. However, Shane also notes that such bottom up approaches ignore the substantive matters of social justice and equity.

6.4 What Kind of Ecological Development?

Top down or bottom up models of ecological development are by their nature polarizing elements in the broader debate relating to cultural and social inclusion within sustainable development. On one hand grand plans that outline ecological growth within the broader context of biospheric imperatives (see Chapter 4) of Agenda 21, are open to the interpretation by the actors responsible for their realization. In other words, much of the detail can be lost in translation depending on the agenda of governments, civic authorities and built environment stakeholders. On the other hand, the organic and therefore potentially tangled nature of bottom up systems may lead to localized resolutions that do not adequately address broader regional or global issues.

Arguably, reason would suggest that the most productive and effective way forward would be to produce an implementation structure that adapts the more pragmatic elements of both approaches into a functioning framework mechanism. However, there remains deep division amongst environmentalist's that can be simply characterized by the differing philosophies of the 'earth centered' and 'people centered'. These respective positions circle around the anthropocentric and the counter position of the non-anthropocentric or biocentric ecological theorists. The 'biocentrist' view can be characterized as all living things possess similar or the same intrinsic values (See Chapter 2), this position is often referred to as 'deep ecology' (Angus, 2012).

The axiology of deep ecology is founded on the concept of "bio centric egalitarianism" and an ontological questioning of metaphysical holism. These maxims maintain that the biosphere is not composed of separate entities, but more precisely by individuals that form an ontologically complete whole. The roots of this rationale are based on an intuitive understanding of the biosphere in the spirit of Descartes 'clear and distinct' criteria, or in other words what is clearly understood and distinct is true (Gewirth, 1943). Broadly however, those that subscribe to the credo of deep ecology generally dislike the human centric principles at the heart of industrialised Western culture. They argue that environmental policy should reflect values that inherently address nature independently of human needs (Nelson, 2008).

There are those such as social ecology theorist Murray Bookchin who reasoned that the disputation between the two ideologies is a false dichotomy. Correspondingly, from a socio ecological perspective he notes that human beings are both social and biological beings and in particular the role of social history tells us that humans have often pitted themselves against each other as well as against "non-human nature". Social conflicts have consequentially resulted in hierarchies based on authority and victimization culminating in humans beings exploited in much the same way as humans took advantage of the natural world. Effectively, he argues

that the notion of dominating nature “stems from the domination of human by human”. Therefore, liberating humans from the dominant hierarchies would increase the chances of “saving the wild areas of the planet”. Reasoning that biocentrism ignores significant social questions in the quest to blame a “vague humanity” for problems that are more related to a “rotten social system” is effectively ideologically sidelining the ecological movement (Bookchin, 1991).

The deep ecology movement is also skeptical about all forms of technology, believing that technology should be compatible with self-determining individuals in non-hierarchical communities As such, the technological suspicion relates to the danger in trusting in technological solutions that adopt dominant ideologies. Secondly, technology can mask underlying issues as the problem is perceived to be resolved and there is also the danger of the idea that new technological ‘experts’ will provide solutions (Lomba-Ortiz, 2003).

The manner in which human beings understand ecology is a determining feature of how they respond to nature. The more we understand eco-systems and our place within them we then begin to comprehend how the future resilience of communities is dependent on entities that are beyond conventional human economies (Sneddon, 2000). In the world of the deep ecologists humans are not conducive to ecological consonance as anthropocentrism is a part of the problem. However, this thesis contends that although the categorical priority of society is not a pivotal element in the future resilience of urban development, it is a fundamental necessity that communities are aware of the contribution they can make to their environment. It could be reasonably argued that at present human endeavours are in some way regarded as separate from the natural world. For example, it is rare that anyone would regard the city as a functioning constituent or stand alone part of a broader ecosystem and even more doubtfully as part of the human ecosystem (Rees, 2003). If urban dwellers are to play an active part in the future resilience and sustainability of their environment it is vital that they are aware of the concept of the ecosystem.

The irony of the Boka Kotorska is that many of the communities that inhabit the region have a deep understanding of the land, weather patterns, and wildlife etc. In other words the components of an ecosystem. Nevertheless, the notion of ecology associated with 'Wild Beauty' is primarily economic and the new sustainable developments are as remote from the local identity as many of the foreigners that occupy them. Broad based top down sustainability indicators do not adequately engage with the people of Montenegro. Top down planning within the former Yugoslavia was subverted to create the distinctive hybrid of modernism and vernacular architectural 'style' with some success. Nevertheless, the emphasis of the NSSD's indicator system is weighted towards economic sustainability and as such is open to the subversion of its ecological goals by stakeholder developers. The resulting prestige coastal projects are neither socially inclusive nor reflective of regional architectural form and culture. As stated previously, the Boka region is in a state of flux, if its spatial character continues to be developed in the same indistinctive manner, the notion of Ecological State will in reality mean nothing more than a strap line to tourism stakeholders. Consequently, this thesis proposes the adoption of a pragmatic indicator and rating system founded on the notion of a more vernacular and ecosystem oriented model for development concept.

6.5 A Vernacular Ecosystem Approach

A vernacular ecosystem approach to sustainability attempts to determine and draw upon the pragmatic and theoretical elements of the natural world. The term vernacular ecosystem is as yet not widely acknowledged as pertaining to urban development outside of the study area. However, a vernacular approach to ecosystem restoration was considered in the Mattole basin in Northern California. This study examined the relationship between ecological restoration and social transformation in regards to people responding to the constraints or positive circumstances offered by local ecosystems (House, 1996). Although the context of the work relates

to commercial salmon fisheries it explores the connections between culture and good ecosystem health.

The connection between cultural engagements with local vernacular ecosystems can similarly be observed in the local production of rakija (a locally distilled alcoholic beverage) in the Boka region. Community involvement with ecosystems from the harvesting of fruit for distillation to the collective taking part in the process of making the rakija is an example of the practice of vernacular ecological participation. This activity and others such as hunting is demonstrative of the relationships between human activity and local and broader ecosystems.

In order to achieve these objectives, it is proposed that a foundation of goals and indicators are formulated with the objective of constructing a conceptual and pragmatic tool for urban development in the Boka region. The vernacular ecosystem methodology will be founded on a combination of vernacular principles, empirical and quantitative sustainable indicators and theory and place based philosophies. The index will be applied to existing and future urban developments in the Boka Kotorska region to provide a critical visual and verifiable pointer to authentic sustainable outcomes. In addition, the index will act as a tool to disseminate salient details as to the nature of local ecosystems and the integral participatory role that communities and culture play within them.

Within the context of this thesis, the term vernacular is clearly referenced in its application to architecture and landscape. Nontheless, the wider and non English-speaking notion of vernacular as ‘heimat’ (homeland) connected with the philosophy of Ernst Bloch is equally as pertinent to the concept of the vernacular ecosystem. By drawing attention to the spatial associations with vernacular this proposal aims to highlight the inter-connectedness with the broader cultural themes that are vital to ecosystem functioning and wider bioregional identity.

The process of making a building inevitably casts ripples in the ecosystem. The causality of its construction could be described as destroying elements of the wider natural world as trees are felled, stone is ripped from the landscape and often, older dwellings are demolished to make way. The act of destroying in order to improve is technological and as such involves changes in two major relationships – between the human and non-human and the other within community. The technology of building requires the 'sacrifice' of existing materials that "do not owe their presence to human beings" and in effect this process transforms the natural (materials) into the cultural (Glassie, 1990). Vernacular technologies involve the usage of local materials that are manipulated by the hands of local craftsmen. Non-vernacular technologies are in the most part produced great distances from site and by elaborate industrial methods. Nevertheless, in effect the end result of the two procedures is the same as nature is wiped-out, but there is a fundamental difference between the two. When the human race was dominated by nature, people retaliated with technology in the form of the plough and the axe and there is a certain perception that this struggle was generally a courageous activity. Paradoxically, when man continues to fight nature, all be it from the perspective of the architect's office 40 floors above the city, it appears ruthless. However, the two are markedly different, nature mastered from a distance is not the same as facing it head on. On one hand when a tree is felled, shaped and sculpted into position by the builder he is inherently connected to nature. The steel beam forged by industrial process and now embedded in concrete beneath the feet is so far removed from the experience of many as to hold no emotional connection with material or natural origins (Glassie, 1990).

The notion that it is worthy to battle with nature in order to create a building as man struggles to master the natural world is not as environmentally empathetic as the image of man dancing with nature. People are living organisms that react to their environments by adapting to it or if that is not possible changing it. Fathy (1986) uses the example of a plant to illustrate the "mutual interaction between a living organism and its

environment". As such, plants adapt to local ecological conditions and are able to influence their microclimate by moderating their temperatures for example. In a similar way its environment affects a building, in that locality and climate can influence its appearance and form (Fathy, 1986). It is the philosophy of mutual interaction that drives the methodology for the vernacular ecosystem index. The component elements are included on the basis that they contribute to the fundamental objective of regarding urban development as a reciprocal ecological process.

6.6 The Components of Mutual Interaction

The elements that form the proposed Vernacular Ecology Index (VEI) are clearly configured in response to the specific condition of the research region. However, they can be equally applied to other developing regions and with certain adaptations could be used in many other urban environments. The structure of the VEI loosely draws on Bossel's 'Orientor Model' as a philosophical footing. Most importantly the index acts as a visual illustration of ecological progress as it is a critical intention to involve communities in the process of ecological appraisal, or put simply 'mutual interaction'. One of the primary purposes of the VEI tool is to establish networks of benchmark practice in order to stimulate feedback loops to complimentary regions, ultimately benefitting the broader bioregion.

This proposal acknowledges the theoretical frameworks that are integral to the future practical application of resilient and sustainable practice, but contends that vested interest stakeholders have to a degree expropriated both concepts. Consequently, the theoretical framework for the VEI does not rely on an overarching stratagem mechanism in which to fit, but is intended to offer a more pragmatic marker for ecological growth. This proposal is fully cognizant of the limitations of orientors, indicators, assessment criterion, grand plans and local initiatives relating to environmental development and understands its own limitations.

Accordingly, it sets out to create awareness of ecological matters that are inclusive, equitable and holistic in spirit and action.

The structure of the VEI is composed of five elements that are indicative of the spirit of the real and illusory within the context of the urban ecosystem. As such they include fundamental overarching themes of sustainable and resilient development, which can be structured into five essential and equitable categories. The five elements are:

- Energy
- Culture
- Systems
- Placeness
- Vernacular

Within the components there are integrated indicators that aim to reflect and measure the viability of the individual element. When synthesized with their counterparts the index will indicate strengths and areas in need of improvement within the designated study subject. Applying the index to a number of projects in a stipulated locality will effectively offer an aerial image of the urban ecosystem's health that could potentially pinpoint ecological strengths and weaknesses of the identified region.

6.7 Energy

Energy is fundamental to human existence. Sourcing, securing and delivering energy sources are part of the lifeblood of contemporary communities and vital to the sustainability of modern society. The demand for energy continues to increase worldwide and is expected to remain on this path into the future. The demand for energy globally is expected to increase by 37 percent by 2040 and the question of whether the global energy system can keep pace with demand is moot in the face of turmoil in many parts of the world. Conflict in the Middle East and between Russia

and Ukraine has given rise to concerns about gas security and the availability of low cost oil. Nuclear power is facing a complicated future and there is still a continued rise in greenhouse gas emissions and air pollution amongst some of the world's fast expanding urban regions (International Energy Agency, 2014).

It is expected that by 2040 the worlds energy supply will be comprised of four almost equal parts; coal, gas, oil and low carbon sources. Future targets for the reduction of carbon dioxide emissions are not expected to be met and are actually expected to increase by one-fifth. As a consequence, long-term global average temperatures are 3.6ºC, though the Intergovernmental Panel on Climate Change agreed goal is 2ºC in order to attempt to mitigate the widespread implications of climate change. It is therefore obvious that if the 2ºC target is to be accommodated urgent action is required.

According to the IEA (2014), nuclear power is projected to double over the 30-year projection period and most new construction of nuclear units is expected in developing Asia. China is expected to be the global leader in nuclear consumption by 2029 with other countries such as India, Russia and South Korea also expected to substantially increase nuclear power capacity.

Renewable energy usage or in other words energy derived from sources that are replenish-able, is also expected to rise in the immediate future. The major source of renewable generation comes from hydro and wind power and over the 30-year projection period 52 percent of renewable sources will be hydroelectric, 28 percent wind power.

Wind energy production is more pronounced in developed countries whereas hydroelectric generation is more of a constituent of developing countries. Although wind energy capacity has grown significantly over the last decade the intermittent nature of wind and solar energy and

availability to generating systems has hindered their economic competitiveness.

Despite the increase in renewable energy sources the IEA forecast for 2040 still envisages oil, natural gas and coal to be the primary sources of energy generation, accounting for 80 percent of the world's energy supply. Therefore, it is clear that fossil fuels will remain the principal energy source for many years to come (International Energy Agency, 2014).

The availability of renewable energy technologies is a limiting factor in the levels of usage. Solar energy, depending on the location, is an appreciable energy source. It is estimated that the earth is immersed in 170,000 TWh/year radiated from the sun. However photovoltaics, (PVs) are limited by storage matters during the nights and on cloudy days when the sun is unable to power the cells (Evans et al. 2009), although technology is improving and storage batteries are becoming less expensive.

The air currents that cause wind can be used to generate electricity with the help of turbines that either work on the principle of resistance or buoyancy (Bauer et al. 2007). The wind turbines are best suited for electricity generation in an economic sense in regions where velocities between 4 and 5 m/s are regular such as in low mountain ranges. Turbines are increasingly being situated at sea by turbine operators largely in part to the unpopularity of them when seen on the landscape by local people.

Geothermic energy derives from the heat from the Earth and can range as a source from shallow ground to hot rock and water found a few kilometers beneath the surface of the Earth and even deeper to magma (molten rock). It is retrieved by the use of pumps and heat exchangers to provide heating and cooling systems. There are numerous benefits to geothermal energy such as the source reservoirs being plentiful and naturally replenished, excellent as a way of meeting load energy demand in contrast to wind and solar, it does not cause significant pollution and has a

massive potential for energy generation globally. On the down side, geothermal power plants can in exceptional cases cause earthquakes and can be expensive due to upfront costs associated with power plants and heating/cooling systems (Maehlum, 2013).

Biomass energy sources are regarded as one of the most significant renewable sources globally (Bauer et al. 2007). Generation from solid remnants such as wood and straw accounts for 44 percent of biomass material usage and 50 percent is derived from slurry and dung used in biogas production. Biomass is highly regarded as a renewable energy source as the process effectively utilizes remnants and the gas produced can be fed into natural gas networks.

Wave and tidal energy is beginning to reach viability as a potentially commercially practical resource. Wave power devices usually float on the water surface with the up and down motion relating to wave size and movement providing the energy that is then captured by the device. Tidal devices are comparable to wind turbines as they consist of a rotor that is turned by its interaction with the tide. The generator in the turbine converts kinetic to electrical energy that is then transferred to the shore (Jacobson, 2008).

Hydroelectric power is generated when water falls gravitationally driving turbines and generators; the water source is usually via a dam or in some cases produced by flowing rivers. Hydroelectric power is more often than not used as a peaking power source and a smoothing element to irregular wind and solar power generation.

Concentrated Solar Power (CSP) is produced by the use of mirrors or reflective lenses to heat up a liquid source that subsequently turns to pressurized steam or synthetic oil transferred from an accumulator to a heat engine where it is converted to electricity.

In regards to which renewable energy source is most productive or can be ranked in order of overall benefit there are several factors that need to be taken into account. For example, the impact on land use, water consumption, the social impact, CO_2 and emissions and efficiency and price. Accordingly, Evans et al. rank Wind energy as the overall most sustainable followed by Hydro then Geothermal with Solar at the bottom in part due to issues of the limitations of the source in non-daylight hours (Evans, A. et al. 2009). Jacobson's (2009) review of renewable energy is more comprehensive and thorough in terms of the range of types of technology appraisal and more focused in regards to detailing relative merits. In summary, he finds the use of wind to be most sustainable, but this is closely followed by CSP, geothermal, tidal, solar, wave and hydroelectric. Concluding, Jacobson recommends that good locations of energy assets should be sited in anticipation of connection with transmission systems.

6.8 Culture

If the process of measuring the energy efficiency of various renewable energy sources could be reasonable assumed to be one of the 'real' elements of the natural world or urban ecosystem, the cultural element is firmly embedded in the 'illusory' or science of the senses. Defining culture is decidedly complicated as Kroeber and Kluckhorn's (1952) seminal work on definitions of culture reinforced, observing 164 different definitions. To begin to understand any particular culture and the nature of its values over behavior it is necessary to understand the underlying inferences that are mostly unconscious, but nevertheless determine how the cultural group members think and feel (Spencer-Oatey, 2012). Values are at the core of cultural identity and determine the general inclination to prefer one thing to another, feelings with a plus or minus aspect such as evil vs. good, unnatural vs. natural or paradoxical vs. logical (Hofstede, 1994). The values of individual societies according to developmental psychologists are learned in childhood by the age of 10 and after this are very difficult to

interrupt. As a consequence of the unconscious character of values they cannot be distinguished or surveyed, but only inferred in the way people respond to particular circumstances.

Hofstede contends that most humans belong to several number of groups or categories of people at the same time and are correspondingly responding to disparate levels of culture at the same time. Accordingly, he reasons the layers of culture can be identified as:

- A national level according to one's country (or countries for people who migrated during their lifetime);
- A regional and/or ethnic and/or religious and/or linguistic affiliation level, as most nations are composed of culturally different regions and/ or ethnic and/or religious and/or language groups;
- A gender level, according to whether a person was born as a girl or as a boy;
- A generation level, which separates grandparents from parents from children;
- A social class level, associated with educational opportunities and with a person's occupation or profession; for those who are employed, an organizational or corporate level according to the way employees have been socialized by their work organization.

(Hofstede, 1994)

Environment and Culture are interconnected. The economy, health and well-being and the spatial forms that shape the topography of human habitation, are determined by a relationship created by a combination of many conflicting human characteristics such as spirituality, materialism, and altruism. The values and beliefs of different countries will affect the attitudes of their citizens to environmental matters (Park et al., 2007). If such attitudes are ambivalent to the possibilities of the notion of the ecological state and corresponding benefits to the civil society, there is a limited scope for sustainable development. As Elgin contends, “we cannot build a future consciously that we have not first imagined. Many people

can visualize a future of worsening crisis-with ecological destruction, famines, civil unrest and material limitation-but few have a positive vision of the future" (Elgin, 1994). In the context of Montenegro, against the backdrop of recent political, economic and existential circumstances the collective cultural consciousness is unlikely to consider ecological innovation with anything other than understandable skepticism.

If sustainable agendas are to be fully implemented in any region let alone transitional regions such as Montenegro there needs to an implicit social understanding of the objectives and a rationale for many of the value shifts that may be necessary. Nontheless, there is a convention amongst environmental stakeholders to rely on 'hard science' to frame the issues. The social element of the three-pillar paradigm is more often than not brought in later in the process to assess the impacts of environmental and economic sustainability measures (Thompson, 2000). Thompson argues that on environmental issues, as many others, people are arguing from "different premises" that are anchored in various aspects of cultural solidarity and will therefore never agree. However, as well as this being unavoidable it is "all to the good" and can be "harnessed through constructive and high quality communication". It can also be argued that the social aspects of the three pillars cannot be appraised through the same frameworks as environmental and economic due to their circular cause and effect nature, and the trickiness of quantifying social phenomena (Lehtonen, 2004).

As with the companion components of the VEI the cultural element is intended to constitute a co-evolutionary framework that is reflective of the many stands of cultural experience. The ecology of culture in the VEI framework is viewed as the interactions, encounters and communications between individuals that convey many different types of experiences, beliefs and depth of knowledge within communities. As Holden (2006) reminds us, "intrinsic values are better thought of then as the capacity and potential of culture to affect us, rather than as measurable and fixed stocks of worth". Arguably, the general perception of culture is in the form of

libraries, theatres, the arts, museums and heritage. This is a narrow interpretation of culture that if at all, considers economic factors only in regards to the funding of 'cultural' institutions and not as an intrinsic feature of the cultural identity of a community. As a system of values, beliefs and customs held by group of people, cultural interactions involve the exchange of information, ideas, material goods and other symbols of interchange. The notions of exchange, value, price and markets take on cultural meaning and as such 'cultural materialism' has a clear association with economics (Throsby, 2001).

The essential characteristic of our conscious behavior is gained by the interconnectedness of cultural interaction. Biological needs are shaped by cultural context, for example people share the biological requirement to eat, but what we eat, how often, with whom and how much is impacted on by the 'rules' of the individual culture (Spencer-Oatey, 2012).

From the perspective of the Montenegrin communities within the research study area the consequences of transition have in a large part led to a multi cultural collision linked with traditional values, environmental aspiration and geopolitical agendas. When cultures meet head on the sharing of values, ideas and beliefs is not an immediately reciprocal process. It is more likely to happen if there are aspects of the contrasting cultures that prove useful, better than what is already in existence, easily understood, the benefits are clearly visible and is able to be trialed before being committed to (Spencer-Oatey, 2012). In particular, in the Boka context this should be consistent with the prevailing cultural frameworks.

6.9 Systems

The systems component of the VEI primarily, but not exclusively, focuses on 'systems' that underpin the infrastructure of the subject area. The two most obvious elements of this are transport and the provision and re-use of water. Systems can also include methods of recycling and associated

networks and local civic initiatives that enable flows of information or ‘feedback loops’ that add value or alternative innovation to existing and future modes of communication (the internet being an obvious example) and infrastructure. Or put simply, ideas implemented that improve the welfare and efficiency of the community that are locally driven, helpful and practical.

The impact on the environment from transport activities is considerable as they tend to have many outside costs, are resource intensive and can create inequity in the manner in which they are distributed (Litman, 2003). Generally, the rationale for sustainable transportation involves advocating the varying modes of travel to what they are best at. For example, short distances should be walked or cycled to when possible, public transport should be used in preference to personal car usage and furthermore, car journeys should be reduced altogether.

Naturally, there are more ‘structured’ definitions of what sustainable transport should look like depending on the origins of the research. One such could be described as a “literal economist’s definition” (Gilbert, 2005) as proposed by Nelson and Shakow (1996). Gilbert expresses reservations about their approach as he reveals partly by highlighting the pertinent quotation that sustainability “is achieved when the total future discounted per-capita social costs, both market and non-market, related to the transport system are equal to or less than the costs in a selected reference year”.

Another type of definition is proposed by the Organisation for Economic Cooperation Development (OECD) (2003) and characterized as ‘environmentally sustainable transportation’ (EST). Accordingly, the OECD definition calls attention to a transport system that does not endanger public health or ecosystems. This is to be achieved by allowing determined objectives for health and environmental standards to be met, is in tune with ecosystem coherence and does not worsen climate change or ozone depletion.

The most accepted version of the definition and most relevant in regards to Montenegro and to wider political acceptance is the E.U.'s version. According to Gilbert the framework is summarised as such: -

- Allows the basic access and development needs of individuals, companies and societies to be met safely and in a manner consistent with human and ecosystem health, and promotes equity within and between successive generations.
- Is affordable, operates fairly and efficiently, offers choice of transport mode, and supports a competitive economy, as well as balanced regional development.
- Limits emissions and waste within the planet's ability to absorb them, uses renewable resources at or below their rates of generation, and, uses non- renewable resources at or below the rates of development of renewable substitutes while minimising the impact on the use of land and the generation of noise.

(Gilbert, 2005)

Transport within the Boka region is largely dependent on the automobile and the bus. The improvement of the road network is in its early stages at most levels though the objectives in terms of the Boka region are to eliminate bottlenecks in the system (NSSD, 2008). The restructuring in the rail network (not a feature of the Boka region) centers on separating the operational part from the infrastructure.

The issue of water usage is more of an immediate concern as the average consumption in Montenegro is extraordinarily high. Despite a rich rainfall and abundance of underground and surface waters there are still water restrictions in areas such as Herceg Novi throughout the year. At a national level measures to improve the situation are focused on creating a legal framework that is in accordance with EU directives regarding laws on waters. The NSSD also cites "communication with the institutions from Norway" as a marker to progress in addition to

expected funding from the World Bank and the International Bank for Reconstruction and Development (IBRD) and the Montenegrin government of approximately 52 million Euros for a regional supply for the coast (NSSD, 2008).

As a matter of resilience and sustainability, the manner in which the community adopts water conservancy and wastewater management measures should be an integral element of future development strategies. There is a convincing argument to be made regarding the development of technologies used to manage waste and storm water as the pollutants within each will adversely affect local ecosystems. Such technologies can be applied to specific local conditions depending on cost, skills, and the compatibility to the cultural structure of the location according to the United Nations Environmental Program (UNEP, 2002).

The characteristics of wastewater and storm-water differ in regards to content. Toilet wastewater is termed black-water and consists of a high content of solids and nutrients. The water from washing processes and bathing is termed grey-water and may contain a high content of grease and solids. Storm-water by contrast is produced from house roofs, roads and paved areas during periods of rainfall, therefore the amount of storm-water produced is largely down to the time period of the precipitation and the surfaces the rain falls upon. Impervious surfaces such as roads and paved areas etc. produce more run off than vegetated areas where soils are likely to soak up water.

Treating the two types of water types means reducing and removing pollutants, which in essence means preventing contamination in the first place. Therefore, ensuring that when storm-water flows over surfaces they are as free from waste and in the case of grey and black-water the separation of the two before treatment will reduce the energy required for treatment.

The types of wastewater treatment processes considered within the VEI are on site technologies such as composting toilets, aerobic treatment units and inverted trench systems. These are more appropriate considering the wider matter of resilience and also in regards to waste management as the use of septic tanks are typical wastewater systems in the region.

An effective flow of information within a community is an inherent feature of the notion of connectedness. Decision-making can be influenced by the activities and communications of the people around us. The simple interactions we have with others such as how long we talk, how often and how much influence do these dialogues contribute to decision making are fundamental to organizational effectiveness. Identifying the connectors within a community or in other words the people, who do most of the talking to other community members, can facilitate the diffusion of pertinent information. By also identifying experts (not necessarily high-status individuals) in areas that would enhance the collective knowledge (Pentland, 2004), would bring added value feedback systems to communal resilience.

The concept of the community network is nothing new and stems back to 1970's community activism around issues such as housing and jobs, however the perception the community network in the age of the internet is another matter. Embracing internet services such as email and blogging can improve the accessibility of community network resources, but in doing so can also contributed to the perception of the network community as a web site therefore reducing their impact as purposeful community networks (Carroll, Rosson, 2010). There are clear benefits to the communication systems within cultural networks made possible by Internet access such as convenience, distribution and access to information, but there are also costs. Within most communities there are places of social exchange and participation that people form attachments to. Networking on the Internet can be a factor

in weakening these communal ‘network hubs’ as social and cultural places.

Additionally, computer technology may not be available or even desirable to members of a community and inclusivity is an elemental aspect of the system structure. Accordingly, channels of communication appraisal in the VEI will examine the potential for constructing motifs of place within communities that are more than exchange of information areas. As Carroll and Boson (2010) suggest any “potential barriers to participation might be lowered by embodying a culture of lifelong learning into the activities of the community network”.

6.10 Placeness

The position of the notion of place within the context of sustainability was briefly introduced and discussed in Chapter 2. Within the framework of the VEI the ‘placeness’ element is firmly rooted in the phenomenological approach. This is at variance with the positivistic perspective, which is a quantitative methodological approach to hypothesis testing. The positivistic viewpoint is not a good fit for this proposal for a number of reasons. Firstly, such approaches often pay little attention to theoretical principles such as “symbolic meanings and evaluations”. Secondly, they do not adequately address the relationship between landscape and the inherent natural capital by which place can be created and thirdly, do not consider sense of place “variables on behavior” (Stedman, 2002). Stedman contends there is a paradox between the two approaches. On one hand (phenomenological) many of the more interesting principles sound like they are a “testable hypothesis”, but phenomenology is essentially quantitatively problematic. Conversely, the positivistic process would arguably facilitate a more scientific representation of the placeness conundrum, but cannot adequately address the ‘science of the senses’.

To establish a theoretical framework for the phenomenological traditions associated with the 'placeness' component in the VEI it is necessary to revisit the conceptual foundations expounded by Norberg- Shulz. His principal contribution in what could be characterized, as the phenomenological movement was to attempt to translate the phenomenological approach, initiated by Husserl and Heidegger amongst others, to architecture. Norberg-Schulz's earlier works contemplated the relationship between Gestalt theory, the process of 'schematization' and the socialization of perception as a way of understanding how perception leads to an interpretation of how we understand the world. This was an attempt to identify an "architectural totality" that would " account for all the dimensions of architecture: the technical structure, environment, context, scale and ornament" (Habib, et al. 2012). Norberg-Schulz's 'Existence, Space and Architecture' (1971) primarily examines the concept of space, in part prompted by what he regarded as a reductivist understanding of the notion by others. Space in 'Existence, Space and Architecture' is existential and as such he identified five levels of this space:

- Geography - gives identity to regions and are abstract in that they do not represent what is known, but are prospective elements in existential space.
- Landscape – primarily background spaces that are protected by natural features that may attract natural pathways such as rivers.
- Urban level – the inner structure in which social and individual activities 'take place'.
- The house – an expression dwelling, a place of meaningful activities concretized as a space with a range of characteristics of place.
- The thing – the lowest level of existential space e.g. cupboards or chests of drawers that can be opened to reveal, hide, conserve and remember actions from the past.

In reference to space he draws on Heidegger's works on building and dwelling, emphasizing the house as the "central place of human existence" the place that man departs from and returns to (Norberg-Schulz, 1971).

Arguably, Norberg-Shulz's most identified work is 'Genius Loci: Towards a Phenomenology of Architecture' in which he explores the character of places and their value to people. He identifies four thematic features of the 'genius loci', these being:

- The topography of the earth's surface.
- The cosmological light conditions and the sky as natural conditions.
- Buildings.
- Symbolic and existential meanings in the cultural Landscape.

(Jiven, Larkham, 2003)

The place of Norberg-Shulz's Genius Loci is based on the features and 'happenings' in the topographical landscape. This state of being includes cosmological and temporal effects on the environment such as recurring changes of light and annual cycles of vegetation growth. The continual fluctuating natural patterns of light and life are in contrast with physical forms and this placeness of nature should be observed as built environments are changed. The parallels with Heidegger's philosophy of dwelling and Husserl's science of the senses are pronounced. The connection between building, dwelling and house, the placeness of objects constructed from the materials of the earth and the sense of the real and the illusory is illustrative of the interconnectedness of phenomenological reasoning.

Built environment stakeholders have to a significant degree distorted the concept of Genius Loci through a combination of confusing interpretations of the conceptual approach and generic definitions, with few seeming to understand the richness of the original rationale.

Norberg-Shulz makes no reference to the type of design of which the genius loci could be symbolized. Nevertheless, references to genius loci and the appropriation of place has been affiliated with the notion of character. Prominent design paradigms such as 'New Urbanism' convey the idea that a characterful place can be constructed on the back of elements that 'bestow' character (Jiven, Larkham, 2003).

Accordingly, New Urbanism is an attempt to return to the historic urban patterns through modern interpretations (Ellin, 1996). Consequently, it has been dismissed as nostalgic and architecturally mediocre (Huxtable, 1999). However, its overall objectives of emphasizing the human role in planning, attempts to create walk-able environments and to determine places of use are markers of sustainable development (Rahnama, et al. 2012). According to Ellis (2002) there is a depth of research involved into the vernacular heritage of potential New Urbanism projects "leading to the preparation of codes, pattern books and building typologies". Nevertheless, in the VEI structure the element of placeness should be viewed as a modern and progressive interpretation of phenomenological outlooks and not an advocate of designed placeness.

The VEI reflection of placeness will attempt to formulate the more ethereal constituents of place together with the physical elements. Therefore, in the appraisal of future and existing development projects it is proposed that the categories of placeness reveal the way the world "makes itself evident to awareness". That being so, the components of place in this proposal are:

- *Connectivity* – The connections between people and their environments – urban to rural visual loops, pathways to communication, community interface systems.
- *Materials* – Local, from the earth, environmentally sympathetic, reflective of encounters with climate, light and ecology.
- *Public Value* – The attachment to symbols and cultural artifacts

- *Landscape* – Topography of urban forms facing the natural world, the fit into wider regional character.

6.11 Vernacular

The vernacular of the VEI refers to architecture and the immediate landscapes that surround or interact with the buildings. The term vernacular however, is open to wider interpretation and therefore within the context of this thesis it is important to sum up the spirit of vernacular within the structure of the VEI.

The general movement to the objective of creating sustainable, green or eco-architecture has sparked the curiosity of some architects of the relationship between buildings, craftsmanship, materials and local landscapes associated with vernacular forms. As Oliver points out, architects began to appreciate the commonalities between the design issues that affected their daily professional existence and the awareness of the vernacular builder. Vernacular builders displayed a conception of " the deployment of materials and resources, in the use of localized techniques and craft skills in construction, in the function of traditional building forms, types and spaces" (Oliver, 1987).

The 're-connecting' with nature and vernacular traditions in relation to 'eco-architecture' is effectively dualistic in nature, though both approaches share the common recognition of phenomenological concepts. Accordingly, Hagan (2010) contends that the split lies principally between 'the Arcadian minority' who focus on the return to pre-industrial and pre-urban building processes and the 'rationalist majority' devoted to more technical adaptations of environmental design. Although the two exist under a similar overarching ethical framework and conform to the "meta-narrative" of environmentalism from a more anthropocentric position, the two positions occupy divergent viewpoints. The 'Arcadian' approach can be characterized as a reappraisal of the vernacular and craft traditions in

“mediating between inside and outside”. It is the rationalists however, with their emphasis fully underpinned by scientific and quantitative methodologies and technological innovations that have been in the ascendancy.

Hagan points out that there are a number of environmentally aware built environment stakeholders that do not fit into either camp and take what they need from both approaches. Correspondingly, the architecture of the ‘third way’ is not generated by technology, but by an array of “technologies, inserted into pre-existing architectures, which are then re-formed to different degrees, according to the rigour with which the environmental agenda is pursued” (Hagan, 2001).

The architectural vernacular of the VEI is not ideologically embedded in either positions and recognizes the value of each approach and as such could be characterized as a third way approach. Consequently, the value of local knowledge, traditions and skills are integral to the ethos of this approach, but technology is equally respected. The architectural vernacular of this proposal acknowledges the recent history of the study region and considers this to be an intrinsic aspect of vernacular form. As such, the distinctive Yugoslav postwar modernist forms that evoke memories of home, happiness and better futures are components of the vernacular landscape. This is not the vernacular of nostalgia, but more in the spirit of Bloch’s heimat and the connectivity between the emotional subconscious and urban form or where the concepts of vernacular and place converge.

The cultural characteristics of landscapes are discernable by intricate visual languages in the form of physical features, indicative of the customs of the societies that settle within them. Over time the physical properties of landscapes evolve and as human activities and priorities adjust to matters such as the political, social and economic the ‘language’ of the landscape is similarly refined. The chapters of the landscapes substantive experience can be revealed in layers by archeological, geographical and sociological

observations (Leader-Elliot, et al. 2004). Jackson (1984) expands the notion of the landscape as a type of coded illustrative language to the cultural identity of the communities that exist within them. The vernacular or “landscapes of the every day” to him are associated with pragmatic adjustments to circumstances and because of this there will be areas of obsolescence and adjustment, in other words the difference between structure and the preferences of the vernacular.

In the seminal “Cities and Natural Processes” Hough (1995) discusses the concept of the urban landscape evolving in unpredictable ways or at the ‘preferences of the vernacular’. He notes that “the role of planning approval processes, such as by-laws, building codes and regulations, are often in conflict with this organic process”. Hough argues that such regulations encourage conformity and that “cultural diversity and richness of expression” will happen if communities are allowed to take control of their own localities. Although he is sympathetic to the New Urbanism agenda in regards to protecting woodlands, river valleys and other natural features, he observes that the issue is “less about architecture than about the need for conditions that allow communities to develop on their own terms”.

This proposal is broadly supportive of the bottom up approach advocated by Hough. Accordingly, the VEI tool views local initiatives as fundamental drivers of the vernacular landscape agenda. Architectural form and landscape are assimilated elements within ecosystems and the broader bioregion and as such are weighted equally in VEI appraisal process. The role of civic authorizes, NGO’s and governmental organisations are regarded as useful partners in the process of creating vernacular innovation, but their limitations are fully understood - one size fits all is not in the spirit of the VEI.

The five components of the VEI are presented as separate visual components, but there are many overlapping concepts. For example the elements of placeness and culture would sit comfortably within the

vernacular component, culture plays a significant role in ‘systems’ and ‘energy’ and so on and so forth. This is in keeping with the nature of ecosystems and the concept of ‘mutual interaction’ and is affirmation of the robustness of the VEI structure.

6.12 Conclusion

Sustainability indicators are on balance a positive addition to the broader objective of good ecosystem health. However, the disparate and seemingly arbitrary nature of the interpretations of three-pillar paradigm aims by many stakeholder authorities serve to highlight the need for clarity. To fully engage with the process of sustainable and resilient urban development strategies within developing regions it is crucial that communities buy into the aspirations promoted by policy makers. In order to approve or reject any proposed sustainability schemes it is necessary to clearly inform and educate the inhabitants of any given region of the foundations of ecosystem thinking. Cultural participation is fundamental to good ecosystem health and therefore should play an integral role in any wider process, both in terms of acknowledging this as a requisite for creating effective feedback systems and also recognizing that culture should play a more central position in any mechanism of assessment or indicator methodologies. Accordingly, the VEI acknowledges the interconnectivity of all of the components of sustainable development, regarding them as evenly balanced elements within a framework for ecosystem appraisal.

Chapter 7

Measuring Vernacular Ecosystems

7.1 Introduction

Creating a visually engaging reference source that not only illustrates the pertinent data, but also attempts to generate an understanding of where communities fit within broader ecosystems and bioregions is a complex objective. Within the context of the Boka Kotorska region the primary function of the VEI is to establish awareness of the relevance and potential benefits of engaging in the process of ecosystem thinking. Consequently, it is proposed that by rating various elements of the five components this will facilitate debates regarding the pros and cons of contributing to ecosystem health. For example, currently the tourism season in the region is relatively short peaking between mid-July until the end of August. The connection between tourism and the concept of the eco state is limited to a few 'eco lodges' in the mountains, whereas the overwhelming type of tourism around the Boka bay is the 'cheap and cheerful' beach and bar tourist model. In establishing an understanding of the vernacular ecosystem it would be possible to build awareness of the role of local cultural activities to the broader notion of the 'Wild Beauty' and by extension the eco-state. By creating the reality of ecological awareness at a local level such as the potential for economic networks in the manner of honey production cooperatives and vernacular produce (figs, olives, pomegranates etc.) derivative commodities would decrease the reliance on tourist activity as products are marketed under the banner of 'Wild Beauty' to a wider consumer base. In other words using the 'Wild Beauty' brand to better effect. This would also paradoxically bring into being a more sustainable tourism model, as the concept of eco-state becomes a more substantive and attractive proposition to visitors. The flexibility of the VEI allows for the creation of feedback loops within existing paradigms in

order to bring into being functioning networks that will ultimately form the foundations of healthier ecosystems.

If the VEI is to be a practical tool, effecting ecological awareness, it needs to be easy to understand, visually appealing and informative to a broad range of actors. Many of the existing diagrams of sustainable development focus on the three-pillar paradigm model in various formats. Accordingly, Mann (2009) attempts to collate the variations of visual representations sourced from the Internet. As such, he identifies a diverse range of graphical presentations of data ranging from standard Venn diagrams to more complex flow charts, all of which attempt to create a visual reference to sustainable development. Identifying appropriate graphical models that are indicative of the elements of the urban ecosystem, but allow for the interconnectedness of key concepts within the structure is a primary choice objective. As Costanza et al. (1993) notes when appraising the robustness of different models “achieving a comprehensive understanding that is useful for modelling and prediction of linked ecological economic systems requires the synthesis and integration of several different conceptual frames”. Additionally, it is critical that any model should reflect the potential for on going change within a given system, a situation that is a characteristic of transitional regions. As such, Gallopin et al. (2014) acknowledge the complexities involved in developing graphic interpretations of such a dynamic process, but conclude that there are “no universal rules, and no ‘absolute truths’, but depending on the model taken as a reference, different proposals will be generated prioritising certain variables, dimensions, visions and even ideologies”. It is therefore vital to adopt a system that is integrated and holistic, avoiding the trap of focusing on ”partial sustainabilities” (Gallopin, et al. 2014).

When selecting a graphical information model for the VEI the primary consideration is the clear representation of the five categories and the ability to be able to establish a rating for each of the components. Consequently, the most appropriate and robust model for this purpose is the ‘rose’ chart sometimes known as the ‘circumplex’ chart. The rose chart

is a circular histogram that displays the elements that make up the system in the form of sectional petals around the centre with directional data extending outwards. They are often used to chart wind directions and within geology in regards to detecting flows of water within geological time frames. The advantage of rose charts is that they convey multi modal as well as single mode data at a glance (Wells, 1999).

The programme used to build the diagram is ‘R’, the lingua franca of data analysis. In this proposal R will be used as it is freely available and is powerful enough to implement all the key statistical methods (CRAN, 2015). Furthermore, it also has optional packages that can be downloaded to implement literally thousands of additional methods. R is the language of choice for academic statisticians, and new approaches often become available in R years before they are implemented in commercial packages and is not only confined to academic research, but also in commerce. It enables easy experimentation and exploration, which improves data analysis. R is responsible for reporting modern data analyses in a reproducible manner making an analysis more useful to others, because the data and code that actually conducts the analysis are freely available (see Appendix A).

The strength of R and corresponding rose diagrams is their flexibility. The rose diagram is able to convey scientific data in conjunction with qualitative analysis within the same graphic image. This is a fundamental feature of the VEI. That, in some circumstances (depending on the research project) may need to display complex data sets in collaboration with empirical conclusions. For example, data measuring energy output and usage from major energy providers can be presented in parallel with the subjective experiences of its efficacy to produce an overall rating for energy conservation.

7.2 Identifying Symbols of Progress

The principle aim of the VEI is to create awareness of local ecosystems and the multi-dimensional features that contribute towards healthy systems and correspondingly to wider regions and bioregions. It is proposed that this will not be achieved by presenting scientific data in an inaccessible manner. Accordingly, the VEI's aim is to present the relevant features of a vernacular approach to sustainable and resilient development in a pragmatic and penetrable format. For example, there are significant amounts of literature relating to measuring energy efficiency and environmental quality (Carrera, Mack, 2010; Hanley, et al., 2009; Jovanovic, et al. 2010). Nevertheless, the methodology involved would not be a practical addition to the VEI in regards to creating environmental awareness in the Boka Kotorska as the available data would not be accessible to, or resonate with, the majority of local communities. The VEI is flexible enough to employ relatively elementary methods of analysis when the need for a general understanding is a primary objective, but also is able to implement a more scientific approach depending on the project involved. In the Boka region it is of greater consequence to present an uncomplicated visual and thematic message that engages with communities. With this function as the underlying strategy format it is proposed that the categories reflect the need for accessibility and are therefore built around values of clarity, cultivation, identity, dialogue and distribution. Accordingly the five components of the VEI will undertake to evaluate the fundamental essence of placeness, energy, vernacular, systems and culture against the background of the fore mentioned principles.

7.3 Rating – Energy

In many respects the energy rating system in the VEI is the least problematic of the components, in that the assessment of the energy sources in the Boka region are comparatively limited in the range of

available options. Most of the electricity in the Boka bay area is generated by Montenegro's oldest hydroelectric plant in Perucica. The use of gas in domestic situations is primarily sourced through imported liquefied petroleum gas products such as Propane and Butane. Montenegro's target for renewable energy usage is set at 30 per cent of total use by 2020 in line with European Energy Community accords.

The potential for the development of renewable energy sources in Montenegro are good. For it's size, Montenegro has an abundance of water sources and although currently there are two large hydro plants generating 76 per cent of the country's electricity requirements this is only 18 per cent of the hydro power potential (UNDP, 2015). In June 2014 the Economy Minister of Montenegro formulated the concession agreements for the constructions of ten smaller hydro plants on six watercourses. This is regarded as a step forward in meeting European obligations and more importantly a method of exporting electricity through projects such as the underwater energy cable connecting Montenegro to Italy (Government of Montenegro, 2014). Hydropower has received robust domestic political backing, as renewable energy sources are perceived to attract new investment. Montenegro will potentially be energy secure in the event of the national grid responding to rising demand mitigating prospective energy deficits.

In the context of the Boka Kotorska VEI energy rating system, the most comprehensive review of renewable energy and therefore most suitable for this framework, is drawn from Jacobson (2009). Accordingly, energy sourced from wind turbines would be rated highest in regards to a hierarchy of sources most appropriate to the notional ecosystem. Wind would be followed by hydro, geothermal, solar, tidal and wave power. Power sources that are positioned within a closer range of the specific project appraisal will be rated higher. For example if the development project was equipped with site specific wind turbines and solar panels this would be regarded as being in the spirit of vernacular and would consequently be judged to be better than regionally sourced renewable sources. If localised renewable energy sources are able to feed back into

local and regional energy networks this would be regarded as the highest in the energy hierarchy and would be scored accordingly. Energy sourced from coal or gas power plants will be rated lower within the appraisal process.

7.4 Rating - Systems

Sourcing water in the Boka region can sometimes be problematic. Not only is water usage highly inefficient, but in towns such as Herceg Novi water accessibility is also a political issue. In former Yugoslavia, before the conflicts of the 1990's and subsequent redrawing of national borders Herceg Novi sourced its water from Lake Bileca in Bosnia and Herzegovina as it does presently. The water from Bileca is of an excellent quality, however the water now travels through three countries and three administrative authorities. Herceg Novi frequently experiences water rationing despite a plentiful supply system being in place, amounting to 1260 m3 water quantity over the summer (Drink Adria, 2015). This is a source of much public annoyance and opinion as to why this continues to take place. Corruption is often speculated about in regards to payments not being made at an inter agency level. During the summer of 2015 severe water rationing was implemented due to a shutdown of one of the distribution pumps (Radio Jadran, 2015). The effect of this (at the beginning of the tourist season) was for most people water only being available for a few hours a day with the inevitable consequences for visitors to the region. Coupled with this state of affairs is the wastewater system in the region. Currently there are several water supply and wastewater developments underway within the Boka region, in Herceg Novi, Tivat and Kotor. Until relatively recently waste water was discharged directly into the Boka bay and these new developments are to some extent markers of the investments being made in the infrastructure, though the frustration with the inadequacies of the current supply system remains a persistent irritation.

In keeping with the notion of vernacular the rating of water supply and wastewater management will be higher in developments where there is clear evidence of water conservation and recycling. For example, usage of alternative waste management systems such as compost toilets and effective grey water treatments processes are more beneficial to local ecosystems than septic tanks. The use of rainwater harvesting systems or attempts to effectively conserve rainwater will also rate highly in the VEI.
The transport system in the Boka region is severely limited. Pedestrians are not adequately served by the current state of the infrastructure, footpaths are poor and in many cases non-existent on busy and congested roadways. Cycling facilities within the Boka region are inadequate. There are no cycle lanes and very few concessions to storage, safety or security. Within the region there are adequate mass transit bus services, but the automobile is by far the dominant mode of transportation. A good rating within the VEI will depend on the potential for walking and cycling and access to mass transit networks.

Effective means of communication within local communities is a basic requirement of a healthy system. If awareness and personal connectedness to local ecology is to take hold it is vital that information is freely discussed and exchanged. The Internet is an obvious paradigm, however in the event of power failure or natural disaster it is essential to be able to rely on community initiatives that do not rely on technology. As such, a high rating within the VEI will recognise evidence and access to communal arrangements, for example non-governmental social support organizations, family and child advocacy organizations and environmental NGO's among others.

Other components of the 'Systems' element would include evidence of recycling networks and any other activity that promotes awareness or establishes environmental understanding.

7.5 Rating - Culture

Culture is a thorny issue in a region as complex as Montenegro. Some would even argue that there is a culture in the Boka Kotorska that is unique and correspondingly separate to broader Montenegrin cultural traditions. Identifying the unifying elements of the collective cultural make up of the region is at the heart of the matter. Ethnic tensions can still be revealed through casual conversation between the inhabitants of the three principal towns in the Boka region, where pro and anti Serb sentiments are often expressed. Nationalism is a persistent concern in a country struggling to determine its national character and has been a prominent feature of recent political discourse (see Chapter 4). Montenegrin nationalism is essentially a variant of anti Serb or pro Serb ideology with some Montenegrins standing by both ways of thinking. Some research also notes that Montenegrins are not descended from Slavs, but "allegedly, from originally non - Slavic stock" (Ramet, 2006). The institutions that underpin the development of cultural traditions such as Universities, The Media and the Academy of Sciences only came into being in the 1970's and 1980's (Ramet, 2006). In short, the prospect of locking cultural identity within an established national character is remote. The absence of a structured cultural bedrock (until recently) and the ambivalence of newly formed state-hood has not been conducive to fashioning a self-confident perception of what it means to be Montenegrin, which depending on the viewpoint (outward looking or nationalist) could be an opportunity or reason for concern.

In addition to this, the influence of 'foreigners' such as the Russian 'occupation' of coastal properties and land in conjunction with the accession demands of the E.U. are significant factors in shaping attitudes and traditions. Within the context of the cultural component of the VEI the regional ecosystem would not best be served by lurching to either sphere of influence as a method of bringing about more prosperous nation. That being so, the VEI will acknowledge Montenegrin cultural heritage that

builds upon self confident, inclusive and outward looking practices that promote national well-being and prosperity.

Accordingly, the VEI will acknowledge and rate higher cultural initiatives that foster notions of connectivity and by extension are outward looking in regards to relationships with neighbouring countries and the wider world. This being said, the VEI does not value the hegemonic imperatives associated with globalism and consequently views localised cultural activities as a means of bringing value to national and international trade and cultural enterprises. There are benefits to be derived from outward looking policies such as tariff removal, free trade and efficiency. It is also noted that outward looking countries are more able to manage in the event of external shocks as well as the effects of globalism, though in light of the financial crisis many governments are re considering some outward looking approaches (Economics Online, 2015). Consequently, the VEI acknowledges and rates accordingly, the value of sustainable entrepreneurship that contributes to building communal networks with a proactive approach to broader regional relationships.

Clearly the economic culture is a vital ingredient to the general well-being and prosperity of communities, but equally as significant is the capacity of the arts, music, civic institutions and health systems to elicit vitality, diversity and change.

The underlying conceptual thread that connects all the constituents of the 'culture' component of the VEI is inclusivity. Though prescriptive ideology is not (nor should be) a factor in the VEI structure, it is important to understand the emotive references of some cultural tropes in the region. Therefore, the rating system within the VEI recognises and rates accordingly, cultural happenings that cultivate the notion of what it means to be Montenegrin in the 21st century.

Whether the homogenizing effects of globalization are as pervasive as the received narrative suggests it is nevertheless a fundamental necessity to

develop a robust cultural identity in the Boka region that is able, if unavoidable, to absorb some of the inevitabilities of the world of 24 hour communication and inexpensive flights. As Hay and Rosamond note when discussing the threat of homogenization in the context of the discourse of cultural identity: “Globalization produces not diversity, heterogeneity and the cross-fertilization of cultures liberated from spatial confines, but precisely the converse – the tyranny of a largely American cultural imperialism” (Hay, Rosamond, 2011). Though the ‘threat’ from America has by and large gone unnoticed in Montenegro the influence of the E.U. and Russia are ever present.

7.6 Rating – Placeness

In order to construct a comparatively straightforward identifying structure that presents the enigma associated with ‘placeness’ as clearly as possible, it is requisite of the VEI to disentangle the corresponding conceptual complexities. Although there have been recent movements to acknowledge place as an integral aspect of sustainable public spaces such as the recent ‘Future of Places’ international conference (FOP, 2015), the VEI draws from ‘familiar’ conceptual foundations. Therefore, it is proposed that the phenomena of places are presented in a manner that can be related to by local communities, in other words a streamlining of some of the fundamental conceptual foundations.

In the spirit of the writings of Norberg-Schulz, the philosophy of phenomenology and a clear rating system, the VEI recognises four developmental themes:

- Connectedness
- Public Value
- Regional Thinking
- Creativity

How people connect to places is a subconscious occurrence, unknowingly they can contribute to improving mental health or conversely in the case of placelessness, depress the spirit. Identifying markers that create a sense of connectedness is a moot issue as the subjective preferences and experiences of the actor plays a pivotal role in what a place is perceived to mean. Non the less, within the structure of the VEI, connectivity will be determined by how individual buildings connect with their immediate surroundings or groups of buildings and public spaces interconnect with wider municipalities. This will be gauged by recognizing entities such as the use of natural forms such as trees, wild flowers, available water-courses and geological features that are indigenous to the area. Design details and motifs that create the sense of connectedness to neighbouring architectural forms and public spaces will be rated highly in the VEI. If such details and forms are constructed from local materials (non concrete) and reference local topography and landscape this will be rated higher. The use of light and textures that engender and contribute towards creative and stimulating spaces within building clusters, communal spaces and the wider municipality will be similarly highly regarded.

If the ethos of connectivity is thoughtfully applied it is arguably more likely that public spaces will be more uplifting for their inhabitants. However, although there is connectivity between the four themes of ‘placeness’ and the successful application of notional connectivity will result in the public value of places, ‘Public Value’ is a more idiosyncratic thematic conception in the ‘placeness’ component. To clarify this point - public spaces that have value are not determined by consumer-oriented activities in the mode of many ‘sustainable’ developments. As Francis (1989) points, developers have quickly understood the limitations on time that people have to spend in public spaces and have subsequently provided benches, areas for performers and food outlets as a way of prompting “consumer-oriented leisure activity”. Accordingly, “public amenities and a highly articulated physical environment are used to support the browsing and buying behaviour of recreational shopping” (Francis, 1989). Whilst it is unrealistic to expect public areas to be vibrant communal areas in the

absence of commercial activity, the VEI will acknowledge and favour ventures that advance local commercial initiatives.

Creativity is a vital aspect of place making. Creative places are energetic and dynamic zones of culturally galvanising spaces where people, ideas and organizations come face to face. They can potentially nurture entrepreneurship, generate new products and jobs and act as magnets for investment. As Markusen and Gadwa note “as cultural industry incubators, creative places make valuable contributions to the national economy” (Markusen, Gadwa, 2010). Therefore, the VEI will value initiatives that evolve from the work of artists, designers and associated stakeholders, where in addition to commercial benefits to communities there is added value in regards to associated aesthetics, cultural resonance and the character of places.

Flourishing places should not be seen as dynamic oases dotted within towns, cities or regions, they should be connected with the wider regions in which they exist. Thinking regionally is the philosophical foundation of the VEI ‘placeness’ component, the ethereal basis for the notional identity of the urban landscape. The successful realisation of regional thinking will be brought about by connectedness – how the physical entities of urban centres connect to bind urban form with natural forms and the surrounding landscape. Evidence of regional thinking in the context of the VEI will be gauged in terms of assessing the capacity of the ‘arteries’ of place to inspire regional thinking within new developments in the region.

7.7 Rating – Vernacular

The vernacular component of the VEI could be characterised as a meeting of seemingly antithetical positions. On one hand received wisdom suggests that vernacular and modernist positions are diametrically opposed ways of thinking. On the other there are those (see Chapter 3) who argue that modernist and vernacular reasoning are compatible within

certain conditions. The VEI recognises the latter position within the Boka Kotorska setting as the distinctive Yugoslav modernist architectural legacy is in keeping with “home, happiness and better future’ (see Chapter 6). This position presents certain challenges in the assessment and rating process, for example, local craft applications within buildings utilising local material sources will be highly rated within the VEI. However, the VEI will similarly acknowledge prefabricated assembly processes that are representative of Yugoslav construction methods, if they demonstrate innovative associations with the character of the regional landscape. Additionally, retrofitting existing modernist buildings with bioclimatic capabilities will be regarded as conservation of vernacular forms and rated accordingly.

It is acknowledged that this nuanced approach to identifying vernacular architectural features is somewhat at odds with the mission statement of keeping the VEI accessible. However, modernism within the former republics of Yugoslavia is a feature of the vernacular landscape and should be recognised as such.

The VEI does not draw a distinction between the formal and spatial elements that make up the vernacular landscape. Buildings should relate to and interact with their immediate landscape. Therefore, the rating process will acknowledge innovative designs that accentuate the interconnectedness of building and landscape and by extension the regional ecosystem. The VEI’s objective is to create an awareness of the ecosystem and consequently it will rate features or innovation that demonstrate good practice. For example, utilising available spaces to grow fruit and vegetables, or other similar permaculture projects.

Wherever possible the use ‘fortuitous ecologies’ should be encouraged, either in the design phase of a new development or within existing spaces and places by the relevant stakeholders. Evidence of attempting to establish a connection between architectural form and the landscape will be highly rated within the VEI. Whilst it is important to recognise that the

term ‘local’ species can be a debatable description concerning the origins of many ‘local’ plants and shrubs, the VEI does not recognise the importation of species such as palm trees from tropical and sub tropical regions as a legitimate use of vegetation.

7.8 VEI Indicative Guidelines

The tables below are intended as an indicative rating system for assessing each of the components of the overall VEI. They have been systematically categorised into a clear structure, as a method disentangling the complexities of the interconnecting concepts relating to sustainable and resilient development. They aim to outline the necessary conditions for the corresponding rating and grading system.

ENERGY: Indicator Table

5	• Evidence of locally generated energy from renewable sources – primary source. • Evidence of established renewable 'feed in' schemes. • Evidence of established community sharing schemes. • Access to National renewable energy as a secondary source. • Significant evidence and utilisation of energy saving practices and devices.
4	• Evidence of locally generated energy from renewable sources – secondary source. • Evidence of prospective renewable 'feed in' schemes. • Some evidence of initiation of community sharing schemes. • Access to National renewable energy as a primary source. • Evidence and utilisation of energy saving practices and devices.
3	• Some Evidence of locally generated energy technology from renewable sources. • Some evidence of initiation of community sharing schemes. • Access to National renewable energy as a primary source. • Some evidence and utilisation of energy saving practices and devices.
2	• Isolated examples of locally generated energy technology from renewable sources. • Demonstrates effective energy conservation measures. • Access to National renewable energy as a primary source. • Isolated examples of energy saving practices and devices.
1	• Access to National renewable energy as a primary source, though if not available energy saving measures must be clear. • Isolated examples of energy saving practices and devices.

SYSTEMS: Indicator Table

5	• Evidence of significant water conservation and local supply sources. • Evidence of effective and efficient wastewater management. • Excellent communication networks. • Clear evidence of excellent pedestrian access, facilities. • Easy access to mass transit systems. • Established and fully functioning cycling facilities. • Clear evidence and usage of recycling programmes.
4	• Evidence of significant water conservation and local supply sources. • Evidence of effective and efficient wastewater management • Good communication networks. • Good pedestrian access, facilities. • Access to mass transit systems. • Good cycling facilities. • Recycling is a feature of project area.
3	• Evidence of water conservation and local supply sources. • Evidence of effective and efficient wastewater management • Adequate communication networks. • Adequate pedestrian access, facilities. • Access to mass transit systems. • Adequate cycling facilities. • Some evidence of recycling.
2	• Evidence of attempts at water conservation and local supply sources. • Evidence of effective and efficient wastewater management • Basic communication networks. • Basic pedestrian access, facilities. • Regional access to mass transit systems. • Some concessions to cycling.

1	• Evidence of attempts at water conservation and local supply sources. • Evidence of wastewater management. • Isolated evidence of communication networks. • Basic pedestrian access, facilities. • Regional access to mass transit systems.

CULTURE: Indicator Table

5	• Evidence of community interaction – informal sharing and trading of services and domestic produce, informal social gatherings, group forums etc. • Easy access to cultural forums – galleries, theatres, cinema, museums etc. • Evidence of local traditions – Food and drink, wine making, rakija distilling, cheese making etc. Song and dance. • Clear evidence of social empowerment - Structural barriers and facilitators to empowerment interventions need to be identified locally. • Evidence of entrepreneurship that builds on the notion of 'Wild Beauty' and the Ecological State. Employment in related enterprises. • Clear evidence of trading with neighbouring communities and beyond. • Easy access to healthcare • Evidence of new cultural events.
4	• Evidence of community interaction – informal sharing and trading of services and domestic produce, informal social gatherings, group forums etc. • Evidence of social empowerment - Structural barriers and facilitators to empowerment interventions need to be identified locally. • Access to cultural forums, though this may require transport. • Evidence of local traditions, though not as recurrent as level 5. • Evidence of entrepreneurship that indicates a potential to build on the twin concepts of Wild Beauty and Ecological state. • Access to healthcare, though this may require transport.
3	• Evidence of community interaction - informal sharing and trading of services and domestic produce, informal social gatherings, group forums etc.

	• Some evidence of social empowerment - Structural barriers and facilitators to empowerment interventions need to be identified locally. • Access to cultural forums, though this may require transport. • Evidence of entrepreneurship such as trading domestically produced products, local manufacturing etc. • Access to healthcare, though this may require transport.
2	• Some evidence of community interaction - informal sharing and trading of services and domestic produce, informal social gatherings, group forums etc. • Adequate healthcare facilities regionally. • Evidence of the beginning of social empowerment - enlisting community stakeholders in program improvement. • Regional access to cultural forums. • Beginnings of entrepreneurship – cooperatives, small traders etc.
1	• Some evidence of community interaction. • National access to cultural forums. • Potential for establishing entrepreneurship. • Evidence of the desire for social empowerment. • Adequate health regional/national.

PLACENESS: Indicator Table

5	• Clear and established evidence of connectedness – urban form has clear visual, formal and natural connections with the local landscape. Construction materials are derived from local origins. • Clear evidence of innovative use of light and textures as a method of establishing ambience and connections to public spaces. • Evidence of public value – Commercial establishments that build on the values of community, ecological thinking – derivative regional products (non tourist), restaurants locally sourced menus,. • Clear evidence of regional thinking – spaces and places that are significantly visually and formally related to other satellite features such as geological topography, landscape features and settlements. • Significant Evidence of creative activity – artists' studios, craft workshops, design in the community, youth projects.
4	• Evidence of connectedness – Urban form demonstrates visual formal and natural relationships to landscape. Materials are local in origin. • Good evidence of use of light and texture – local spaces. • Demonstrates the potential of public value – evidence of local goods trading. • Evidence of regional awareness – Local physical characteristics reflected in building form and public spaces. • Evidence that Artists, craftsmen and designers are significantly influencing the character of places and spaces.
3	• Some evidence of connectedness – Some clear references to physical features and local materials. • Some examples of designed lighting and texture in spaces and places.

	• Public value – evidenced by street trading, markets etc. • Regional awareness – Evidenced by formal representations in urban form. • The arts are beginning to be influential as a feature of the spaces and places.
2	• Some evidence of connectedness, though no clear connection with landscape. Materials look local, but are imported. • Isolated effective use of light and texture. • Beginnings of local commerce – street vendors etc. • Isolated evidence of regional awareness. • The arts begin to take a foothold.
1	• Limited connection with local landscape. Some visual references through material usage. • Isolated links to regional character

VERNACULAR: Indicator Table

5	• Buildings and landscape are indicative of vernacular culture and are compatible with established vernacular principles. • Clear evidence of significant utilisation of local craft skills and practices. • Clear evidence of innovative application of vernacular species within and supported by architecture. • Significant usage of vernacular technologies or derivative bioclimatic devices within spatial and architectural forms. • Clear evidence of significant permaculture production and usage in spaces and places. • Clear evidence of innovative employment of architectural and spatial characteristics that are of direct benefit to local ecosystems.
4	• Buildings and landscape are indicative of vernacular culture and are compatible with established vernacular principles. • Clear evidence of significant utilisation of local craft skills and practices. • Clear evidence of innovative application of vernacular species within and supported by architecture. • Some usage of vernacular technologies or derivative bioclimatic devices within spatial and architectural forms. • Evidence of some permaculture production and usage in spaces and places. • Some employment of architectural and spatial characteristics or pilot schemes that are of direct benefit to local ecosystems.
3	• Building/s and landscape are indicative of vernacular culture. • Local Skills and practices are evident. • Good use of vernacular species in spatial settings • Vernacular technologies are evident.
2	• Building/s and landscape are indicative of vernacular culture.

	• Isolated evidence of local skills and practices. • Some usage of vernacular species.
1	• Building/s and landscape are indicative of vernacular culture. • Some usage of vernacular species.

7.9 Assessment of Indicative Pilot Studies

As a means of evaluating the efficacy of the VEI it is important to assess its flexibility, particularly regarding the range and scale of the selected case studies. Therefore, the case studies reflect a range of representative constituents of urban landscapes ranging from the small village on the verge of being 'assimilated' into its neighbouring municipality, to new developments in established urban centres.

The pilot studies chosen primarily represent the various scales possible for analysis and consequently are intended to demonstrate the flexibility of the VEI assessment process. Accordingly, the village of Ratisevina sits on the perimeter of the town of Herceg Novi and is representative of the broad range of traditional and 'modern' vernacular within an as yet relatively untouched landscape. In sharp contrast to Ratisevina, the Porto Montenegro pilot study is indicative of a scale larger commercially driven development representative of a more corporate approach to sustainable development. The Porto Montenegro study is intended to demonstrate the flexibility of the VEI model and it's potential impact and contrast to the wider cultural perception of sustainable development. The Eco Camp pilot study also demonstrates the wider flexibility of the VEI system in its capacity to evaluate landscape inspired developments. The Eco Camp as the smallest and least developed in terms of buildings is intended to reflect the manner in which the VEI does not discriminate between urban form and landscape.

Additionally, the VEI will appraise an acknowledged environmentally empathetic development in the region as a comparative sample.

7.9.1 Pilot Study – Ratisevina houses

Ratisevina is a small village within 'touching' distance of the neighbouring town of Herceg Novi (see Figure 33 and 34). Until recently the village was a typical regional satellite village – a rural agricultural settlement whose inhabitants were a separated from Herceg Novi by 'green' space. However, over the last decade Ratisevina has undergone significant development in the form of houses built by former residents of Herceg Novi and a significant number of houses built by Russians. The Russian houses have for most part been built at the lower end of the village and have effectively created a separate 'village' within a village, though the Russian houses are not occupied for most of the year.

The VEI will appraise three houses and their immediate landscape within Ratisevina. The first was constructed in 2008 in a modern style by a former resident of Herceg Novi and will be known as 'the residents house'. The second is a long established traditional 'vernacular house' that has been passed down through the family for generations. The third house is a 'Russian house', built with references to local traditions and vernacular in appearance.

Figure 33: *Location of Ratisevina*

Figure 34: *Aerial view of Ratisevina*

The owner of the ‘resident house’ is a University educated professional who moved to Herceg Novi in 1998 in the aftermath of the regional conflict. She bought the 346m2 plot of land in a semi urban area on a hillside over looking Herceg Novi in 2006 and has completed the first floor of a three-storey house that will be completed subject to available future funding. She occupied the dwelling in 2008 and she has studiously followed and implemented the local urbanisation and building planning regulations. The structure of the house conforms to local building practices and is of standard re-enforced concrete construction and will be completed (in common with local practice) with a terracotta-tiled roof. The suggested vegetation (local planning) is for most part decorative such as conifer and palm trees. Though the choice of recommended species is designed to blend into the local landscape and is relatively eco friendly, it fails to take into account any economic viability related to actualising sustainable practice.

Accordingly, the house owner by adding to the recommended planting plan by planting olive and fruit trees, expanding the green space and also by propagating seasonal vegetables she has created a multifunctional green space. This example of individual initiative whilst not necessarily driven by the desire to conform to the objective of contributing to the notion of the ‘eco-state’ is nevertheless a valuable contribution to sustainable development in the region (see Figures 35 and 36).


Figures 35 and 36: *Ratisevina Residence House*

This communal and self-sufficient approach to implementing and creating green space is illustrative of a more imaginative adoption of ecological principles within the planning process. However, In the case of this

resident she expressed a level of frustration concerning the following issues:

- Feeling obliged to buy expensive palm trees when she could grow her own local species from cuttings.
- No governmental incentives for alternative energy sources.
- Post-planning hidden application costs for apparently inconsequential services, subsequently draining allocated construction funds.

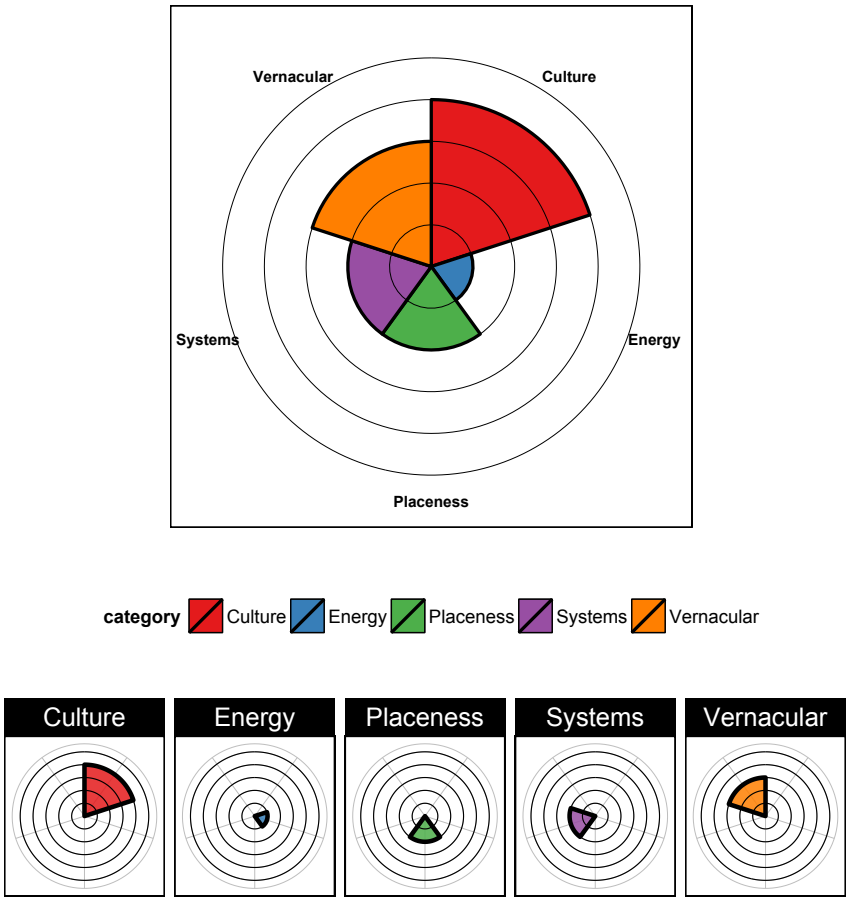


Figure 37: *VEI Chart – Resident House*

Summary

The rating of the ‘resident house’ (see Figure 28) reflects comparatively good culture and vernacular components, as the non-Russian inhabitants of Ratisevina tend to interact frequently, sharing information, goods and various services. The local resident keeps bees and has obtained the necessary permits for trading honey products. There are also many examples of vernacular ecologies and growing of fruit and vegetables. Although the house does not demonstrate vernacular features some of the features demonstrate an understanding of the role of vernacular technology, for example shaded areas achieved by steel structures supporting Kiwi fruit cover.

Energy, Systems and Placeness do not rate as highly due to limited infrastructure and governmental support in regards to Energy and Systems. In the case of Placeness there is limited scope to establish some of the features within the guidelines of the VEI as Ratisevina is in the beginnings process of urbanisation. It is expected that the Placeness elements will inevitably alter depending on the choices made by future stakeholders.

The ‘vernacular house’ is owned by 78 year old grandmother who has lived there since birth and has been in the family since its construction - approximately 300 years. The original house is stone built along the lines of similar neighbouring structures with a terracotta-tiled roof, though this may have originally been stone roofed. The house has been added to over the years and all the additions are constructed from local stone, latterly cement has been used to shore up some stone areas. Revealingly, the Montenegrin earthquake of 1979 (6.9 Richter) hardly affected the structure of the house, only requiring cement to patch up one or two cracks.

Like the local resident, significant attention has been placed on growing fruit and vegetables and planting local trees, shrubs and wildflower species for shade, ground cover and decoration. A typical example of this

approach is the practice of ‘training’ trees to cover specific spaces for shade.

The only water sources in the house are from two taps, one outside and the other in the kitchen area. Before water was provided regionally the villagers (until recently) sourced water from two wells named Jaza (cold water) and Strazin (warm water). According to the owner the house is cool in the summer and warm in the winter only requiring a wood-burning stove to heat the whole house (see Figures 38, 39, 40 and 41).




Figures 38, 39, 40 and 41: *Vernacular House in the pilot study*

Additionally chickens are kept for eggs and these are traded and shared with neighbours within the village, which the owner regards as a fundamental aspect of living in the village community. She is not as impressed with the Russian neighbours settlement as she believes the

houses should be lived in and play a more significant role in community life. She is not opposed to the development of the village, but integration is regarded as a central aspect of village habitation.

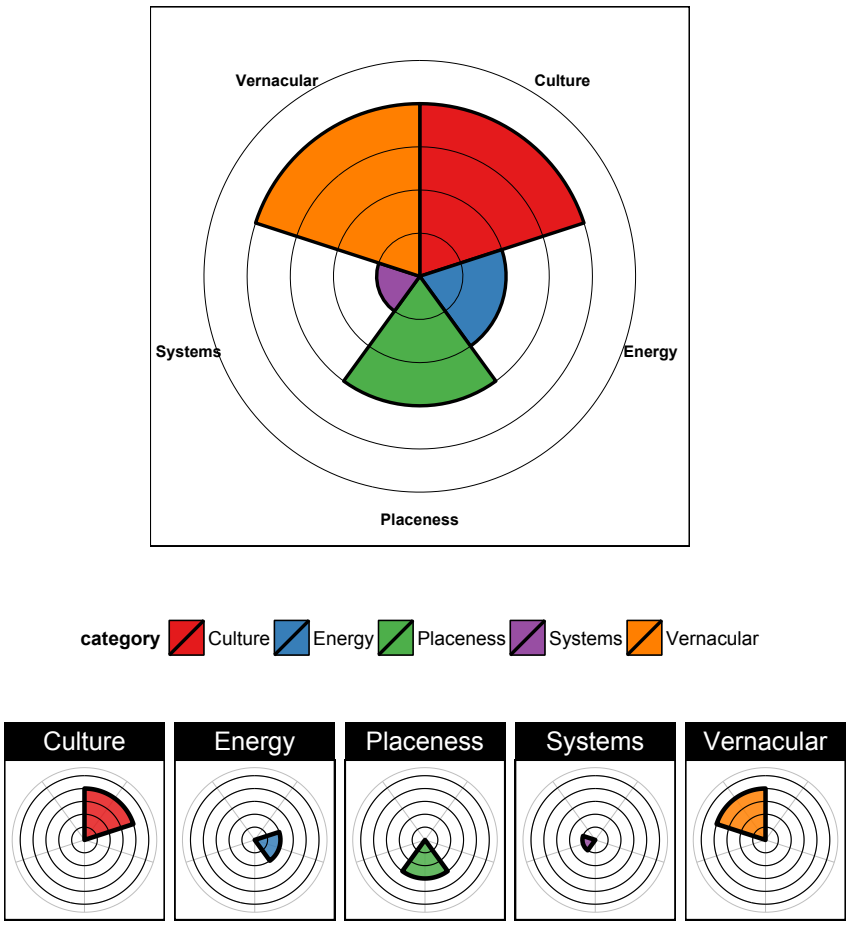


Figure 42: *VEI Chart – Vernacular House*

Summary

Unsurprisingly, the Ratisevina vernacular house (see Figure 33) achieves the same rating as the local resident in the Culture component. This is due to the shared cultural experiences of both residents, in other words they are closely connected by the common cultural activities within the village and even share and trade goods between each other. Given its description as the ‘Vernacular House’ many of the architectural features and ecology

conform to the narrative of vernacular traditions and therefore it rates highly in the Vernacular element of the VEI. The Systems component is the weakest as there are only basic water, transport and communication facilities. The remaining two components have been determined in the case of Energy by a limited supply and usage due to conservation measures and excellent insulation owing to the construction of the house. In regards to Placeness the house reflects the local landscape in terms of references to materials and its place within the region. Though there are no designed elements of placeness there is significant evidence of public value as the courtyard at the front of the house has been thoughtfully arranged by the occupant and is a regular meeting place for other members of the village community.

7.9.2 The 'Russian' houses

There are nine houses built within the last five years in the 'Russian area' of Ratisevina. The owners of the houses are all friends from school and are involved in the oil and gas industries. The primary reasons for investing in building in Montenegro are the Mediterranean climate, healthy air and what they now regard as the 'former' favour of official Montenegrin policy towards Russia. The initial purchase of the land was made between 2005 and 2006.

Figures 43, 44 and 45: *The 'Russian' houses*

The houses are constructed in the standard reinforced concrete frame format with terracotta-tiled roofs. The exteriors are faced with stone products that are reflective of the stone used in the construction of the local vernacular houses. When possible recycled local stone has been used in the construction of the houses and also within the walls that surround the properties. Within the landscaped areas there are planted bogumil, Greek walnut, fig, pomegranate, peaches and vines, and of herbs: rosemary, lavender, thyme and mint (see Figures 43, 44 and 45).

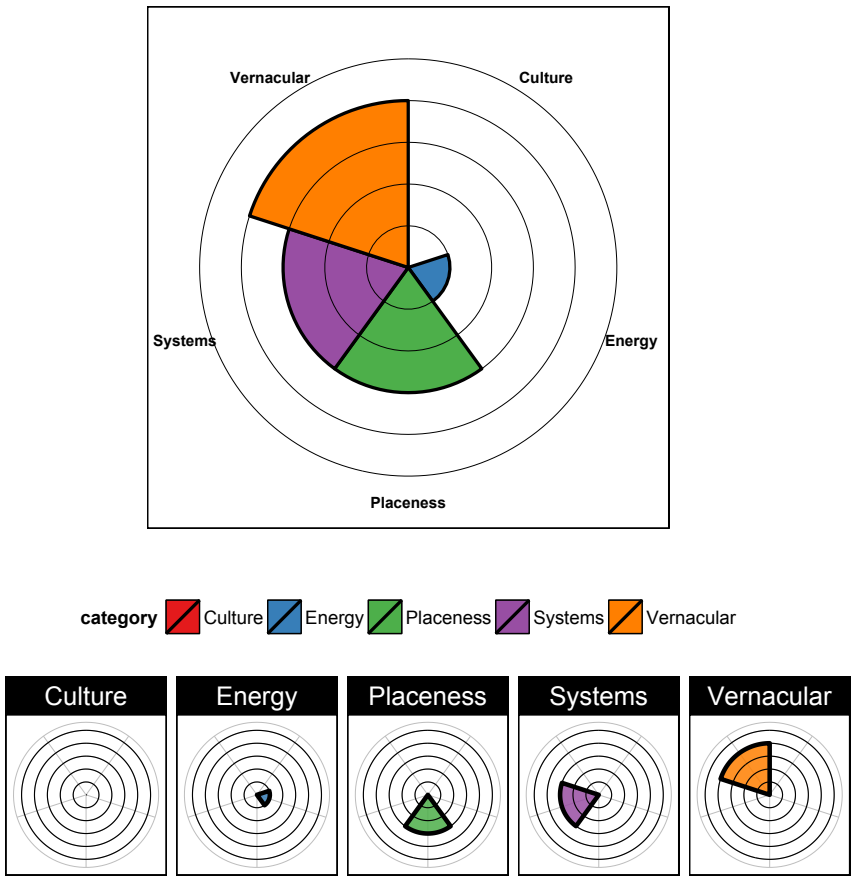


Figure 46: *VEI Chart – The 'Russian' houses*

Each house has installed a wastewater management systems that is capable of recycling waste water to greywater for flushing toilets. There are no renewable energy souirces or energy conservation technologies within the houses, though they are very well insulated with standard insulation products. The heating and cooling is provided by air conditioning units with no specific usage of bioclimatic devices and practices. The

onwers generally regard themselves as very respectful of the village community and are always willing to offer assistance with infrastructural matters that affect the village as a whole.

Summary

The general appearance of the Russian houses is in keeping with the stone built houses associated with the local vernacular and the landscaped areas are also reflective of the characteristics of the regional landscape (see Figure 37). As a result, the 'Vernacular' element is rated comparatively highly. The 'Systems' element would also have rated well if not for poor infrastructure in the village which limits the general 'Systems' rating within Ratisevina. The obvious issue is the poor representation of Culture which is unsurprising given the absence of any type of communal and cultural interchange with the other inhabitants of Ratisevina for most of the year. Whether these circumstances get better in the future with a more consistent presence by the house owners remains to be seen. However, for now this situation effectively gives the impression of the Russian 'zone' being a cultural vacuum in a potentially socially vibrant regional village.

7.9.3 Pilot Study - Porto Montenegro

In many ways Porto Montenegro is a typical example of a modern ‘sustainable’ development conceived by developers, designers and stakeholders. The ‘village’ of Porto Montenegro contains leisure and retail facilities in addition to low-rise residential complexes that are allegedly derivative of the local Venetian vernacular (Figure 47). Much of the Design content of the village and marina was contracted to foreign-based (mainly British) companies. Accordingly, the master plan architects - Reardon-Smith (London), the landscape architects – Martin Lane Fox (London),

structural engineers – Arup (London and Belgrade) and the marina consultants – Marina Projects (Portsmouth) (Adam Consultancy, 2010).

Figure 47: *Plan of Porto Montenegro*

As of May 2014, 130 apartments were constructed and sold and investors have seen a 60 to 70 per cent increase in the value of 'village' property since their initial purchase (Levonian Cole, 2014). The objective of developers was clear, to entice wealthy visitors and yacht owners to the 'new Montecarlo' of the Adriatic. The development has recently expanded and now includes the Regent Porto Montenegro hotel on its waterfront (see Figure 48).

Figure 48: *The Regent Porto Montenegro Hotel*

Porto Montenegro is an ideal case study in the region for many reasons:

- The developers claim it is sensitive to its environment.
- Claims to be inspired by local vernacular traditions.
- Operates a corporate social responsibility program – to the benefit of the local community.
- Claim to include local crafts and produce with global brands in retail facilities.

In addition to this the developers highlight the specific measures that are taken in response to creating environmentally sympathetic places:

- Old timber and stone from buildings dismantled on the site are being used to construct jetties and walkways.
- Grit found on site containing copper and lead residues (from the former naval base"s previous sandblasting activities) has been recycled into aggregate.
- Sea bed and land remediation.
- Timber used in construction is either recycled or from sustainable sources.
- Special water flow systems on tap nozzles reduce water pressure by 30 per cent.
- Solar panelled and low voltage lighting is being used wherever possible.
- Cavity wall insulation will keep the heat out in summer and in during winter.
- Thermal window units will reduce the need for heating and cooling
- Impact on local roads is reduced by ferrying materials by water where possible.
- Nautical access, air links and the development of a fast ferry service between coastal towns will ease the burden on roads in the Boka Kotorska region.

(Adam Consultancy, 2010)

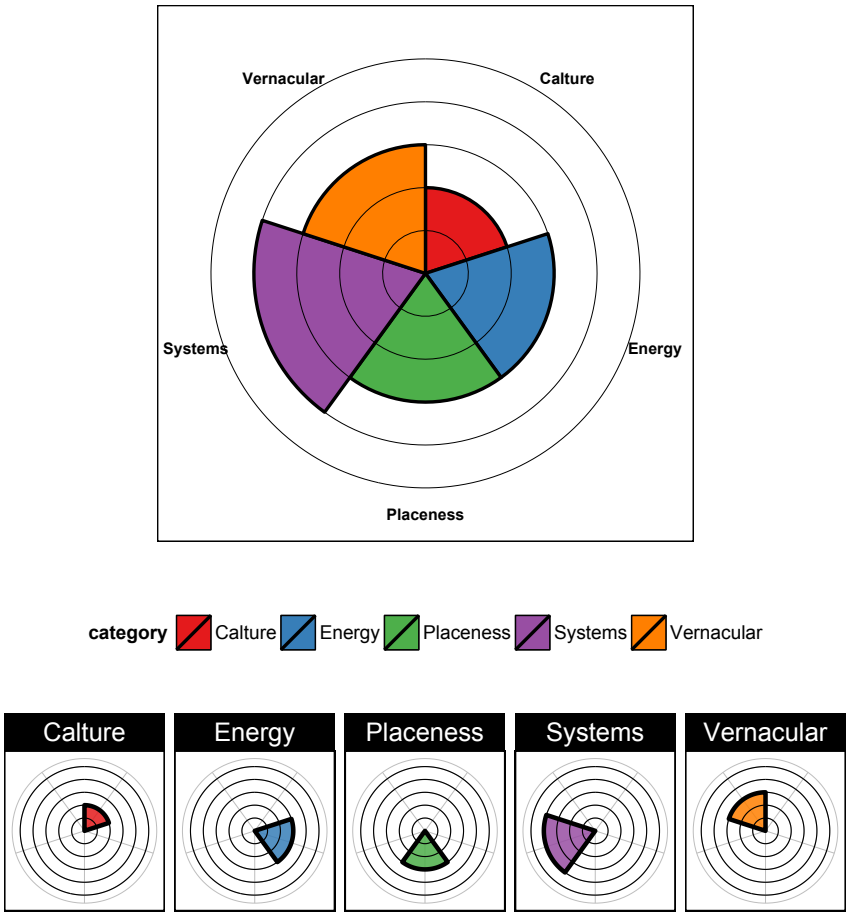


Figure 49: *VEI Chart – Porto Montenegro*

Summary

The Systems within Porto Montenegro are broadly good, which should be expected within a development with aspirations of sustainability see Figure 39). Transport within the 'village' is confined to walking, cycling and electric vehicle modes of conveyance. Additionally, the complex is close to mass transit networks and technological methods of communication are in keeping with similar contemporary enterprises. Non-technological modes of communication are not as obvious, though there are many social events and leisure clubs that could potentially lead to establishing community relationships and subsequent exchange of information.

The Culture element of the VEI does not rate the development as highly. Though there is evidence of entrepreneurship it is predominantly limited to high-end retail brands with very little evidence of opportunities for local traders. The whole development is segregated from the local community in Tivat, with little evidence to suggest regional cultural compatibility. Energy, Placeness and Vernacular are generally favourable, but lacking any obvious design innovation or indication of local connectedness. For example, though there are some energy saving measures and usage of solar panels it appears that the developers have been inconsistent with their application. Put simply, just enough solar panels and insulation to make the claim of energy conservation measures. Similarly, in regards to Vernacular the buildings loosely reference 'local Venetian vernacular' and some vernacular species have been applied in the landscaped areas, however as with 'Culture' there is very little evidence of local vernacular associations.

7.9.4 Pilot Study - Eco Camp

The Eco Camp (see Chapter 3) is situated on the outer limits of the Herceg Novi municipality and is the most rural of the VEI case studies. As such, the site (Figure 50) is challenging to assess due to the comparatively small area of building form and conversely large area of landscape within the project. Nevertheless, it represents a measure of the potential flexibility of the appraisal system and associated guidelines (see Figures 51 and 52).

Figure 50: *Full Monte Eco Camp*

Figures 51 and 52: *Eco Camp*

To source a water supply the owners use a small petrol engine pump, to pump water from the spring adjacent to their land and fill a 45,000-litre water tank at the beginning of the season. This is currently the only source of water and it is estimated that they have extracted 150,000 litres of water from the spring in the last three years. The only source of electricity is from a small PV panel though the amount of power produced is negligible. It's enough to run 4 x 3 watt 12v DC fans 24 hours a day and keep a battery fully charged all summer. The fans are a vital component in the compost toilet and waterless urinal installations. As there is spare power in the

battery, they hope to run an LED lighting system off it too this year. For the past 3 years they have relied on their 2.5kW generator to provide power needs in the evening. They run it for 3-4 hours every evening to provide light, charge phones & laptops etc. With increased use of solar lights and additional DC lighting system running off the battery they aim to reduce the use of the generator over time.

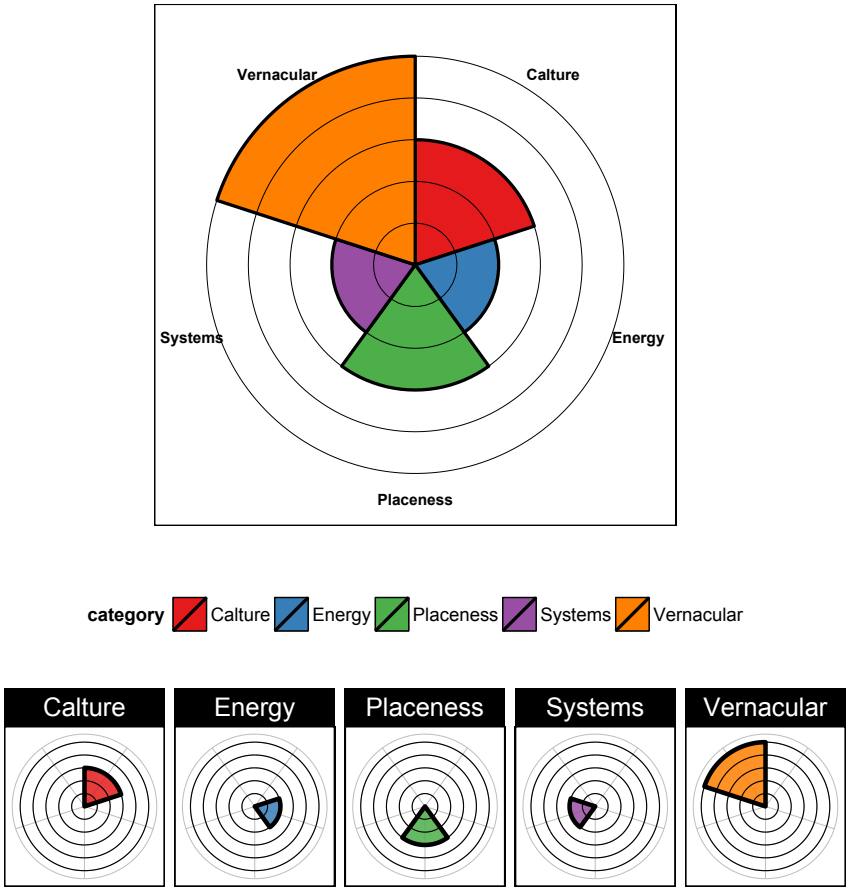


Figure 53: *VEI Chart – Eco Camp*

Summary

The 'Vernacular' component of the VEI scores highly (see Figure 42). Although the buildings on the site do not conform to normative vernacular appearance and construction the design reflects vernacular principles such as effective use of shade and air flow as cooling measures. The landscaped areas are in keeping with the character of the region and utilise traditional craft processes in the hard landscaped areas.

Permaculture is established and any associated planted areas are sympathetic to the needs of the local ecosystem. In short this element scores highly mainly because of the landscape features and thoughtful adaptation of 'conventional' building systems.

Energy and systems are comparatively low. In the case of energy, although the use of solar panels is a marker of good practice there is still more to be done regarding providing adequate energy levels for the site – a petrol generator still supplements the supply. Similarly with systems, water conservation is very good, but there is little in the way of information flow and connections with mass transit or local networks.

Culture and Placeness are both reasonable, but there is significant scope for further improvement. Culturally, more connection with the local community to cultivate awareness of environmental issues would be a positive step forward. Regarding its place within the region, more inclusivity and openness to 'outsiders' would be in the spirit of connectedness and including more local arts and crafts in activities would also contribute to a higher rating.

7.10 Discussion of Overall VEI Ratings

In discussion with the government agencies responsible for planning and the sustainable development of the Boka region, it was revealed that there is no available data relating to assessing sustainable development. The three municipalities in the region broadly interpret the Spatial Plan of Montenegro Until 2020 and have their individual 2020 plans for the separate towns – Kotor, Tivat and Herceg Novi. Currently, there are no similar rating schemes to the VEI in the Boka Kotorska region.

The rating of the pilot studies broadly follow the guidelines set out in the rating tables. However, there is some flexibility in the appraisal of specific themes within the VEI, in some circumstances it would be very

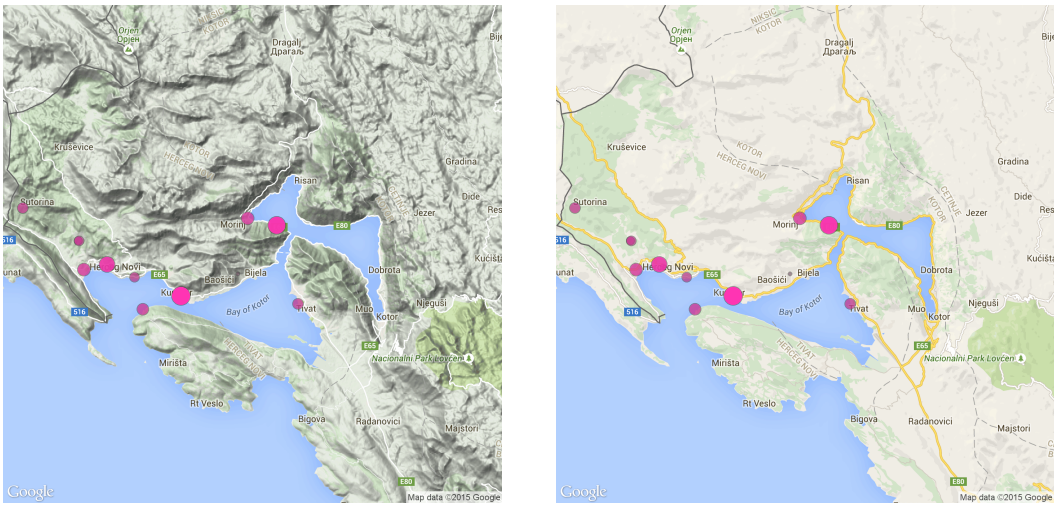
problematic to assess some of the criteria within certain identified projects. For example when assessing individual buildings, the collective nature of some of the guidelines for ‘Placeness’, in particular public value are not feasible and therefore more weight is placed on connectivity and regional thinking.

It can also be argued that outcomes such as a comparatively low score for ‘Culture’ in Porto Montenegro and the high rating for ‘Vernacular’ in the Eco camp are somewhat predictable. Porto Montenegro is a new development and consequently has not embedded within local and regional cultural networks. Whether this is practicable given the segregated nature of the village and the disparity in personal wealth between the village inhabitants and the town of Tivat is open to speculation. The Eco camp demonstrates clear evidence of the commitment to local ecosystems and regional landscapes and is therefore acknowledged in the rating system. Nevertheless, its overall score could be significantly improved with the adoption of a more inclusive approach to community activities and the upgrading of energy supply facilities.

Perhaps the most revealing pilot study is Raticevine. The ‘resident house’ and the ‘vernacular house’ are both symbolic of what could be described as in the spirit of ‘pragmatic empathy’ of local ecosystems. Both owners are innately connected with the landscape and regard themselves in many respects as custodians of village traditions. Although their overall ratings could be significantly improved, it is noted that matters such as infrastructure and regional planning are beyond their control. The ‘Russian houses’ in many ways are designed in an apparent attempt to fit in with the local building vernacular. Fundamentally, they are constructed to the same concrete frame, earthquake resistant structure typical within the region. However, some recycled stone has been used in the buildings and where this is not available the concrete structure is covered with stone facades. The layout of the ‘village within a village’ also reflects an aspiration of creating public meeting places as the ‘stone island’ acts as a focal point for the community of houses built in the ‘Russian zone’. The

systems element of the VEI rating is comparatively good given the mechanisms installed for wastewater management, though non-technological communication is still in the development phase. The overwhelming issue is the 'Cultural' rating which reflects the absence of any connectivity with local cultural networks. The lack of inhabitants through most of the year with the exception of a local caretaker leaves an impression of the development as an abandoned film set. This issue is more than a matter of appearance; the integration of new developments into existing cultural networks is a key factor in establishing connectedness into ecosystems and the wider bioregion.

Within the designated pilot studies the structure of the VEI demonstrates the capacity for flexibility, clarity and pragmatism. With a greater number of projects for appraisal in conjunction with the corresponding identification through plotting on Google Earth/Maps it is able to highlight areas within the project region that are possible benchmarks of good ecosystem health (see Figures 54 and 55).



Figures 54 and 55: *Projection of VEI ratings onto the maps*

7.11 Conclusion

Negotiating the complexities and values of regional ecosystems is self evidently a complicated objective. Regions, towns and cities universally are in various stages of ecological development and in more ‘advanced’ urban settings the assessment and validation of sustainable development strategies are open to polarizing differences of opinion. There is no over arching panacea identifying good ecological health and as such this inconsistency contributes to a tolerance of unconvincing sustainable development schemes. The VEI adopts the perspective that accessibility and clarity are central features of forming an understanding of what it means to live in ecologically healthy towns and cities. Its simplicity is its strength, it allows the inhabitants of the focus region and wider to see how they are performing in regards to environmental progression and what they can do as individuals and communities to make things better. By plotting the VEI outcomes onto Google Maps and other digital mapping systems it is then possible to compare ecosystem health at a local, regional and potentially global scale of analysis.

Chapter 8

Conclusion

Many times throughout this thesis words such as complex, complicated, and challenging are employed in an attempt to highlight the 'tangled' interpretations of what it means to be Montenegrin. To have an understanding of the cultural layers that underpin a community or a nation is to begin to be able to consider ways in which urban developments will resonate with the society in which they are built. As previously noted, it is this complexity that makes the Boka Kotorska region such a rich source for analysis. However, extracting a clear strategy for identifying potential resolutions to the many conflicting agendas relating to sustainable development and resilience is a "challenging" objective generally, let alone in a transitional region such as newly independent Montenegro. Moreover, the characterisation of the cultural composition of the Boka region is not straightforward - a necessary requisite to establishing the notion of national identity. If the Boka Kotorska is to develop in an ecologically sensitive manner, the cultural understanding of what it means to be simpatico with local ecosystems and a citizen of the ecological state is a critical objective. To borrow and adapt a well-worn phrase, Montenegro "is a riddle wrapped in a mystery inside an enigma" (Churchill, 1939) and a fundamental aspect of developing strategies for ecological development is to be cognizant of the intricacies involved in this process.

How Montenegrin policy makers and stakeholders respond to the demands of EU accession environmental programmes and the implementation of such policies 'on the ground' is significant. Despite EU environmental stipulations the wider issue is the matter of the understanding of what sustainability means in the context of a nation in many ways attempting to reinvent itself. It can be convincingly argued that the S word is 'past its sell by date', in part as a result of ambiguous definitions and convenient interpretations by developers and built

environment professionals universally. Nevertheless, the fundamental factor that impedes the application of ecologically relevant environmental outcomes is the top down approach to the implementation of policy. Whilst it is reasonable to assume that the rationale for a broader sphere of influence over policy recognises that ecosystems do not conform to political and municipal boundaries, the manner in which strategies are 'sent down the chain' are problematic. In Montenegro's situation, the agencies responsible for administering environmental systems are generally following the well-worn path of bureaucratic procedures established in Socialist Yugoslavia. The net outcome of this is to limit the range of potentially valuable environmental initiatives that do not fully conform to the boxes that are to be ticked, and if not completely ignored are not viewed as important. Developers are au fait with the 'sustainable development guidelines' that are straightforward to implement (such as LEED and BREEAM) and depending on their motivation for 'building green' adopt the 'appropriate' system. This approach to sustainable development is not inherently inadequate, but the corresponding end product in most cases is not indicative or even symbolic of local eco-system and wider bioregion requirements. This is illustrative of the ineffectiveness of the three pillar sustainable paradigm. In order for ecosystem thinking to be viable within the communities that are being 'developed' it is essential that there is a cultural understanding of what living in a healthy ecosystem means. However, the social element of the three- pillar model plays understudy to leading economic and environmental imperatives. This state of affairs is particularly evident in the Porto Montenegro development, where economic rationale is of the trickle down variety. The environmental is in the form of generic references to vernacular, varying energy considerations and the absence of non-electric vehicles on path and roadways. Theoretically, if the social component is on an equal footing to the economic and environmental, the cultural characteristics of the areas to be developed should be an integral feature of planning processes.

The origins of resilient thinking pertaining to urban development are founded in the conceptual link between ecosystem characteristics and human technological activities. As a mechanism for sustainable development resilient approaches to urban growth are in essence more compatible with bottom up environmental interactions. Nevertheless, in the domain of urban development resilience is broadly characterised as being able to respond to known or unknown major shocks to particular systems. This is an over simplification and although responding to shock is important, resilience theory is an intricate business and in many respects removing the complexities for the convenience of stakeholders and actors limits the scope for contributing to ecosystem health. Though the argument for limiting resilience theory to its conceptual origins (ecosystem management and science) in the desire for clarity (Brand, Jax, 2007) is understandable, the human and therefore social and cultural components of ecosystem resilience are impossible to ignore.

The culture of post independence Montenegro is somewhat at odds with the notion of connectedness, as Montenegrin nationalism and pro Serbian sensibilities is still a feature of existential rhetoric in the Boka region. However embedded these polarizing attitudes are within communities, the wider narrative is flawed and often politically motivated. Non-the less, understanding the nuances of Serb and Montenegrin antipathy is an influential factor when appraising the regions cultural identity. Consequently, it is important to outline broader communal cultural values within any structure that attempts to construct a foundation for healthy ecosystems. The paradox of this position is that although heterogeneous cultural positions are beneficial to the creation of vibrant communities, in order for complex cultural tropes to be understood and accepted it is necessary to establish a more consolidated narrative as a means of building a more resilient cultural identity.

By adopting the term vernacular in its broadest sense the emphasis of the five components of the VEI focuses on local factors and therefore both validates the cultural experiences of the community and simultaneously

creates broader dialogues, as corresponding ratings are debated by actors and stakeholders at municipal and regional levels. For example, if Russian enclaves within the region repeatedly rate lowly in the VEI 'Cultural' assessment, this will stimulate a debate into causal and contributory factors that can at the very least be considered by stakeholders and existing communities.

One of the principal functions of the VEI is to present a clear visual image that is representative of ecosystem values. As such, the VEI provides a valuable 'snap-shot' of ecosystem health that can then be easily sourced by a broad range of agencies and community groups in the spirit of transparency. The findings would be available to planners and communities and would therefore act as a more inclusive instrument in the process of urban development. The VEI could also be employed as an educational tool to raise awareness of wider ecological matters by illustrating how individual and communal activities are consequential factors in general environmental well being.

At present, the notional ecological state is predominately founded on the (until recently) relatively un-developed stretches of coastline, its natural beauty and mountainous hinterland. In many respects the 'Wild Beauty' brand offers an opportunity for Montenegrins to advance what is for many a natural affinity for the land through commercial enterprises that would lessen the reliance on tourism. This approach would be in the spirit of the principles of the eco-state, however there are no obvious signs of this becoming a reality. The 'Wild Beauty' awards are indicative of the empty rhetoric expressed around ecological values by tourism stakeholders. Awarding tourist enterprises 'Wild Beauty' prizes for best website design does not advance principles of ecological progress.

The vernacular values embedded in the VEI as well as bringing about a dialogue pertaining to ecological sustainability and cultural identity, is also designed to acknowledge the advantages of thriving economic networks that add to system health. This will be improved further by current

research into the viability of interactive methods of technology based graphical interfaces. The potential to develop applications that give an immediate assessment of future and existing developments in Serbian and other languages would exponentially increase the awareness of ecological matters. Moreover, by developing accessible software tools it would be possible for individuals to make their own VEI ratings at the tap of an icon.

The questions examined within this thesis relate to the realisation of the viable sustainability of urban and architectural form in the Boka Kotorska. In creating a system that acknowledges the multitude of conflicting agendas, and at the same time presents a clear strategy for measuring authentic and ecologically empathetic urban development, the VEI can be gauged as an effective contributor to sustainability. Accordingly, it can be reasonably argued that it would potentially bring added value to the development of the Boka Kotorska and should therefore be concluded that the VEI is a workable proposition.

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Appendix A

R Code used for creating the Rose Charts

```
rm(list=ls())
library(ggplot2)

#=========================================
category<-c("Culture", "Energy", "Placeness",
 "Systems", "Vernacular")
score<-c(0, 0, 0, 0, 0)
myd<-data.frame(category, score)

ggplot(myd, aes(category, weight=score, fill =
 category)) + geom_bar(width = 1, color=1, lwd=0.8)

last_plot() + scale_fill_brewer(palette = "Set1") +
 geom_hline(yintercept=seq(0, 5, by=1), colour =
 "black", size = 0.2) + scale_y_continuous(breaks =
 0:5) + theme_linedraw() + coord_polar()  + labs(x =
 "", y = "") + theme(panel.grid.major =
 element_line(color="white", size=0.2),
 legend.position = "bottom",
 axis.ticks.y=element_line(size=0), axis.ticks =
 element_blank(), axis.text.x=element_text(size=8,
 face="bold"),  axis.text.y=element_text(size=0))

#=========================================
quartz()
ggplot(myd, aes(category, weight=score, fill =
 category)) + geom_bar(width = 1, alpha=.85, color=1,
 lwd=0.8)

last_plot() + scale_fill_brewer(palette = "Set1") +
 geom_hline(yintercept=seq(0, 5, by=1), colour =
 "black", size = 0.2) + scale_y_continuous(breaks =
 0:5) + theme_linedraw() + coord_polar()  + labs(x =
 "", y = "") + theme(panel.grid.major =
 element_line(color="gray", size=0.1),
 legend.position = "none",
 axis.ticks.y=element_line(size=0),
 axis.text.x=element_text(size=0),
 axis.text.y=element_text(size=0)) + facet_wrap( ~
 category, ncol = 5)
#=========================================
```

Appendix B

Interview with Local Historian

My name is Nedjeljko Radovic, I was born in this village seventy years ago.

I've left home and the Krusevica village as a child to go to school and I've never came back. As I grow older I felt more lured to my roots and I have become intrigued by the local tradition and customs of living. Even though I was familiar with the way of living in Krusevica as I grew up there I have started collecting information about local houses and village lifestyle. I researched more and more into it and I have become fascinated with the traditions that have extinct, as they have become redundant. I have also become interested in the local archaisms that were used a lot in this region.

This village use to belong to the larger area of Boka region, ie Herceg-Novi borough, but due to the political and historical reasons it was devolved to the Turks. Village and Herceg Novi were ruled by Turks for around five hundred years. Influence from Turkish style and adopted system of living at that time has left mark on the local culture. It is not known that Turks have ever lived in the village, however their feudal system of government has made an impact on the way of living. Specifically on the structure and systems of infrastructure and in particular on the construction of the houses. Even before Turkish government the houses were build by the local stone. All of the material required was locally sourced and nothing was brought from anywhere else. At first only small hummers were used to shape the stones into the blocks that could be laid. With the time they started file them off into a more refined shapes.

Building plan had never existed on a paper, but there was a tradition of building houses. All houses had mostly only two rooms: one, which was used for cooking with an open fire (heart) and the other that was used for

sleeping. A wall separated the rooms, averting the smoke from getting to the bedroom. The houses in whole of Boka region and further away down the coast of Dalmatia were build on the same principal. The variations were only in sizes. Later on the houses started having more than one bedroom, but the kitchen remain the focal point of living space.

The houses on two levels have usually kept livestock on the ground floor and the first floor with kitchen and bedroom was used for living. Naturally, later this has been separated… Houses build on ground floor have had mews build near the house so that the animals inside could be monitored.

To go back onto the material…. I've mentioned the stone. The walls were build of stones. The mortar was also made of stone by heating it in the big holes for up to seven to eight days. It would burn on the wooden fire until it breaksdowns. When it breakdown it turns into lime. The lime in combination with water terns into resin that was used for building. There was a particular kind of soil 'loam' that was used instead of cement when mixed with lime and sand. This mixture was used to hold the stones.

Materials that could be found here are used for roofing. Ray's straw was one of them. Growing rye thrives in these parts and grows in height up to 1.5m. This straw could last ten to twenty years. The second way of covering the houses was with the stone slabs, which were also from this region. It was known where those stone slates could be found and people use to go and take them out on their back and donkeys. Later after XIX century those houses were covered with tiles, ie. straw and stone slate was replaced by tiles.

I have grown up in a family of six (later of five). The house had two parts ingle, where we had a fire burning for cooking and heating and a bedroom. We all slept in one room, which was typical for all houses here. We shared the beds; for example I shared mine with my brother, mum and dad had their and sister had her own. Living conditions were very, very hard in

comparison to today's standards. There was no electricity and water was/is a particular problem in this region where are no water springs.

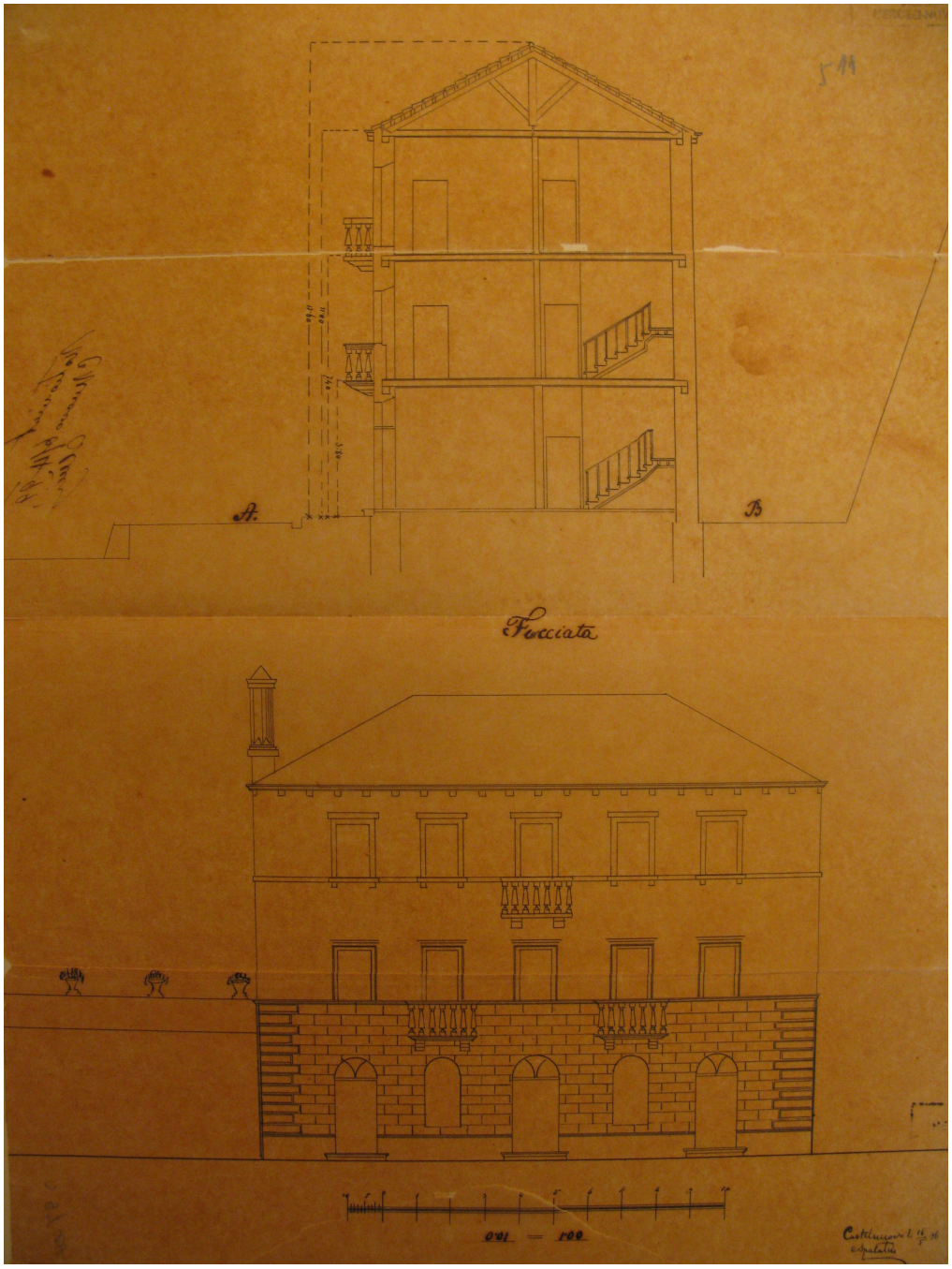
Water supply was obtained by building water wells. They were buit using the stone and they were collecting the rainwater. The wells, known as 'bisterna', were plastered with the same kind of a plaster used for the houses which was a mixture of lime, clay and sand. They had a play at the top which drain water into 'biterna'. Some houses had 'bisterna' next to them and have collected the water from the roof using the drains. There were no roads for the cars, only foot paths around the village.

It was harsh, but as kids we got use to it, as we didn't know for better and we had accepted it as a normal standard of living. Only when we left the village we realised what were the conditions in which we grew up. However, it had its advantages. We use to eat 'healthy' food that was locally outsourced, such as home-grown meat, dairy products, fruit and vegetable. It was healthy food. We were always on the move and were hardly able to sit, as we always had to help around the house (help with the garden, livestock, bring the firewood etc…). Everything that village has provided was used. Firewood was collected from the local woodland. Everybody (every family) use to have their own woodland. We use to buy very little and only the products that we could not get in the village like sugar and coffee. My childhood is a fond memory to me...

Today, you can see that every house has got electricity; all houses have access to the roads… Today, the conditions of living are totally different from what they use to be. However, we didn't feel at the time that they were harsh and my childhood is a fond memory to me. It was hard, but also lots of fun.

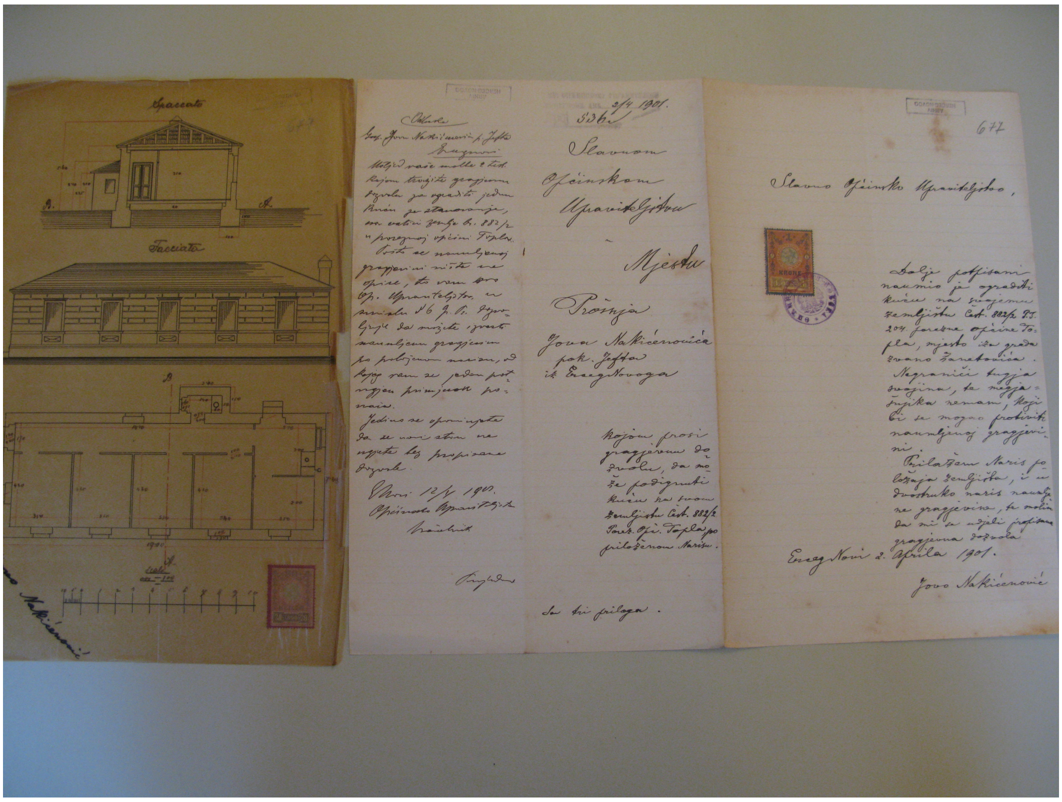
Appendix C

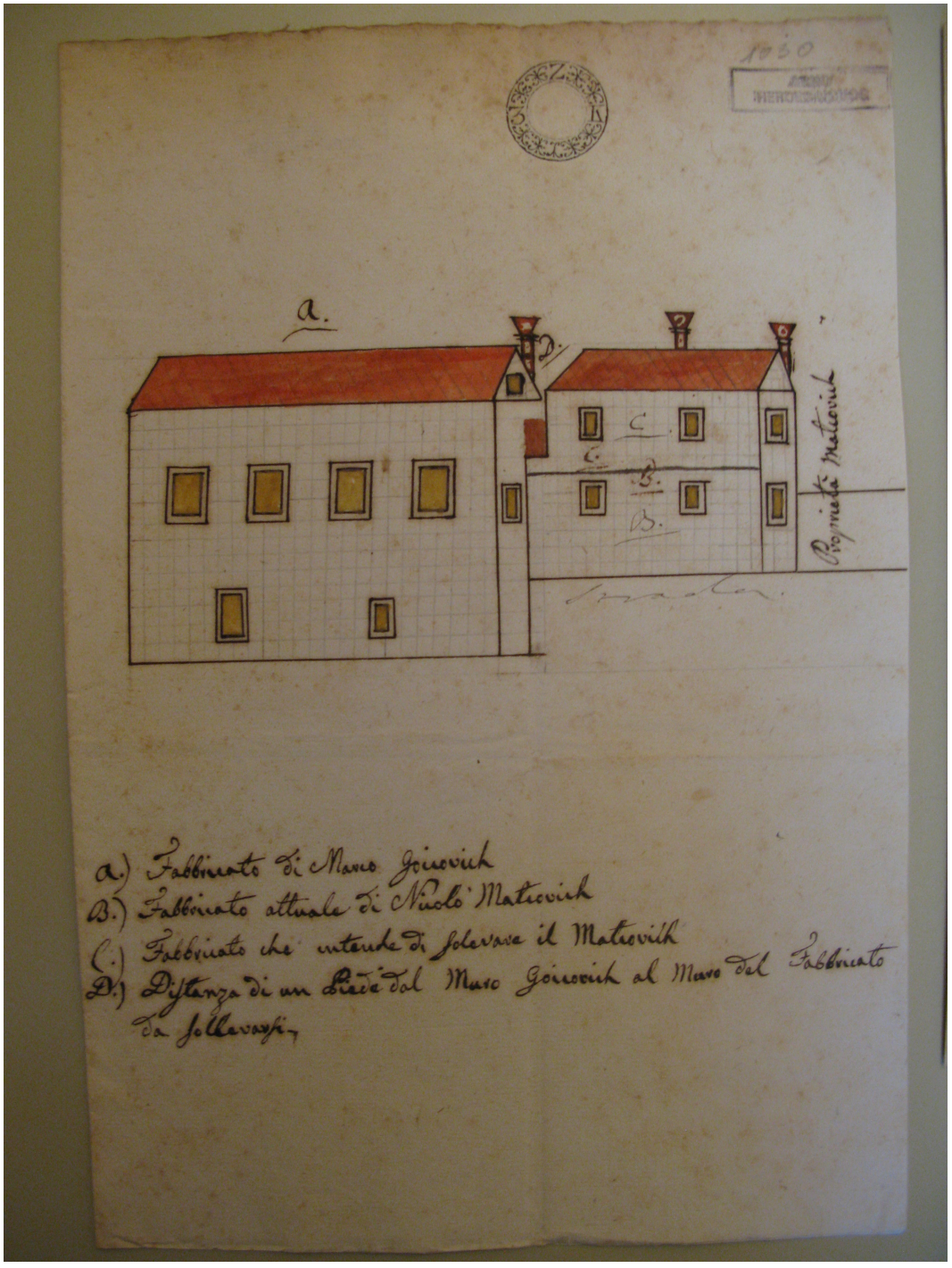
Archived Materials between 1800 and 1914 reflecting the influences of administrating authorities.




Podi
Forte Spagnolo
Serbatoja
Srbina
Forte di terra
Convento Sto Antonio
Canale di Cattaro
Hydranti.
Fontanini.
Castelnuovo
Forte di mare


Srbina
Convento
Sto Antonio
Forte di terra
Diramazione della
conduttura princip.
Canale di Cattaro
Hydranti.
Fontanini.
Castelnuovo
Forte di mare
Cattaro


Slavnom
Općinskom
Upraviteljstvu
Mjestu
Prošnja
Jova Nakićenovića
pok. Jefta
iz Erceg-Novoga
Slavno Općinsko Upraviteljstvo,
Jovo Nakićenović



A.) Fabbricato di Marco Goicovich
B.) Fabbricato attuale di Nicolò Matievich
C.) Fabbricato che intende di sollevare il Matievich
D.) Distanza di un Piede dal Muro Goicovich al Muro del Fabbricato da sollevarsi

Appendix D

Publications and Award since 2010

Awards

Reed and Mallik Medal, Awarded by The Institute of Civil Engineers for best published paper in their journals on the subject of Urban Design: Sustainable urban habitats: design intentions to practical implementation. 2012

Book Chapter:

Derbyshire, Alan, (2015) The Components of Viable Eco-Diverse Landscapes. In D. Humphries, S, Stober, eds. Transitions to Sustainability: Theoretical Debates for a Changing Planet. Common Ground Publishing

Peer Reviewed Journal Articles:

Derbyshire, Alan and Kecojevic, Tatjana (2014) Boka Kotorska: A Vernacular Response to Sustainable Urban Environments. Journal of Architecture and Urbanism, Routledge.

Derbyshire, Alan (2011) Sustainable urban habitats: Design intentions to practical implementation. Proceedings of the ICE - Urban Design and Planning, 164 (1). pp. 19-28. ISSN 1755-0793

Derbyshire, Alan (2010) Sustainable Urban Habitats: The Contributory Components of Viable Eco-Diverse Landscapes. International Journal of Environmental, Cultural, Economic and Social Sustainability , 6 (2). pp. 265-276. ISSN ISSN: 1832-2077

Conference Papers – Peer Reviewed

Derbyshire, Alan (2015) Vernacular form of the Boka Kotorska: Memory, Tradition and Inherent Resilient Thinking AR 2015 Architecture and Resilience on a Human Scale, University of Sheffield, September 2015.

Derbyshire, Alan and Tatjana, Kecojevic (2012) The Evolution of the Boka Kotorska as a Sustainable Ecological Entity. In: Proceedings IFKAD-KCWS 2012 - Knowledge, Innovation and Sustainability: integrating micro and macro perspectives. IFKAD-KCWS , Matera, Italy,

Derbyshire, Alan (2010) Greening the Grey. The Design Outlook for Ecological Urban Sustainability. Conference of Universal Design, Hamamatsu, Japan October 2010