Urban Sustainability

What Type of Urban Lifestyle Promotes Sustainability?

Summary of Stage One

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Introduction

INTRODUCTION

The Urban Sustainability project was launched by the Jerusalem Institute for Israel Studies in May 2013 and is due to conclude in 2016.

The concept of "Sustainability" has a multitude of definitions, and urban models are constantly being developed. This project aims to identify the significance of urban sustainability in Israel and to generate tools that will promote the change needed in order to achieve a sustainable urban lifestyle.

The project rests on three premises:

1. **We are in a critical period, without realizing it.** We are continuously harming the eco-systems that sustain us, out of a belief that we can continue to do so over time. However, the earth's life-supporting systems are deteriorating at a tremendous rate, and despite achievements in production efficiency and a transition to environmentally friendly products, we are very far from reaching the goals that will enable global environmental conservation for future generations. The growing awareness of the need to make better use of resources has not resulted in behavioral change, and our slide down the slippery slope of the past decades continues. We face a severe crisis, and the means employed to date to address it have not yielded a solution.

2. **Our lifestyle must undergo a substantive change.** In the words of Albert Einstein, "We cannot solve our problems with the same thinking we used when we created them." We must change the rules of the game and create a new reality. Effecting this change requires us to understand that urban sustainability is not solely an environmental issue and that the motivation to promote it is strongly linked to social and economic aspects of life.

3. **We are at the height of the urbanism era.** Currently more than half of the world's population resides in urban settlements, and this trend is likely to continue. In Israel today more than 90% of the population is urban. As a consequence of the urban lifestyle and the significant portion of industrial production and commercial activity that take place in the city, cities have become the main focal points of resource consumption and pollutant creation. At the same time, the urban environment actually embodies positive potential in terms of reducing these effects while improving residents' quality of life and promoting sustainability, given the city's size advantage and its high concentration of people and human activity. These factors, which are often presented as part of the problem, also constitute a source of potential and an opportunity to find a solution through the efficient use of resources and improved approaches to environmental, social, and economic problems.

Accordingly, the **Urban Sustainability project** seeks to comprehend and analyze the **urban lifestyle**, with the understanding that a small change in the way city dwellers conduct their lives could yield a major and substantive change in our relationship with our environment, and that a proper approach to urbanism can change the current trend. In its quest for a new way of thinking, the project does not focus on technological innovations or economic models – tools that are customarily used in efforts to address the environmental crisis – but, rather, on **behavioral change** as the key to creating a more sustainable way of life.

A central issue that the project seeks to address is the matter of **consumption**. Clearly consumption is a significant part of the modern lifestyle generally and the urban lifestyle specifically. Consumption substantially influences the use of natural resources, and current patterns of consumption must change in order to reduce the burden we are placing on eco-systems. The project aims to propose alternatives for the consumption of various products and services, which still maintain a high quality of life.

This project takes the approach that urban sustainability includes all the elements of urban life, as evidenced by the diverse array of subjects discussed below. The project examines how it is possible to satisfy all the needs of urban residents in a manner that entails reduced material consumption. Inherent in this approach is the understanding that **achieving sustainability is intrinsically linked with a new perspective on urban quality of life and its improvement.**

This publication marks the conclusion of Stage One of the project, which focused on preparation of the knowledge base for the project as a whole. During this stage, a team of experts from various fields was assembled, with the aim of defining the concept of "urban sustainability" through a diverse and multi-disciplinary perspective. Furthermore, during the process of expert selection it became clear that the concept of "urban sustainability" as a whole is greater than the sum of its parts: the fields of expertise address subjects that are not regarded as classic environmental or urban issues.

The list of subject areas included: transportation, behavioral insights, design, communities, energy, economics, social media, the work environment and civil society. The process included a number of meetings among researchers for the sake of mutual enrichment and in order to interface between various subject areas, as well as producing an individual expert opinion/specialized reports.

This publication summarizes the findings of the project's first stage, illustrates how the diverse array of subjects affects the implementation of urban sustainability, and paves the way to the next stage.

The first section of this publication addresses the question of **"What is a sustainable city?"** by integrating the basic concepts introduced in the various expert opinions. This integration generated the definition of a sustainable city.

The second section introduces the emerging field of **behavioral economics** and **behavioral insights** in order to explain the great importance that the project ascribes to behavioral change as a basis for the establishment of sustainable urban life in Israel.

The third section provides an overview of **various models of urbanism** that have recently been developed, which address urban sustainability in different ways. Only some of the characteristics of these models correspond with the premises of this project.

The fourth section first presents the project's **vision** of a sustainable city as it emerged from the expert opinions and expert workshops, and then it introduces a number of **guiding principles** that constitute the foundation for the endeavor to achieve a sustainable urban lifestyle, from the perspective of this project.

In the final section of this publication we attempt to answer the question: **How do we pave the way to creating sustainable cities in Israel?** In the context of addressing this question we mapped the various players that influence the urban lifestyle as well as the barriers and opportunities they face in mobilizing the change that will lead to urban sustainability. Finally, we offer inspirational examples from Israel and around the world for small-scale as well as large-scale action at the urban level to promote a sustainable way of life.

This publication aims to integrate the insights that emerged from the expert opinions as a whole. The integrative process by nature, could not address all aspects of each expert opinion. An annex to this publication contains abstracts of all the expert opinions, which provide a deeper understanding of the various aspects of urban sustainability.

1. WHAT IS A SUSTAINABLE CITY?

This chapter will present the basic concepts identified by the various expert opinions. It will first describe the fundamental concepts of urban sustainability that emerged from the expert's opinions as a whole, then it will present the overarching goals derived from these concepts, and finally it will propose a way of viewing the various layers of the city and the manner in which these layers are expected to manifest in a sustainable city. The combination and integration of these factors will then lead to the project's definition of a sustainable city.

1.1 THE FUNDAMENTAL CONCEPTS OF URBAN SUSTAINABILITY

The expert opinions prepared during Stage One addressed five core elements of urban life, which constitute the foundation of urban sustainability from the perspective of this project. These elements embody the fundamental concepts on which sustainable urban life is based:

1. A Holistic System – The concept of a city as a whole system is at the foundation of urban sustainability. When the city is viewed this way, it becomes clear that its various aspects mutually affect one another. A change in one element of urban life influences the others, even if only indirectly. This basic concept requires a systemic, rather than analytic, approach to change.

The concept of a city as a complex system presupposes that the city contains interdependent and interacting sub-systems. Yet, clearly the city itself is a sub-system that does not operate within a sterile, detached space but, rather, interacts with other systems surrounding it. Just as various elements of the city interact, jointly affecting one another, mutuality also exists between the city and its surroundings.

2. Emergence, change and Dynamism – Nothing is permanent. Everything changes, and in the current era change appears to be especially rapid. A sustainable city is expected to perceive and react to patterns of change. Its means of coping with a changing reality should be a process tailored to the situation, attuned to changes, and capable of responding quickly and flexibly. Such a city maintains its capacity for renewal and innovation, which in turn stem from its networks and diversity; it is a vibrant city whose constitutive elements are continuously and constantly evolving. The city's dynamism manifests in a variety of ways, such as **motion, flow of information, exchange of property and ideas, workplace turnover, a dynamic social fabric**, and more.

3. Networking and Connectivity – Viewing the sustainable city as a network means paying attention to relations and connections among various people, among various sectors that operate in the city (business, civic, and other), and within the totality of activities that comprise the daily life of the city dweller (infrastructures, work, leisure, consumption, and more). Networking also fosters sharing and distribution. This approach creates a perspective that facilitates understanding of the urban fabric as a whole, as well as the dynamism

of urban life and the mutual effects among the sources of this dynamism. With such a perspective it becomes evident that every part of the network has power, every starting point in the network has potential, and every resident is influential and influenced. Viewing the city as a network makes it possible to create a model in which power is not concentrated in one source; rather it is distributed among various constitutive elements of the city. This view also helps us evaluate the resilience of the city by analyzing the quantity, type, and variety of connections.

In the internet era we can classify various networks within the sustainable city as follows: **human network, information networks, advanced network technologies, public transportation network, employment networks**, and more.

4. Diversity – The word "diversity" embodies an understanding of the city's complexity. The city, as opposed to the countryside, is heterogeneous, comprising a **vast array of types, uses, groups and communities, income levels, housing solutions, cultures, actors, places, and workplaces**. A sustainable city does not view this diversity as an obstacle but instead uses it to enhance its power. A city's diversity also highlights its uniqueness: every city is different, and every urban composite is special, requiring unique care and generating a variety of ways to promote a sustainable lifestyle. Diversity facilitates unique, chance meetings, which are fertile ground for innovation and creativity. Consequently, the actions needed to promote a sustainable lifestyle must also be varied and suited to the city's urban diversity and to the city as an arena of possibilities.

5. Localization – Every city creates its own image through its local resources: its **businesses, residents, and physical and natural attributes**. Because of this uniqueness, it is important not to reproduce processes of transition to urban sustainability without adapting them to the local context and attributes. Sometimes even a single city will have different attributes in different places, which must be taken into account. In fact, attention to localization means seeking the proper scale of measurement. Geographic communities are an important local feature and their order of magnitude enables acquaintanceship, supports change, and enhances the sense of happiness derived from non-material sources. Localization also refers to the scale of creativity: a city must not only use the resources it possesses but also generate new resources – ideas, culture, energy, food, and the capability to sustain itself. Moreover, the local economy helps keep the resources within the system, and a sustainable city needs to aspire to use the raw materials and human power at its disposal. At the same time, it is important to emphasize that localization does not mean autarchy, nor is it an attempt to generate all the city's resources within its boundaries.

These foundations are interlinked: diversity enables a multitude of connections and the creation of a vast, complex network. Diversity and connectivity facilitate greater dynamism, **emergence** of innovation and the ability to cope with change. A systemic approach, diversity, networking, dynamism, and localization are among the foundational pillars of a **highly resilient city**. Such a city will successfully cope with change and crisis, and will enlist all its constituent elements in order to progress and grow, both as a matter of routine and during times of crisis.

1.2 THE OVERARCHING GOALS OF A SUSTAINABLE CITY

The foundational elements of a sustainable city, as defined in Section 1.1, constitute the basis on which the fundamental overarching goals for the functioning of a sustainable city were formulated. These goals relate to various aspects of urban life, starting with the global aspect (reducing the burden on various systems), continuing with the economic and social aspects, and concluding with the aspect of commitment and civic engagement.

The overarching goals are as follows:
1. **Reducing the burden on global eco-systems;**
2. **Changing the culture of consumption;**
3. **Reducing inequality;**
4. **Commitment and engagement on the part of all stakeholders interested in promoting and implementing these principles.**

1.3 THE LAYERS OF THE CITY

From the expert opinions emerge various internal layers of the city and its urbanism: two material/physical layers and two human/communicative layers.

Every city has the following four layers:

1. **Material Resources** – The raw materials that serve as the means of production, the materials we consume, and the waste produced. This layer represents the "metabolic systems" of the city;

2. **Physical Infrastructures** – The shape of a city as expressed, among other means, through urban planning;

3. **Ambiance and Culture** – Day-to-day city life: symbols, social capital, humanity, vitality, consumption habits, and economic behavior;

4. **Conduct and Organization** – The totality of social institutions: official, civic, and non-official, as well as all modes of communication and the resulting human connections: official, personal, and spontaneous.

Every city has different relations to these layers and the connections among them. In a sustainable city, from the perspective of this project, the various layers are expected to express the fundamental concepts and courses of action presented above:

1. The city should take measures to reduce its dependence on **material resources**. It should be frugal, balanced, efficient, localized, creative, and fair. This means it should seek alternatives to the overuse of resources and reduce their consumption appropriately. It should be fair towards its residents, towards nature, and towards future generations. A sustainable city seeks closure of urban metabolic cycles (for example, what some consider waste, others consider raw material).

2. In terms of **physical infrastructures**, the city should plan for mixed uses in a local scale, accessible and convenient public transportation, a range of employment and income options, suitable and affordable housing, and smart infrastructures accessible to all.

3. The city should represent diversity in terms of **ambiance, culture**, and creativity. It should promote innovation and a sense of community and should be caring and vibrant, nurturing its residents' wellbeing and self-actualization while minimizing harm to the environment.

4. In terms of **conduct and organization**, the city should uphold the values of transparency, participatory democracy, public engagement, justice and fairness, mutual accountability, commitment, involvement, and shared civic responsibility. Likewise, it should cultivate personal relations and connections in the context of official organizations and encourage spontaneous civil self-organization. The working hypothesis for this layer is that the network of connections and relations among various players in the city is no less important than the definition of their relations. The city should aspire towards a network of connections and relations that is open and beneficial to all.

The above division into various layers is a tool intended to help us analyze urban life in its entirety: what takes place within the city at each layer and how it serves urban sustainability. At the same time, this division also serves to guide action. Viewing the city as a holistic system, it becomes clear that any change must take into account the various layers and must embody the values of a sustainable city. Every action – even if very localized and small in scale, that takes these layers into account, will influence its surroundings. Such "pinpointed" influence, alongside additional parallel city activities, will create a critical mass that could affect large-scale, significant change in the city.

2. KEY POINTS FOR THE PROMOTION OF URBAN SUSTAINABILITY: INSIGHTS FROM THE EXPERT OPINIONS

The Urban Sustainability project focuses on behavioral change as the key to sustainable human life. The discussion that follows will first present a number of key points that emerged from the expert opinions in the context of promoting behavioral change in the urban space. It will then describe the possibilities inherent in using the tool of behavioral insights in order to pave the way to a sustainable urban lifestyle.

2.1 KEY POINTS TOWARDS THE IMPLEMENTATION OF URBAN SUSTAINABILITY

In seeking to bring about behavioral change, the following factors must be taken into account:

1. **The need to examine psychological motives that support or prevent lifestyle change:** For the most part, human beings act automatically and without awareness in the context of their daily lives. Consumption patterns are primarily based, among other factors, on habits that are not easily changed: people buy the same products at the same places and are not inclined to reexamine facts and implement necessary changes.

   At the same time, research reveals that moments characterized by shakeup and disruption of routine – moments of change – can in turn foment change in regular habits. These include, for example, change of residence, birth of a first child and retirement. Such moments facilitate change in the automatic lifestyle, and we should view them as an opportunity. Leveraging these opportunities requires taking into account the effect of many psychological factors that affect human beings when they make a choice or take action, including perhaps comfort, psychological association, loss aversion, and the desire to hold onto what is familiar and known.

   Accordingly, it becomes evident that when seeking to instigate change, timing is important. Well-timed measures can increase the chances of changing people's automatic habits and encouraging them to adopt new, more sustainable habits. The challenge facing this project is to identify the psychological factors relevant for a lifestyle change and to employ them in transitioning to sustainable cities.

2. **Redefining the concept of "wellbeing":** The concept of wellbeing, whose attainment is often presented as a human objective, typically includes increased consumption of material products. Accordingly we must acknowledge that the pursuit of wellbeing is liable to increase the burden on the environment and, is in fact, in conflict with our goal. Moreover, it has been demonstrated that increased consumption does not always correspond with increased individual happiness and does not necessarily include connectivity or community spirit. The challenge, therefore, is to attain wellbeing and happiness without increasing consumption and the burden on the environment.

3. **Delinking consumption from status and identity, or changing the linkage:** One of the insights that emerges clearly from the research is that today, in the modern Western world, people consume not only in order to fill material voids but also, perhaps primarily, as part of their identity construction. Consumption is directly linked with the demonstration of status and establishment of identity. People choose to be "owners" of products because according to the prevailing norm, if you own more, then you are more successful. Hence it is clear that in order to influence consumption habits, we must change social norms and must delink increased and conspicuous consumption from status. The seeds of such change are plentiful today, seeds that establish a connection between alternative consumption patterns (consumption of services rather than products, shared consumption, and so on) and new values as well

as a new definition of identity and status. These redefinitions do not depend on individuals; for the most part they take place among groups and communities that choose to construct a new set of values and norms, which depart from convention.

4. **The power of community:** Another insight that emerges from the expert opinions is that a citizen's belonging to a community is associated with a high degree of happiness, and that a resilient community makes it possible to cope with the changes and crises characteristic of the modern era. Community creates the context within which people adopt habits. Communities enable the creation of social norms that depart from convention, making it easier for people to change their lifestyles. Community has therefore been identified as being of the utmost importance when seeking to cause people to adopt sustainable urban patterns of behavior and change their consumption habits. The community actor has been identified as a key player in the endeavor to mobilize change in the urban lifestyle.

5. **The importance of design:** As an extension of our understanding that behavioral change is not a logical, rational process, it becomes evident that in order to generate change it is necessary to employ various, creative means of influence. It has frequently been demonstrated that physical changes to infrastructure do not suffice to motivate change within the public. One of the main fields addressing the issue of behavioral change today is the field of design, which has the power to influence the context in which we make our choices, the default choices presented to us, the representation of basic elements in our memory, the associations provoked within us, and more. Thus it has the power to influence the habits we adopt. In recent years, many who work within the field of design have focused on ways of harnessing this influential tool in order to pave the way towards more sustainable behavior.
There are a number of approaches to the use of design as a means of influencing behavior:
   • **Enablement** – Creating a situation in which the desired behavior becomes an option for the user by making it simpler or more accessible and by changing a person's perception regarding available options;
   • **Encouragement/Motivation** – The use of positive reinforcement to motivate the user to adopt the desired behavior, by means of: knowledge, education, incentives, and a change of attitude. This approach seeks to turn the required behavior into the norm. Supplementing the presentation of information with social pressure has been shown to be particularly effective. This tactic grants the user a great deal of power.
   • **Involvement** – Creating opportunities for the public to participate actively, through community activities and the use of virtual communities intended to influence their surroundings.
   • **Prominence** – Giving prominence to the means and the personal example set by members of government and the establishment who adopt new forms of behavior that support social change.
   • **Constraint** – Creating a situation in which certain behaviors are constrained or at least harder to carry out.

6. **The power of connectivity:** In the internet era connectivity constitutes an important element of the human lifestyle. It affects the modes of human consumption and the manner in which people accumulate and exchange information, products, and services. Studies have shown that digital media, including social media, constitute significant agents of change, especially for Generation Y (ages 18-35). Members of this generation have been found to be very willing to take environmental and social considerations into account in their purchases, and highly capable of accepting and disseminating change and willing to change their consumption habits. There is great potential for instigating change in the consumption habits of Generation Y through digital media, and it is therefore important to develop games, applications, and digital platforms that encourage sustainable behavior.

7. **The importance of action that integrates a variety of stakeholders:** The conventional approach to initiating change entails top-down change (members of the establishment issuing decrees to their "subordinates"). Today it has become acceptable to consider a combination that includes bottom-up action (citizens and civic entities influencing the establishment). The expert opinions indicate that it is necessary to highlight another type of influence: from the middle outwards (professionals or local leaders influencing the establishment, their subordinates, and their equals). Besides extending the spheres of influence, enlisting a variety of partners is important for building confidence in the processes of change. Towards this end, in addition to the actors who represent the establishment, it is necessary to identify partners from the business sector, workers' associations, local communities, and various professional fields, in order to create platforms for change.

2.2 Behavioral Change as the Key to Transition towards Sustainable Cities[1]

The methods and means for behavioral change were designed through a variety of conceptual perspectives developed on the basis of theoretical and applied thinking in the fields of economics, psychology, sociology, and criminology. More recently these perspectives have also been influenced by the relatively new field of behavioral economics.

"**Hard measures" in the formulation of policy aimed at behavioral change make use of economic interventions (such as taxes and subsidies), physical changes to urban infrastructures, legislation, and enforcement. All these bring about objective change in the urban environment and are perceived as basic steps to encourage sustainable behavior.** For example, in order to encourage the use of public transportation, it is necessary to ensure that transportation infrastructures meet passengers' needs, provide good service, and are convenient, comfortable, and safe – all of which require investing in development. Simultaneously, it is necessary to ensure that these systems are reasonably priced for the passengers, for example through government, municipal, or workplace subsidies. Legislation and enforcement – such as the designation of lanes solely for public transportation – are also considered "hard" measures. All these have been found to be effective approaches to making public transportation more attractive. **In addition to the "carrots" provided to users of public transportation, "sticks" may be used in order to discourage residents from overusing private vehicles.** Other hard measures found to be effective in changing behavior include reducing the capacity of urban roads (by narrowing or even closing them), eliminating parking places, traffic calming, taxing private vehicles or gasoline, congestion fees, and legislation and enforcement that restrict the use of vehicles in the city.

These measures, however, are not necessarily popular among the public and politicians because extensive use of "sticks" is perceived as reducing residents' sphere of choice and undermining the freedom of movement to which they are accustomed, and also as the issuing of edicts that the public cannot or will not obey. Often certain facets of one's lifestyle, or patterns of product and household-energy consumption, are perceived as basic rights in which the authorities have no business interfering with. **A low degree of acceptability among the public and politicians, or even opposition to such measures, is among the reasons that alternative "soft measures" were developed to promote a sustainable lifestyle. These measures include education, dissemination of information among residents, and media-based public relations and means of influence.** Such measures have been used in a variety of contexts: promoting sustainable transportation, public health, energy conservation, recycling, maintaining a clean environment, and more.

An innovative approach to behavioral change that has recently gained popularity in a variety of contexts is **choice architecture, which uses the contextual design of the environment in which decisions are made and demonstrates how small contextual changes in environmental design can support behavioral changes, thereby replacing or operating in parallel to traditional methods of behavioral change**. This approach emerged from the recognition that human behavior is not characterized solely by logical, rational, factual information processing; behavior is also influenced by contextual characteristics of the decision-making environment, and we are not always fully aware of these characteristics, sometimes relating to them "automatically." This recognition was confirmed by recent studies in the fields of behavioral sciences, which yielded new insights regarding the factors that influence human behavior.

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1   This section was authored by Prof. Er'el Avineri, a project participant and expert in behavioral change in the field of transportation, from which most of the following examples are drawn. Our intention, of course, is to apply these examples across the range of subject areas.

3. Urban Models and Their Applicability to the Sustainable City

There is no single, accepted model of a sustainable city, and presumably no such model will be developed. Yet it is still possible to identify categories of characteristics for sustainable cities, which recur in the relevant literature: physical, environmental, social, and economic characteristics.

The chart below summarizes our survey of various urban models, all of which have elements that are in accordance with the concept of a sustainable city as defined by this project. Other elements (marked in red in the chart) do not support the concept of a sustainable city as presented here.

3.1 Urban Models as They Correlate with the Model of a Sustainable City

	Economic Characteristics	Social Characteristics	Environmental Characteristics
Green City	• Environmental incentives and fees • Cultivation of green businesses • Green construction	• Rresidents willing to separate waste, conserve water and electricity • High level of environmental awareness	• Large external footprint • Parks and vegetation • Conservation of urban nature and heritage
Resilient City	• Willingness to cope with financial crisis • Investment in infrastructure to reduce potential damages • Surplus planning to enable functioning during crisis • Promotion of local supply	• Family and community containment • Support network for vulnerable communities • Fostering of mutual help • Acceptance of different cultures • High level of institutional and civic organization	• Infrastructure preparedness for extreme climate change events • Emergency readiness of residents
Innovative and Creative City	• Opportunities for exchange of information and ideas between businesses and various professionals • Cultivation of cloud and open source computing • Backup support for risks of failure	• Lack of stability, permanence, and employment security • Ability to cope with varying income without solvency • Long-term debts • Flexibility in residential location and conditions • No long-term commitment	• Increased use of services that can be changed and replicated as opposed to purchase of products • Lack of belonging to geographical place or heritage • Environmental risks
Connected and Participatory City	• Dispersion and mix of private and public, business and residential • Efficient use of space, equipment, and property 24 hours/day • Spread of cloud and open source computing • Threat to traditional businesses	• Inclusion for the sake of participation • New ways of inter-personal confidence building • High degree of connectivity without personal acquaintance	• reduction of burden on natural, spatial, and energy resources • Environmental risk from lack of personal ownership over sources of pollution or causes of damage
Smart City	• Much investment in efficient infrastructure systems for information and for provision and maintenance of public services • Accessible work commute and services for all • Dependence of city on efficient, faultless infrastructure functioning	• Many good opportunities for those who can use them • High likelihood of personal and public crises	• Ecological efficiency • High likelihood of early identification and handling of malfunction

Healthy City	• Risk-free, strict limitations on pollutant sources in the city and surroundings • Support for workplace commuting by foot or bicycle • Limitations on work hours • Strict regulation of working conditions	• Good access to public health-care services • Promotion of a healthy lifestyle • Cultivation of healthy lifestyle norms	• Multitude of accessible parks and pedestrian lanes, sports facilities in public spaces • External ecological footprint
Happy City	• Reduced working hours • High employment rate despite lower income • Proximity of residence to workplace	• Quality time with family, community, and all fora • Sense of belonging and willingness to participate actively • High degree of inter-personal trust • Street frontages that attract the public	• Multitude of community gardens • Removal of separation mechanisms, fences, and walls • High degree of access to activities in parks and public spaces

3.2 Summary of the Sustainable City's Characteristics According to the Project's Concepts

Physical characteristics: A city is composed of its space and the built assets within it. A sustainable city exploits its space and built environment efficiently and strives to take advantage of all the space on, below, and above land for the sake of its residents every day, during all hours of the day. Land that has been damaged (for example, by soil contamination) must be rehabilitated to a degree that permits its return to the land inventory. An urban area that has deteriorated must be revived. A territory or structure that takes up space and is used only a few hours per day must be reevaluated in terms of efficiency. Uses that result in negative environmental effects must be reduced and cannot take up space beyond their lot. Service accessibility is very high. Open spaces within the city, green as well as non-green, are exploited in a way that benefits the quality of life and the environment.

Environmental characteristics: Public and private systems in the city are economical and use resources, especially energy and water, efficiently. A mix of land uses and activities in the city and high accessibility make it possible to reduce the need for travel without resorting to private vehicles. The city's lifestyle provides a non-materialistic quality of life and facilitates decrease of its residents direct and indirect carbon footprint. The emphasis is on "zero waste" as opposed to a policy of waste recycling.

Social characteristics: The city enables and promotes group and community organizing and fosters inclusion and involvement of the residents in a wide variety of activities. A high degree of accessibility enables the provision of high-quality services and reduction of social gaps. The city constitutes a meeting place and site for inter-cultural interaction.

Economic characteristics: The city serves as a meeting place that stimulates innovation, enables cross-disciplinary connectivity, and promotes competitiveness. The city develops local-economy initiatives that promote residents' abilities, create local workplaces and enrich the local space.

The sustainable city includes elements characteristic of other models as well, but it creates a special mix of characteristics that manifest themselves in the vision described below.

4. The Vision and Principles of a Sustainable City

4.1 The Vision of a Sustainable City

A sustainable city enables a life of happiness and dignity for all, within and beyond the city itself. It uses its material, natural, human, and social infrastructures and resources wisely and fairly, while taking responsibility for its part in the management of global eco-systems, and with a sense of responsibility towards future generations and for the city's physical and cultural heritage.[2]

A city that strives for sustainability is a city that makes an effort to achieve this vision, and accordingly it encourages and enables the following:

* The existence of human and environmental diversity for all;
* Infrastructures accessible to all and fair distribution of resources;
* Social, environmental, and economic resilience;
* Leadership in action, involvement in and commitment to sustainability;
* Participation by and cooperation among residents and all stakeholders – government, business, and civil society;
* Responsible and sustainable consumption;
* A selection of alternatives and options;
* A culture of trust, mutual respect, creativity, growth and innovation, mutual support, and participation;
* Community development, connectivity, communication, and social networks;
* Equal opportunities in education, employment, services, and leisure.

4.2 Principles for Action towards a Sustainable City

The principles presented below are an integration of the principles that emerged from the expert opinions as well as principles formulated by experts from various fields in the workshop that took place during the summer of 2014. The principles address value-based aspects as well as physical aspects of the process. The more these principles are incorporated into the process of pursuing urban sustainability, the more successful this process will be:

Implementation of a complex process that addresses the different layers of urban life;
* Use of a variety of policy tools (regulation, education, public relations, economic incentives, information technologies, participation, tools for behavioral change, and more) with the aim of pressuring and influencing a variety of players;
* Use of a variety of solutions for one problem (for example, transportation – use of public transportation, applications, design tools, and more);
* Maintenance of simplicity and comfort in the course of making the proposed changes;

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2   The project's definition of the vision for a sustainable city derives from the expert opinions, analysis and formulation of values, and the foundations and urban layers that combine to create urban sustainability, as well as a workshop in which experts from various fields participated.

- Accessibility of information and services for the various users;
- Attention to small details;
- Creation of a feedback mechanism and change of process in accordance;
- Investment in innovation;
- Maintenance of transparency and visibility of the process;
- Creation of a public space that fosters interaction and creativity while ensuring equal accessibility for all;
- Development of alternatives to current consumption, for example by encouraging transition from an ownership approach to one of servicizing, participatory economics, local economy, and radical efficiency in the use of resources;
- Increased range of choices for residents;
- Enhanced urban planning that includes compactness, pedestrianization, and mixed-use development.
- Identification of influential leadership power;
- Mapping of the community and environmental needs affected by an action;
- Building and maintenance of confidence in the process within the community involved;
- Encouragement and reinforcement of partnerships among the various sectors;
- Adaptation of actions to the various population groups;
- Action based on commitment to all city users;
- Strengthening of the geographic community and small-scale local development;
- Establishment of economic, social, and environmental connections in the city.

5. How Do We Do It?

The previous chapters of this publication presented a conceptual framework for the creation of sustainable cities. These concepts were intended to help illustrate and simplify the complexity of the city, sustainability, and their integration. The challenge facing the Urban Sustainability project is to formulate policy recommendations that will support implementation of its vision and principles and turn them into action recommendations applicable to cities in Israel. This chapter aims to take another step in the journey towards implementation of the vision and principles by addressing the question "How do we do it?"

First we will identify the relevant actors who are expected to influence the development of cities in the direction of urban sustainability. The chart below lists these actors and explores the barriers and opportunities facing them as they seek to promote urban sustainability. The discussion will conclude with inspirational examples from Israel and the rest of the world, which are intended to spark the imagination and generate motivation towards effecting the change needed to reinforce urban sustainability.

5.1 The Actors: Barriers and Opportunities

As noted, anyone can be an influential player within the network that comprises the urban lifestyle. We invite you, the reader, to find your place in the following chart, as well as the places of additional actors with whom you have ties. Likewise, you are invited to list additional actors within the city not mentioned in the chart, or to make additions to the barriers, opportunities, and benefits listed.

Actor	Barriers	Opportunities	Benefits
Individual	Existing norms and incentives that encourage non-sustainable behavior Tendency to postpone coping with future amorphous risks because of perceived daily overload Alienation from the issue because of its elitist image Dearth of information and knowledge Lack of confidence in existing information sources No services offering sustainable alternatives High cost of sustainable alternatives and shortage of available options Public space that does not invite resident involvement	Minimal change in daily life leading to great change	Improvement of day-to-day quality of life Exposure to a wide range of options Togetherness and dedication to a broad-based goal Strong connection to the spatial sphere of life Formation of communal ties and a strong sense of communal belonging
Businesses, workplaces, and professionals	Existing norms and incentives that encourage non-sustainable behavior Business interests that encourage increased consumption Dearth of information and knowledge Narrow profit range, curtailing flexibility High cost of sustainable alternatives and shortage of available options	Good finance capabilities Possible role model for workers and residents Ability to influence a large number of people Shaping of norms and practices	Formation of ties with various stakeholders in the city Possibility of increasing environmental responsibility Strengthening of bond with the place and community Joining and leading a global trend in Israel Adherence to international standards Expanded influence over public space Increased profits

Local authority	Limited powers Limited budget Tendency to postpone coping with future amorphous risks Existing incentives that encourage non-sustainable behavior	Capability to make knowledge accessible Possibility of simplifying bureaucratic processes Availability of resources such as manpower and budgets Responsibility for land allocation Ability to make connections Ability to provide advice Possible role model for workers and residents Extensive connectivity with material and human resources in the city	Widespread involvement of all the city's stakeholders Improved quality of life for residents Improved public image
Community	Existing norms that encourage non-sustainable behavior	The power of a group in mobilizing for change	Strengthened sense of community and residents' involvement
Civic institutions	Lack of resources	Strategically located to make connections Ability to generate knowledge and gather information Commitment to the issue	Joining and leading a global trend in Israel Increasing the number of activists
Grassroots activists – local organizations	Dearth of information Shortage of administrative power Funding difficulties	Ability to identify residents' needs High level of mobilization and commitment Awareness of the issue's importance	Joining and leading a global trend in Israel Making connections with other entities in the city that have access to resources, on the basis of shared values or joint enterprise
Academia	Disconnected from what is happening on the ground	Capacity to enrich knowledge and make it more accessible Access to special resources	Translation of theory to practice Improvement of public image
Education system and socialization institutions (schools)	Limited budget Conservative approach to content matter Cumbersome system	Capacity to influence large numbers of people and future generation Possible role model for workers and residents Ability to carry out long-term processes	Reinforcement of ties with the community Reinforcement of educational message by translating theory to practice
Media	Norms that do not promote sustainability Difficulty in conveying complex messages	Potential to reach and influence large numbers of people Large budget	Connection with global trend

The next step towards instigating change in the direction of a more sustainable way of life in Israel, after understanding who the actors are and the options before them, is to strengthen the opportunities and minimize the barriers. We aim to advance this process during the next stages of the project, in cooperation with all the above-mentioned actors.

5.2 Inspirational Examples

This section offers a selection of examples for mobilizing behavioral change towards a more sustainable urban lifestyle. Most of the examples are taken from the expert opinions. Other examples were gathered from partners and familiar day-to-day experiences. The examples describe activities of various actors, from the individual citizen to the prime minister, aimed at varying forms of influence – top-down (policy guidelines) as well as bottom-up (citizen initiatives) – and often they describe cooperative activities. The examples illustrate small-scale, daily activities that led to small changes, as well as large-scale activities that led to systemic changes. These examples represent a portion of the totality of possibilities for action available to each one of us, and they should spark the imagination and creativity, in the hope that everyone will find the inspiration to mobilize towards behavioral change in the nearby environment, in accordance with personality, context, and local needs.[3]

Union Kitchen (Washington, D.C.)
This is a giant kitchen, spread over 7,300 square meters, which serves as a shared space for commercial kitchens, with cooking areas, storage areas for dry food, freezers, and refrigerators. The objective is to provide kitchen services for businesses to prepare food at low cost and risk. The services provided save time and expense for businesses and allow them to focus on the task of food preparation. The venue offers parking, business services, cleaning services, waste removal, and the like. The project was a private initiative of two partners who also funded it. The local council helped by providing the enterprise with access to databases to find relevant workers and business training programs. Additionally, the local council helped the entrepreneurs with the necessary planning processes and permits for the business.

Interface, Inc.
The largest company of its type for wall-to-wall carpets decided to make a transition from producing rolls to producing tiles – a transition that allows replacement of a small part of a carpet in the event of wear, thereby conserving resources. Additionally, their transition from glue to stickers as a way of installing carpet makes it possible to move carpets from one place to another. The company also offers rental services for floor covering.

Crowdfunding Sites
Fundraising for the Bar-Kayma (a cooperative vegan restaurant/bar and community center) generated 40,000 shekels through crowdfunding and social media.

ECOTEAMS
These are teams that operate in a number of European cities and hold regular meetings regarding a sustainable lifestyle in a variety of contexts. The meetings provide a venue for consultation, cooperation, and a declaration of intent that commits team members to abide by the objectives they set.

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3   The examples reflect various tools and means of application that represent the spirit of the vision and principles for action described above, and that help promote action in support of urban sustainability. The following is a partial list of the means employed in the examples: use of incentives, design, optimization of resource use (servicizing, participation), encouraging collaboration, open source computing, strengthened inter-sectoral cooperation, accessibility of services, creation of networks, making connections, increasing the range of options, training agents of change in various population groups, use of technology, encouraging localization, accessibility of information, encouraging simultaneous action at a number of levels, creation of platforms to reinforce residents' involvement, representation in mass media, creation of discourse in new media, choice architecture, nudge theory, enhancement of community spirit, reinforcement of urban planning that encourages compactness, pedestrianization and mixed-use development, improved infrastructures, expansion of available options, and serving as a personal role model.

Meatless Monday in Israel

This initiative makes extensive use of the Israeli television presenter, activist, and journalist Miki Haimovich to promote action. The campaign, which seeks to encourage reduced consumption of meat, operates through a number of social media platforms, an official website, and cooperation with media outlets, alongside public relations and Knesset lobbying. Its Facebook activities spotlight articles from the website and seek to foster dialogue with visitors to the page. The site itself is a source of extensive information, and an effort is underway to extend its activities to Instagram.

In the ultra-orthodox quarter of a certain city in Israel, one of the rabbis reached an agreement with the company Amnir Recycling whereby a percentage of the profits from paper recycling in this quarter would be returned to the community for the sake of development. The percentage of paper recycling in this quarter is now among the highest in the city.

Markers on the ground encourage residents to walk by foot to destinations within walking distance.

Low Carbon Oxford

The vision of this social initiative is to generate electricity from solar panels on the roofs of private homes, public institutions, and buildings in the community, while promoting energy conservation in Oxfordshire. The initiative is funded jointly by the government and local council and operates in cooperation with local businesses and residents. Revenues from energy generation serve to fund continued activities of the initiative and its expansion to other communities. The initiative also provides advice and support, and helps facilitate communication with relevant bodies and institutions.

Time-Banks

This initiative promotes the model of time as a means of bartering. Time invested in volunteer activity in a neighborhood can be used to "purchase" services offered by other residents, such as babysitting or assistance in painting a home. The principle of evaluating work by the hour grants equal value to everyone's time within the community. Time-Banks are very popular throughout the world, and the initiative reached Israel more than a decade ago. It began in a Jerusalem neighborhood, and from there spread elsewhere. Today there are 40 Time-Banks throughout the country.

Comparative Information on Urban Carbon Emissions in the European Union

This EU project tabulated the data on carbon emissions, by city, from transportation in 150 cities. The information is presented in the form of a "league table" with winners and losers, thereby motivating residents and decision makers to improve their ranking in the table.

It has been demonstrated that by installing electricity measurement devices, which provide timely information about household energy use and allow users to see their energy consumption in real time (not only when the bill arrives), commitment to energy conservation increases.

Cape Town, South Africa

This city is the 2014 World Design Capital (an award granted every two years by the International Council of Societies of Industrial Design). In the context of an annual program it presents a range of projects demonstrating how to use design in order to improve its social, environmental, economic, and cultural life. The program also integrates all means of public transportation into one package. Additionally, parking lots for private vehicles and pedestrian and bicycle lanes were built. Simultaneously public spaces were designed and developed in poor neighborhoods, thereby improving access, quality of life, and the sense of dignity among citizens. Visible manifestations of poverty were removed, and communities were integrated into the planning and development of space.

The NU SPAARPAS Program in Rotterdam

Through this program residents earn green points when they separate garbage, use public transportation, or buy local products, fair-trade products, or green products. The points may be exchanged for vouchers for public transportation or discounts on sustainable goods. The vouchers were developed cooperatively by the municipality and a group of banks and financial services.

The Misanthrope Urban Workspace

This is a private business operating in Tel Aviv that provides workspace for meetings, study, independent work, workshops, and more, as an alternative to maintaining a permanent office. Registration and room reservation are through the internet.

Change in Marshall, Texas

In January 2014 the story of Marshall's Mayor Ed Smith became public. After being diagnosed with cancer he became a vegan. Subsequently, veganism became popular in his city, and his story spread throughout the world. Smith himself supported the construction of a website with information about restaurants, lifestyle, and healthier activities in the city.

Cooperatives

These are associations of individuals for the purposes and consumption and creation. Cooperatives are owned by their members, each member having a share that grants partial ownership of the co-op. The purpose of cooperatives is to create a fair community as an alternative to the competitive market. There are cooperatives in the areas of food, energy, consumption, finance, and more.

Local Currency

In Bristol, England, a local currency is in circulation, with the aim of promoting the local economy. The project operates as a partnership between a business company and a bank, with the involvement of the Bristol municipality and local enterprises, serving as Bristol's transition initiative.

A project in Copenhagen resulted in improved efforts by passersby to maintain the cleanliness of the urban environment.

In the US city of Chicago, part of a road was painted with white horizontal stripes, with steadily diminishing distance between them. This gives drivers the illusion that they are speeding up, thus causing them to slow down.

Cloud Computing

Cloud computing makes use of remote storage and computing infrastructures through the internet, thereby saving costs. Widespread use of cloud computing can support the establishment of small businesses that are financially unable to meet the high costs of infrastructure necessary to build software or a computing company.

Government Information Systems
The British government created a national information system to provide transportation information for users during transit, in order to help optimize their travel plans. The option of public transportation always appears on the users' screens, encouraging them to consider it as an alternative to private vehicles.

Energy Efficiency
In the city of Freiburg, Germany, many homes were built as passive or energy efficient houses. Energy consumption per square meter is now lower than the average for Germany. The city is also a global leader in solar energy production.

Item-Sharing Platforms
These generally operate online and are intended to allow people to reduce their purchases and make more efficient use of their belongings. At the heart of this trend is the understanding that one does not need a drill but, rather, the hole it creates, which may be accomplished through sharing instead of purchasing.

Reduced Cigarette Consumption
In recent years Israel has seen a reduction in the consumption of cigarettes, as a result of several factors: removal of oversight over cigarette prices in 2012, the 2007 amendment to the law banning smoking in public places, and the 2004 sales tax increase for cigarettes. These measures were accompanied by campaigns to raise awareness about the harm caused by smoking and included the placement of warnings on cigarette packets.

Efforts are underway in the Netherlands to design the surroundings of traffic routes in the vicinity of schools, kindergartens, and nurseries so as to signal to drivers that they should slow down because children might be present even if not visible. These efforts entail the use of pastel colors and placement of friendly, childish images.

WSP-UK – A Planning and Engineering Consultancy Firm
WSP-UK developed a program aimed at encouraging company workers to reduce their carbon emissions. The program operated on a volunteer basis and provided measurement tools, set objectives, and offered practical tips and advice. Employees who met their objectives received a financial reward from their employer.

Small Businesses
In recent years in Britain a number of local initiatives have worked to promote and strengthen small and mid-sized businesses in a sustainable manner, and to create a "hub" of local economic activity. As of late 2013, the main accomplishments of these programs have included creating a network of local businesses and communities, increasing cooperation among them, and attracting new businesses to the area.

Small Businesses
In Hamburg, Germany, the municipality provides small and mid-sized businesses and workshops with free consultation for improving energy efficiency, and subsidizes investments in the means of resource conservation.

The "Neighborhood Grocery" Project

This is a social consumer initiative that operates throughout Israel in an effort to save small local groceries by uniting them in an association that allows them to compete with the large chain stores, using their united size advantage when dealing with suppliers. Thus small groceries can offer their customers attractive prices and ensure their own continued existence.

Tel-O-Fun, Tel Aviv

The Tel Aviv municipality provides bike rentals on an hourly basis through a franchise company. The project, launched in April 2011 with 250 bicycles and 35 stations, grew into a network of 1,650 bicycles and 180 stations throughout the city by December 2013. The service includes applications for assistance and a website. As of May 2013, the municipality had paved about 120 kilometers of bike lanes.

Financially Feasible Bike Rentals in Boston

In an effort to make its Hubway bicycle-sharing project accessible to low-income residents, the municipality of Boston offers significant membership discounts for this population group. In addition, physicians can now give their patients "prescriptions" for bicycles, thereby reaching and encouraging new potential groups of bike-riders.

The "Green Knesset" Project

This multi-year project aims to turn the Knesset into a building where the concept of sustainability guides conduct. At its basis are 13 approved, funded initiatives that focus on energy and water conservation.
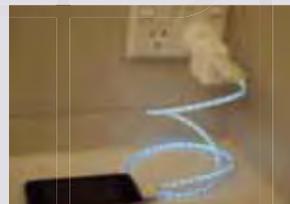
Mamazone Market

This website offers mothers the option of trading in goods or services that they are able to provide, in exchange for alternative currency – "hearts." Every mother can sell products she owns and thereby purchase hearts, with which she can buy other things from members.


Bristol Transition Initiative

Members of this initiative participated in the preparation of policy papers on energy and food. The municipality funded one of the reports, which included a proposal for local activities at the city level. The report was adopted by the city council and became part of its work plan. The plan turned Bristol into the first city in England to take official action on this issue.

Initiatives for Responsible and Fair Consumption

Recently we have seen an increase in vegetable farms that supply boxes of vegetables directly to customers by order. This form of consumption eliminates middleman costs and ensures fresh, healthful, and nutritious food.

Mobilizing Urban Change

In the city of Stavanger, Norway, which enjoys large oil reserves, prominent residents and the local council have launched a cooperative endeavor in support of urban sustainability, with the aim of encouraging active participation among residents. Collaborative workgroups have been established that include citizens, government personnel, and businesses that specialize in consumer culture, nature and the environment, health, lifestyle, and more. Moreover, every household in the city regularly receives information about carbon emissions. The city has also adopted an ambitious plan for energy conservation and reduction of carbon emissions.

These are examples of mechanisms designed to raise awareness regarding energy consumption at the moment of truth and encourage conservation.
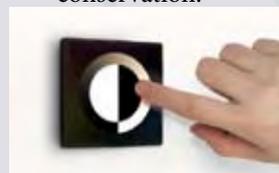
Cooperative Applications

These facilitate the transfer of information among users as well as more efficient use of various resources. For example:
Moovit – an application that makes it easier to use public transportation.
AirBNB – an application that offers tools for home-sharing.

Conclusion

This publication summarizes the first stage of the Urban Sustainability project launched by the Jerusalem Institute for Israel Studies. Stage One included the preparation of expert opinion papers addressing various aspects of behavioral changes that promote urban sustainability. The discussion above introduced the various subject areas and explained how they relate to the issue (for example, physical planning, design, community, social networks, economics, transportation, and more). These subject areas were then integrated in order to formulate the vision of a sustainable city and, in due course, develop policy recommendations for the promotion of urban sustainability.

The Urban Sustainability project is centered on the **urban lifestyle and a change in consumption habits**. The starting point of this project is the understanding that a change in lifestyle is the key to promoting sustainability.

As far back as 1992, *Agenda 21* mentioned the need to change consumption patterns as part of the endeavor to promote sustainable urban development, but until recently states were unwilling to address the issue of consumption and efforts were directed mainly towards production.

Professor Tim Jackson described this phenomenon: "The days of spending money we do not have on things we do not need to impress people we do not care about are over. Living well is about good nutrition, decent homes, access to good quality services, stable communities and satisfying employment."

In order to change the lifestyle customary today in the Western world and develop a positive form of urbanism that does not depend on vast resources, the project examined new courses of action that draw on the social and behavioral sciences.

The main insights garnered, which will later serve as a basis to formulate policies that promote a sustainable urban lifestyle, are as follows:

1. **The city is a complex, multi-layered system**, and any change must take into account multi-faceted and interrelated issues. The economy, society, and environment are closely interlinked, and it is necessary to identify means that will have a positive impact on as many areas as possible.

2. **Behavioral change methods** have traditionally used "hard" interventions (such as taxes and fees, legislation and enforcement) or rigid physical means such as urban planning and infrastructure development. The innovative methods of today add a positive approach that does not limit the scope of choice but instead provides a new context for decision making based on choice architecture, thus motivating people to change their habits by understanding and influencing human behavior.

3. **Behavioral changes are closely linked to the urban community** (geographically as well as virtually). The community needs to play a central mediating role between the establishment or government and the individual. Changes that are implemented in conjunction with the community (whether top-down or bottom-up) are likely to succeed.

4. **Urban planning and design are central tools for promoting lifestyle changes aimed at reduction**. Urban planning needs to identify how to exploit space – whether public or private, built-up or open – efficiently and effectively. We have learned that a densely populated environment provides a better lifestyle for the individual and the community if it has high-quality public spaces, in addition to the latter's contribution to sustainability and reduction. An urban environment that offers the individual decent,

convenient access to work, education, services, and leisure and recreation is a better environment. An open public space that allows various safe uses throughout the day is a better public space for the user. An urban community that uses its public spaces for group activities and formation of interrelationships is a better community, with happier members.

5. In order to influence people to reduce consumption in the city, they should be motivated towards **collaborative consumption** and a **transition from owning products to servicizing**. The transition to these patterns of consumption constitutes a reversal of the current economic agenda and contributes substantially to the promotion of a sustainable lifestyle. The city is an arena in which these courses of action can be implemented optimally because of the proximity and accessibility between people and the use of products or services. In Israel there are already more than a few examples of trends in these directions, but it is still necessary to find ways of encouraging and promoting alternative consumption patterns, transforming them from haphazard, scattered phenomena into a guiding policy for urban life.

6. **The development and extensive use of social media** are a key means of implementing policies of cooperation, strengthened communities, and reduced consumption. Local authorities can provide leverage for these media tools through the enablement, initiation, and management of such measures within urban communities.

In order to develop the above principles into policies of sustainable urban life in Israel, it is necessary to identify opportunities and barriers and propose instruments that promote the principles of urban sustainability.

Towards this end, Stage Two of the project will examine these principles in the context of practical experience in various Israeli cities ("urban laboratories"). Alongside the laboratories, Stage Two will include the development of a system of indicators unique to this project, which will provide indices for the evaluation of urban sustainability across all its aspects, as represented in this publication. The conclusions from Stage Two will help in the formulation of recommendations for the implementation of a policy directed towards a sustainable lifestyle in Israel's cities.

ANNEX: ABSTRACTS OF EXPERT OPINIONS

ENCOURAGING SUSTAINABLE URBAN TRANSPORT: INSIGHTS FROM BEHAVIORAL ECONOMICS   Dr. Erel Avineri

Urban planners are beginning to agree that physical changes to urban infrastructure (such as transportation systems) cannot by themselves bring urban sustainability and cannot effectively come to terms with the challenges posed by climate change, the loss of natural resources, particularly energy, and other environmental and social challenges, without changes to the characteristics of the lifestyles of residents and communities. Behavioral changes are needed in a wide range of functions and activities which encompass all sectors of society – residential, workplace, transportation, shopping and entertainment.

Behavioral and social change are not new to urban and environmental designers and policy makers, who have introduced measures to influence the sustainable behavior of a city's residents through, for example, raising awareness or changing attitudes towards sustainable behavior. Recent research in behavioral sciences, particularly in cognitive psychology and in the developing field of behavioral economics, brings insights concerning the drivers which affect human behavior. It is now clear that human behavior is not only affected by logical-rational processes of absorbing factual information; behavior is also influenced by contextual characteristics of the environment in which decisions are taken. People are not always fully aware of their existence and researchers in this field tend to regard such behaviors as 'automatic'. Defaults, for example, drive individual choice towards desired behavior. People are affected by emotive associations which influence choice and behavior and by 'priming' – activating representative memory before an action is taken. In general, when people are faced with making a choice between alternatives, they are influenced not only by what alternatives are available to them, (such as their physical attributes) but also by the way in which the alternatives are presented.

'Choice architecture' uses the contextual design of the environment in which decisions are made in order to change behavior, a principle developed by Thaler and Sunstein in their book 'Nudge' which has been further developed in policy making for a wide range of concrete issues, including energy saving, promotion of a healthy lifestyle and sustainable travel behavior. Design of city roads, for example can incorporate elements which affect the behavior of drivers, such as emotive association or priming, in the design of traffic calming measures to reduce travel speed and to increase consideration of other road users.

Attention is increasingly being paid to insights gained from the use of instruments for behavioral change to encourage sustainable behavior. The number of examples is still limited, but this paper presents examples from academic literature and from practical applications in cities around the world, together with insights from theoretical aspects of behavioral economics in the planning and design of the urban environment. Most examples come from the transport context, where this approach has gained much attention. The paper develops the theme of sustainable transport, proposing hard and soft measures to encourage sustainable transport, and identifies the opportunities and barriers in the Israeli context for its application.

SUSTAINABILITY IN THE WORKPLACE/EMPLOYMENT   The Macro Center

The paper refers to four main issues which are of major concern to the workplace in the context of urban sustainability: commuter travel, economic growth, sustainability in employment and sustainable employment in a green economy.

According to a review of available data on the Israeli economy, it is not currently on a path to achieving a sustainable economy. Some of its features are:

- Levels of advanced technologies and digital capability are relatively low, particularly in the ultra-orthodox and Arab sectors.
- Commuter levels are very high, with an increasing number of people working in a different town than their home location.
- The reduced length of the working week is primarily the result of new work union agreements. Concurrently gaps in working hours between the central and the peripheral areas of the country have been increasing, likely owing to differences in earning capacity.
- A green economy could generate a potential for new jobs in Israel.

The research identifies several points where change and intervention could enable employment to be more sustainable:

- Increasing internet access, particularly for the ultra-orthodox and Arab sectors, through reducing costs and by obtaining the cooperation of the leaders of the communities regarding the importance of being connected to the digital world.
- Making courses available to enable the weaker sectors of the population to be digitally competent in general and particularly for professional training.
- Providing support to the business sector to develop digital employment which could replace employment in non-digital sectors likely to disappear with further automation
- Encouraging close proximity of home and workplace through enabling mixed uses in the revitalization of older town centers.
- Discouraging the provision of a company car both to employers and employees.
- Encouraging commute to work by public transport, cycling and by foot.
- Transforming the employment market to reduce the length of the working week and raise the level of employment through agreements between the government, employers and workers unions. Employment should be more flexible to enable parents to look after their children.
- Encouraging green industry as both beneficial to the economy and as a provider of new employment opportunities.

Interventions designed to transform the employment market to be more sustainable as proposed above should be implemented through agreements between the government, the business sector and the unions; the imposition of change without attaining prior agreement is likely to be less effective.

The Role of Urban Communities in Promoting Sustainable Lifestyles

Dr. Shay ben Yosef

The aim of this review is to assist in the formulation of policy for the development of sustainable urban communities in Israel.

Communities exist in response to a human need to belong, to develop significant social connections and to influence their lifestyle. Urban communities in the 21st century are organized in diverse forms, depending on their characteristics and purposes. Communities are sometimes close-knit and sometimes amorphous, sometimes face to face and sometimes virtual. In this document, particular attention is paid to the geographic parameter of communities, which exist in an urban context, in a neighborhood or a section of a city. The purpose of the document is to review ways of generating joint interests within a geographical context, such as through leisure pursuits, joint identity (such as on the basis of religion) or on any other basis.

The document begins with a review of the characteristics of a community as a human need and the ways it emerges in an urban context. More detailed clarifications are then given concerning the reasons which drive governmental and municipal institutions to develop communities in the urban context. The reasons include raising the commitment of residents to support development and conservation of the city, involve citizens in

the planning and implementation of urban projects and in the promotion of urban activities, such as education, health, personal security etc., and finally, harnessing the community to promote sustainable wellbeing and the environment.

Sustainable urban communities are seen as the key to enabling future generations to live a good life. Promotion of such communities requires professional action, which has continuity and is integrated into governmental institutions, civic society, the business sector, and most of all into the communities themselves. The paper then proposes that the capability of urban communities to promote sustainability depends on the following foundations: the credibility of its leadership, effective use of material resources, the ability to innovate and organize, the development of social capital, connectivity and communication within the community and between the community and its surroundings and the development of a culture of sustainability.

The final part of the paper presents practical aspects of developing sustainable urban communities. It identifies the barriers and levers for generating change. The barriers include: adverse incentives, encouragement of the prevalent consumer culture, indifference to risks, privatization of public spaces and postponing impending issues. The levers for change include: transforming approaches from reliance on the system to recognition of human responsibility, moving from market and consumer norms to community relationships, open access codes, new digital media, and the role of communities in urban planning.

The paper continues with practical ways to promote sustainable urban communities, including 4 strategic options: Community Capacity building (CCB), policy planning and design, change through social action, and change through social reform (through coalitions of change agents) and proposes 6 action principles: self-reliance, community sense making, methods and approaches for community organizing , high quality connectivity and communication within and without the community, inclusiveness (joint space and places to change), and expanding the range of opportunities.

Finally, the document reviews key potential 'agents of change' for the promotion of sustainable urban communities.

DESIGN FOR URBAN SUSTAINABILITY   **Michal Eitan**

Experts on sustainability and on strategies for sustainability are seeking ways to maintain a high quality of life whilst reducing levels of consumption. In a world dominated by Western patterns of consumption, this is a complex and ambitious goal, not only in the Western countries with high levels of consumption but also in non-Western countries where consumption levels are rapidly rising. Major cuts in consumption levels are needed, according to experts in many disciplines, in order to protect and maintain planetary resources which are being threatened by disaster. Moreover, there is an acute need to find different forms of consumption for developing countries which have not yet reached the level of consumption which threatens global resources.

Designers have used various tools since the industrial revolution to encourage consumption, to generate demand for new products and to generate a desire for new products. Over the last few years, many design experts have started using their knowledge to reduce the consumption of products, aware that current trends cannot continue in a world where global resources are limited and are being used up at a rate which is not renewable and cannot be sustained over time. They have now turned attention to finding different ways of life and lifestyles both out of concern for the risk to environmental resources and out of concern for the social and cultural effects of the consumer society.

Ninety percent of the decisions concerning the sustainability of a product occur in the design stage – from the choice of materials, the production process and product distribution until the use of the product. Design expertise which previously enabled increasing demand for products is now being harnessed to seek solutions which

could change consumer behavior and lifestyles. Design expertise can assist not only in finding solutions to slow down the wheels of high consumption levels but also to create new processes of sustainable consumption.

The urban context offers significant opportunities for design tools and design methodology to create something different. The highly sought after world competition between cities to be recognized as the Design Capital of the world demonstrates the significant role design can play as a tool for social, economic and environmental change. Cape Town in South Africa is the most recent example of where design has been used to change behavior and promote urban sustainability.

The most relevant product design methodologies currently being applied to behavior change fall into 3 categories:
Enabling – creating situations which encourage the desired behavior by making it easy and accessible
Constraining – making undesirable behavior more difficult or less accessible
Motivating – positive encouragement to promote a desirable choice of behavior through provision of information, education and incentives and turning it into the normal behavioral choice. This category gives more control to the user than the former two categories.

This paper describes different methods and presents tools which could help in designing a more sustainable urban future in Israel.

Social Media and Sustainability   Nimrod Dwek

The paper presents ways by which social media could be used as an agent for social change, in order to promote sustainability among various communities. Social media relates to a wide range of network and mobile applications used for surfing the internet and its social context. The rapid development of technological capabilities, in this and other digital areas, has generated profound changes in the ways by which the public utilize, store and exchange information. It has also transformed the ways in which the public communicates with economic, cultural and governmental institutions. This paper reviews developments which are affecting the global community as a whole and focuses on characteristics of the Israeli market. It notes generational and digital gaps and identifies the Y generation as a major opportunity for social change, which could include the adoption of goals for sustainability. The paper presents the dilemmas which arise from social media as agents of change, including wide criticism and failures which can occur from dependence on the social media.

The paper presents several case studies of companies, campaigns and organizations that operate mainly in Israel.

Energy Saving   Dr. Yael Parag

The paper focuses on reducing carbon emissions and energy demand in the urban environment – by households, local businesses and local authorities – and increasing small and medium scale generation of renewable energy. In other words, promoting 'generation' of Negawatts and green Megawatts. The paper identifies the challenges and barriers to changing consumption and production patterns, as well as the opportunities for change, and proposes strategies to overcome the barriers.

Today, around 30% of the electricity generated in Israel is consumed by households and demand is rising with the increase in population and rising standards of living. Currently renewable sources provide only a small percent of the electricity supply. Reducing carbon emissions in Israel in order to mitigate dangerous climate change requires energy demand reduction because most of the energy consumed is generated from fossil fuels. Reducing energy demand is challenging and requires active and passive involvement of the public. Reducing

household consumption is difficult, particularly where governments are reluctant to intervene in the citizen's freedom of choice inside their own homes.

Most policy discussions concerning energy in general and electricity in particular focus on technology, costs of generation, capacity and energy consumption. Such parameters are indeed most relevant to electricity producers, the regulators and the technical administration for the energy sector but they are irrelevant to most consumers. From consumers' point of view, be they households, businesses or governments, kWh or oil barrels are non-tangible and often invisible, meaningless units. What matters is not the source of energy but, rather, the services provided by it. Examples of energy services include heat for cooking, cooling for refrigeration, illumination for houses, power for water pumping and power to allow mobility, accessibility and communication.

Energy efficiency is often seen as an easy goal to achieve through policy instruments. That is because efficient appliances provide the same level of service with less energy. In addition, efficient appliances already exist and economic instruments can be used to overcome barriers for their uptake through applying subsidies and incentives. However, research shows that part of the benefits gained through technological efficiency are lost by a concurrent increase in consumption of the same service or a different service so that the benefit gained in the end is considerably lower than the theoretical level anticipated. This effect is known as the 'rebound effect'. Indeed, the ownership and use of electrical appliances in households and elsewhere is increasing and so is the demand for electricity. Additional policies are therefore necessary to reduce demand and increase sustainable sources of energy, beyond technological improvements and economic measures for energy efficiency.

This paper suggests that two essential elements for successful change are agency and capacity, where 'agency' refers to the ability of actors to make their own free choices and their willingness to do so, and 'capacity' refers to the abilities of actors to perform the choices they made. When levels of both agency and capacity are high, a change is more likely to occur. Accordingly, barriers to change can be conceptually divided into two types: those related to low levels of agency and those related to low levels of capacity. Improving efficiency is often regarded by decision makers as easy to achieve since it is assumed that consumers have high levels of agency and are interested in increased efficiency, and that the main barrier related to capacity is economic. It is assumed that the way to overcome the mismatch between agency and capacity is through reducing the price paid by the consumers – and increasing levels of capacity. However, focusing solely on the economic aspect overlooks the fact that consumption is not only based on an economic evaluation of costs and benefits but is also influenced by habits, norms, values and the lack of preferable alternatives.

Literature on change tends to divide changes into those which are induced from the top-down (such as regulation) and those which evolved from the bottom-up (such as local citizen activity). This paper proposes a different approach to change which is generated at the middle (or meso) level and spreads from the middle-out. It focuses on the actors who can initiate and promote change which influences the top (decision makers), the bottom (consumers) and other middle agents. Middle agents are neither the regulators, nor the producers or consumers, but agents which influence and design the ways by which energy is consumed. Such agents can influence both the agency and the capacity of other actors in a way which is not available to governments or to consumers.

Governments frequently fail to identify middle agents and therefore miss the opportunities they can offer. Moreover, middle agents can be the reason for the barriers to and failure of policy instruments. Examples for middle agents include architects and other building and planning professionals. Planners and builders design and produce the spaces within which energy services are consumed (lighting and heating/cooling) and their choice of design and the use of building materials can significantly affect energy use as well as the ability of the of residents to generate renewable energy. As such, they influence the building users' levels of agency and capacity to save energy. Other middle agents influence levels of agency and capacity via their influence on aspects related to lifestyle and energy consumption norms. Due to their position relative to other actors, middle

agents are often in a better position to influence change compared with top actors. For example, they can propose socially acceptable platforms that affect energy use, such as platforms for collaborative consumption, alternative sources of energy which are not dependent on the electricity grid and forms of community organization for reduced energy use.

This paper focuses on various middle actors in the urban environment who could be agents of change by promoting 'generation' of Negawatts and 'green' Megawatts. Particular emphasis is given to the potential roles of municipalities and local authorities. Municipalities are more familiar with the social characteristics and acceptable norms of their population than governments and are better able to analyze aspects related to levels of agency and capacity, such as the geographic dispersion of consumers, demographic, economic, cultural and religious characteristics of their residents as well as recognizing possible constraints to action. Due to this familiarity with local characteristics, local authorities are also in a good position to match appropriate solutions and measures to each community or sector. As such, a municipality can influence in three directions in middle out manner: downstream - influence consumers within its boundaries; sideways - influence middle agents involved in planning and building, as well as other professions and other municipalities; and upstream - influence government, regulator and energy providers.

The Economic Context   The Macro Center

Economic outlooks concerning consumption and personal wellbeing tend to ignore several important structural characteristics. A high proportion of consumption, for example, is not apparent to the consumer, such as payment for infrastructure services and insurance. Moreover, the consumer does not necessarily have free choice in many cases since unsustainable patterns of consumption are determined by social norms, institutional constraints and business interests. Sustainability requires a different look at the economy.

A review of consumer characteristics of the Israeli economy shows that over the last 15 years there has been a relative decline in food consumption. Since it was also a period of insufficient food security, the decrease may have been in the consumption of non-essential foodstuffs. In terms of non-perishable goods, there was notably a significant reduction in the consumption of cigarettes and a significant rise in the purchase of electrical appliances and cars. The linkage between economic growth and electricity consumption is not as strong as in previous times, due to energy efficiency and the increased use of services. A notable trend has been the relocation of commerce to out of town locations.

Changes towards more sustainable consumption patterns are required at three levels: the level of the product, through replacement of products to ones which are more environmentally friendly, the level of revising consumption requirements, which may result in a reduction of unnecessary goods purchased and the level at which the consumer adopts a more sustainable lifestyle which would require a new look at the current structure of the economy.

New economic strategies for sustainability concern encouraging localization, reducing ecological footprints, strengthening communities such as through collective actions and building new social and economic cooperative frameworks.

Tools exist within the current Israeli economic structure which could promote a more sustainable urban lifestyle, such as taxation on certain unsustainable goods, however they are not currently oriented to achieving that goal. Moreover, the Israeli economy currently would only encourage sustainability if it would promote private gain. This paper proposes several interventions in the economy which could encourage a sustainable lifestyle:
*   Joint action by local authorities to encourage sustainable and smart consumption through agreements with local businesses and public transport services;

- Purchase tax on electrical appliances related to their level of energy efficiency, levies on excess water and electricity consumption beyond reasonable levels of use and subsidies on healthy and sustainable foodstuffs;
- Restrictions on private car use when air pollution levels rise above an acceptable threshold;
- Levies on business licenses for businesses which do not abide by environmental and sustainability requirements;
- Differential local rates to encourage compact and mixed land use and the promotion of local commercial centers;
- Local information centers for providing encouragement, advice and support for SME's and generating a network between them.

LOCAL ACTION TO PROMOTE SUSTAINABLE LIFESTYLES FROM INTERNATIONAL AND ISRAELI EXAMPLES Heschel Centre

The discourse on sustainability is relatively recent and has evolved over the last two decades. In its initial stages, the discourse was confined to green activists and academics but over the years it has spread to decision makers at all levels, the business sector and in particular to large corporate multi-national companies. Actions to promote sustainability however are lagging far behind the rate needed to reverse deterioration of the world's life support systems. Although there is common agreement at international level on the need for change and some change is being achieved through technological progress, international summits, commitments by countries and activities in the business sector to go beyond compliance with stricter regulations, actions are not managing to change currently unsustainable trends.

In contrast to the lack of effective action at the international and national levels, progress is being made on the ground by groups of civil society, non-governmental organizations and communities. Local actions are not only ahead of academic research but are ahead of top-down actions by countries or through the implementation of international agreements.

This paper presents and analyzes examples of radical and significant change from a number of areas of local sustainable activity in Israel and elsewhere around the world, in order to identify some common guiding principles for promoting local level sustainability. Understanding of such examples may contribute to formulating policies for promoting sustainability at a larger scale. The review focuses on projects which do not only propose innovative solutions to problems but in addition provide new channels of creative thought which could be harnessed in the 21st century to providing answers to questions of sustainability.

The review is based on a collection of best practice, from experience around the world which has been identified as effective for the promotion of local sustainability and from the experience of ongoing activity in Israel. The compilation was prepared by the Centre for Local Sustainability at the Heschel Centre for a report on successful examples of social initiatives which could provide a basis for learning for the future.

A wide view of sustainability determined the choice of examples included in this paper, based on fundamental values of sustainability and expressed through a number of parameters:
- Rehabilitation of natural and social 'commons'
- Reduction of economic gaps and eradication of poverty
- Promotion of wellbeing
- Self-fulfilment and the promotion of the public good
- Active citizenship
- Inclusiveness
- Rediscovering the interconnectedness of people with nature and each other

- Enhancement of natural and cultural diversity
- Transparency

The examples selected fulfill at least three of the parameters above of a wide definition of sustainability. Selected projects also demonstrated at least four of a further set of action principles which were identified during the review of best practice, including: a new conceptual framework, an innovative cultural model, upstream approaches, community strengthening and a radical improvement of the efficient use of resources.

In conclusion, this paper seeks to consider what are the values and principles for local sustainability initiatives which promote a wide concept of sustainability. It is a first attempt at identifying local initiatives and it is hoped that the compilation of examples will contribute to mutual learning between leading agents of change and policy makers, to enlarge the scope of activity and to generate wide cultural change essential for the transition to sustainability.

TRANSITION INITIATIVES

Yoav Egozi

This paper describes the Transition Initiative and presents the importance of community activity on sustainability at the grass roots level. It presents a vision of urban sustainability from a bottom-up viewpoint as seen by citizens and a model of local organization for promoting sustainability. It needs support from institutional structures but differs from the more commonly accepted top-down approach.

The Transition Initiative, sometimes called Transition Towns, refers to citizens who organize local community activities to cope with environmental or non-environmental crises and changes. It started in 2006 and spread rapidly to over 1000 communities around the world, to which Israel recently joined, connected in a common network for cooperation and the exchange of information.

Transition refers to the process of change or transformation. The context for the process is the search for a better future with a reduction in dependence on fossil fuels and in the damage to human wellbeing and natural resources. It refers to a gradual process as opposed to a sudden change following a crisis.

It is a dynamic model which has developed through the experiences gathered from transition communities around the world.

Principles and concepts of transition initiatives:

Local - preference and support for products, enterprises and services generated in the local vicinity or in its close surroundings

Community resilience - strengthening the networks, resources and the capabilities in the community for adaptation in response to a crisis. Transition may include re-thinking about the systems on which a community depends and on finding local solutions to strengthen and improve its independent coping capacity.

Community scale – Transition initiatives are based on close geographic communities, and are suited more to a neighborhood level than to a whole town.

Positive future vision – Transition initiatives start out from a vision for a better future for man and the environment in an adaptive context. Activists seek opportunities for creating a better future, combining hope with action to generate change in a pro-active way.

Bottom-up partnership and engagement – Transition initiatives are generated by active citizens taking responsibility for their own lives. They encourage partnerships with a wide range of stakeholders to create and promote joint activities.

This paper presents the theoretical framework for a bottom-up approach and the main principles for its successful implementation. It also recommends how transition initiatives could be used for promoting urban sustainability.

INDICATORS

Dr. Meidad Kisinger
Measuring urban sustainability – a review of approaches and instruments

The possibility of measuring and evaluating the level of sustainability is an important element in formulating steps to promote urban sustainability. The type of measurement has to take into account a number of aspects of urban sustainability, to measure the implications of urban activities at various scales, to evaluate the roles of various 'actors' within and outside the urban context and to be of assistance in evaluating steps taken to promote urban sustainability.

The document is composed of 3 sections:
The first section is a literature review covering the measurement of urban sustainability and various aspects of how to measure it, using examples of a wide variety of tools being developed around the world in recent years. The review presents experience in measuring sustainability in relation to the 3 pillars generally regarded as the basis for sustainability – environmental, social and economic – and advanced methods of looking at the bio-physical aspect of urban sustainability.
The second section reviews 25 sets of indicators and indexes for sustainability which have been used around the world. The review gathers together experience from cities and local organizations, systems developed through academic research and systems developed for national and international institutions. The review briefly presents each system and focuses on the different parameters used in each system to define sustainability.
The third section, in line with the emphasis of the project as a whole, focuses on behavioral aspects of urban sustainability as found in the sets of indicators and indexes reviewed.

A combination of the 3 sections of the document, together with overall insights derived from the review of approaches and instruments, provides the project team with the ability to select indicators relevant to the measurement of urban sustainability and of the kind of behavioral change which could promote it.

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