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Managed Municipal Sustainability

Toward the Development of a Performance Indicator System

Nahum Ben-Elia

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The Hay Elyachar House
20 Radak St. 92186 Jerusalem

<http://www.jiis.org>
<http://www.jiis.org.il>
E-mail: machon@jiis.org.il

FOREWORD

In Israel, as in most developed countries, public awareness of sustainable development challenges is on the rise. Guiding principles based on this approach are gradually making their way into both government systems and civil consciousness. “External” phenomena, such as global warming and climate change, dramatically demonstrate the public cost of unwise resource management and the inherent risk of potentially irreversible conditions. But similar awareness is also developing with regard to more “immediate” phenomena, such as accelerated urbanization which threatens non-renewable natural resources, economic development which increases environmental and health risks, planning decisions which disregard the needs of future generations, and more. This is further augmented by the growing recognition of the impacts of these trends on the quality of life of the individual and on the well-being of society, today and in the future.

It is not always easy to delineate the geographic boundaries of sustainable development but neither is it arbitrary to recognize a local dimension. Local sustainability is a dynamic, composite result of decisions and activities taken by different social actors – residents, firms and institutions. Within this context, local authorities, despite the artificial nature of municipal boundaries, play a critical role. Local sustainability is, to a large extent, a public outcome (intended or collateral) of decisions taken by the local authority and the activities it implements (or refrains from implementing). Agenda 21 – the seminal document adopted at the Rio Conference in 1992 – recognized the role of local government as a critical link in the promotion of a sustainable development policy (paragraph 28 of Agenda 21)¹. This, by virtue of its power to promote and improve, as elected government and as a functional authority, the physical, economic and social well-being of its area, and to act as a social catalyst of cognitive and behavioral changes.

In the context of Israel, the shaping power of local authorities is not in doubt. Over the past three decades, institutional, economic and ideological changes have positioned local government at the center of public action. The parallel retrenchment of central government’s involvement in the promotion of local well-

¹ See United Nations (1992. Agenda 2. Rio de Janeiro
<http://www.un.org/esa/sustdev/documents/agenda21/english/agenda21toc.htm>

being and the concomitant strengthening of the public and professional status of local government have resulted in an accelerated process of decentralization. This trend has broadened the traditional fields of activity under the responsibility of local authorities and increased their level of intervention. Local government nowadays is directly responsible for a wide range of services, covering social services (such as education, welfare and health), the development, operation and maintenance of infrastructure systems (sewage, water, roads, facilities), and complementary municipal services (such as sanitation, emergency services, and more). By virtue of its statutory powers in land-use planning and building, the local authority plays a central role in the strategic development of the locality, its physical identity, the purpose and extent of land uses, the spatial distribution of infrastructure systems and public facilities, and their concomitant impact on natural resources.

In contrast to the widespread embracement abroad of binding strategies, such as “Local Agendas 21,” local government in Israel has not yet adopted a comprehensive policy on the promotion and implementation of local sustainability policy.² At the same time, signs of a turnabout echoing this international trend are increasingly manifest. Thus, at the initiation of and with the encouragement of the environmental committee of the Israel Center of Regional Councils, an expanding number of non-urban local authorities are actively involved in the formulation of strategic plans for sustainable development and the adoption of more advanced tools for environmental management. Similar, albeit less comprehensive, developments are taking place in Israel’s municipalities, especially the large ones. Concrete expressions of this growing awareness include the readiness (even if at times limited and hesitant and at times forced) to protect environmentally unique areas, such as sand dunes (Ashdod, Holon) or micro-regions with unique species (Ness Ziona, Netanya, Jerusalem), and the growing municipal interest in the development of public spaces for public well-being, such as municipal parks. Important outcomes of this general trend are municipal cooperative efforts to advance more ambitious projects, such as the joint development of metropolitan parks or the common commitment by Israel’s 15 major cities (known as the

² According to a survey carried out by ICLEI in 2002, over 5,000 local authorities in Europe alone, reported that they operatively adopted (fully or partially) Agenda 21. See ICLEI . *Local Agenda 21 Mandate*. <http://www.iclei-europe.org/index.php?id=616>.

Forum 15) to reduce their greenhouse gas emissions under the Cities for Climate Protection program (ICLEI).³

Municipal action matters. The causal link between local sustainability and municipal performance is hardly abstract. Municipal action impacts on local sustainability by means of decisions and activities under the control of the local authority – whether directed at sustainability or not. These decisions and actions are embedded in the overall municipal set of competences and activities. Because of their public nature, they are subject to parallel requirements for institutional transparency and accountability. Local sustainability needs to be publicly assessed in the same manner as any other field of municipal action.

In recent years, an important tool was developed for local authorities – a performance indicator system for local government.⁴ This tool was designed to provide, by means of concise data (indicators), a clear, objective and comprehensive picture of local management, in terms of resources, outputs and outcomes. However, this preliminary effort disregarded the issue of sustainable development. The present study aims to overcome this limitation in the context of a wider conceptualization of the role and ends of local government. It presents the first phase of the development of a parallel system of performance indicators, directly focused on the issue of municipal sustainability (see below).

The study is divided into four main chapters: the first chapter presents the conceptual system which guides the study, centered on the distinction between “local sustainability” and “municipal sustainability.” The second chapter presents a model of “managed municipal sustainability.” The third chapter presents the areas and subjects covered by the present scheme and the proposed indicators. The final chapter reviews the feasibility of implementing this system in light of operational considerations: the availability and quality of the required data, the processing of the data, and the modes of presentation and dissemination of the results (the indicators). The following presents a short summary of the main features of the different chapters.

³ See the Convention of the Forum 15 for Reducing Air Pollution and Climate Protection http://www.forum15.org.il/article_page.asp?id=82&scid=80

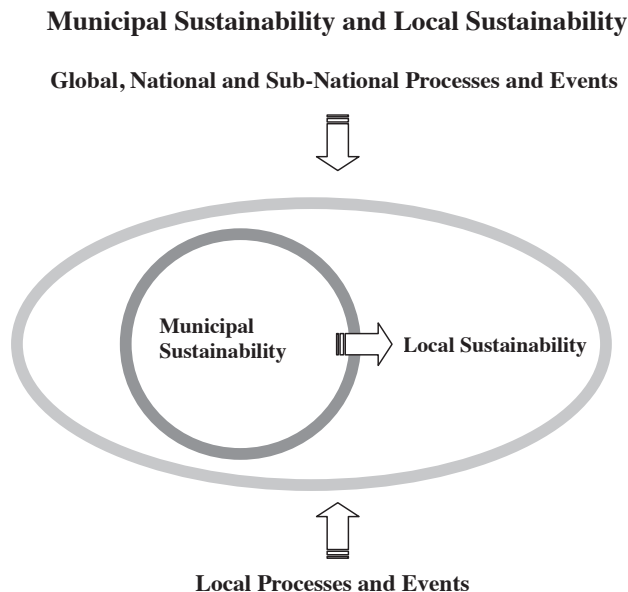
⁴ See Ministry of the Interior (2006) System of Performance Indicators in Local Government. Jerusalem (in Hebrew)

MUNICIPAL SUSTAINABILITY

The first chapter presents and explains a concept which is central to the approach and methodology developed in this study, namely, municipal sustainability. Municipal sustainability is presented here as a distinct concept, one that should not be confused with local sustainability. Ostensibly, there is much similarity between the two concepts in terms of their content and their geographical base (borders of the locality or municipality) and, therefore, it may seem unnecessary to distinguish between them. However, such a distinction is both legitimate and necessary.

Distinguishing Between Municipal and Local Sustainability

Local sustainability is not a given state, but rather a dynamic product of decisions and actions taken by different social actors – individuals, firms and institutions, some local and some supra-local – regional, national and at times global. Such decisions and actions contribute to the strengthening or to the weakening of local sustainability. While municipal sustainability is a partial expression of local sustainability, it reflects the unique contribution of local government.



Although the distinction between municipal sustainability and local sustainability might seem clear, it is still exposed to a common semantic trap: the indiscriminate use of the concepts “municipal” and “local” as synonyms. Because of this linguistic trap, no due distinction is made between sustainability *in* local authorities – i.e., local sustainability within a given municipal jurisdiction, as an outcome of multiple social actors in that area, and local sustainability *by* local authorities – i.e., local sustainability as a result of municipal activities. The undifferentiated use of the adjective “municipal” in the context of local sustainability is widespread. An explanatory statement on the issue of local sustainability by Canadian local authorities illustrates this phenomenon:

“When we talk about *sustainable municipalities*, we refer to *communities* that embrace the concepts of sustainability. They strive to be economically vibrant and fiscally sound. The health and well being of the environment and the citizens is ensured.”⁵ (*emphasis mine*).

A perusal of policy initiatives, research reports and methodological proposals on the subject of local sustainability in different national and international contexts, including Israel, underlines the semantic interchangeability of the municipal and local terms “municipal” and “communal.”⁶

The need for a conceptual distinction is not just a matter of semantic clarity; as already argued, it conveys public and pragmatic implications. The significant influence of local government on local sustainability implies a *causal* link between municipal decisions and action and local sustainability. The concept of *managed municipal sustainability* encapsulates this phenomenon. As in any other managed process, the management of local sustainability should be the subject of monitoring and performance assessment. In this context, the methodological framework outlined in this report aims to allow for a systemic assessment of municipal performance by means of dedicated indicators.

⁵ Sustainability and Municipalities. Union of Nova Scotia Municipalities' Sustainability Office. <http://www.unsm.ca/sustainability/contentmanager/default.asp?itemID=18&Title=SUSTAINABILITY>

⁶ For a recent Israeli example, see Ettinger et al (2008), Indicators for Sustainability in Local Authorities – A Review of the Literature. Environmental Policy Center, Jerusalem Institute for Israel Studies. For an international illustration, see the comprehensive research conducted within the framework of the PASTILLE project: PASTILLE (2002). Indicators into Action: Local Sustainability Indicators in their Context. Final Report. European Union FP5.

Managed Municipal Sustainability

Managed municipal sustainability is expressed in two main ways:

- As purposeful activity, reflecting the local authority's policy on local sustainability – including goals and resources.
- As collateral impacts of routine decision-making and practice which, unintendedly, contribute to or detract from local sustainability without consciously relating to it.

The potential of Israel's local authorities to impact on local sustainability is significant. This potential stems from the status of the local authority:

- As local government
- As a statutory authority
- As an administrative authority
- As a service-oriented authority

As local government, the local authority bears responsibility for the spatial area incorporated in its jurisdictional borders. As an elected representative body, the local authority is responsible for shaping a local vision: the character of the locality and the desirable level of physical and social well-being. This vision is derived from both current needs and expectations and from the (possible) recognition of forecasted developments and future needs. Sustainability as a conscious municipal concern is expressed in the overall policy of the local authority and its basic values, both in terms of strategic planning and in terms of its daily performance of powers and competences. This awareness, and its operative byproducts, may be directed, in a more restricted manner, to the municipality itself as an organization which consumes non-renewable resources.

As a statutory authority, local government is responsible for land-use planning, as an integral part of the country's planning system. By means of its planning competences, the local authority has a special stance in determining land uses and development – the spatial distribution and densities of built-areas, the allocation and degree of conservation of open space, the protection of natural assets and biodiversity, etc. In this context, the local authority has a double function: on the one hand, it is responsible for the land-use planning processes (under the Planning

and Building Law), whether directly (through the local planning committee) or by delegation of powers (through inter-municipal planning bodies – “regional planning committees”). On the other hand, the local authority is an interested party in local planning processes. Based on its view of the local interest, it promotes different plans, either initiated by the authority or by non-municipal stakeholders; as a political body, it has the power to facilitate, in less transparent form, the advancement of plans serving particular interests.

A third aspect of the statutory-operational status of the local authority relates to its position as a licensing and inspection authority on building and business issues. In this realm, its authorities and obligations have a significant impact on the actual use of land and other resources in accordance with approved designations and legal provisions.

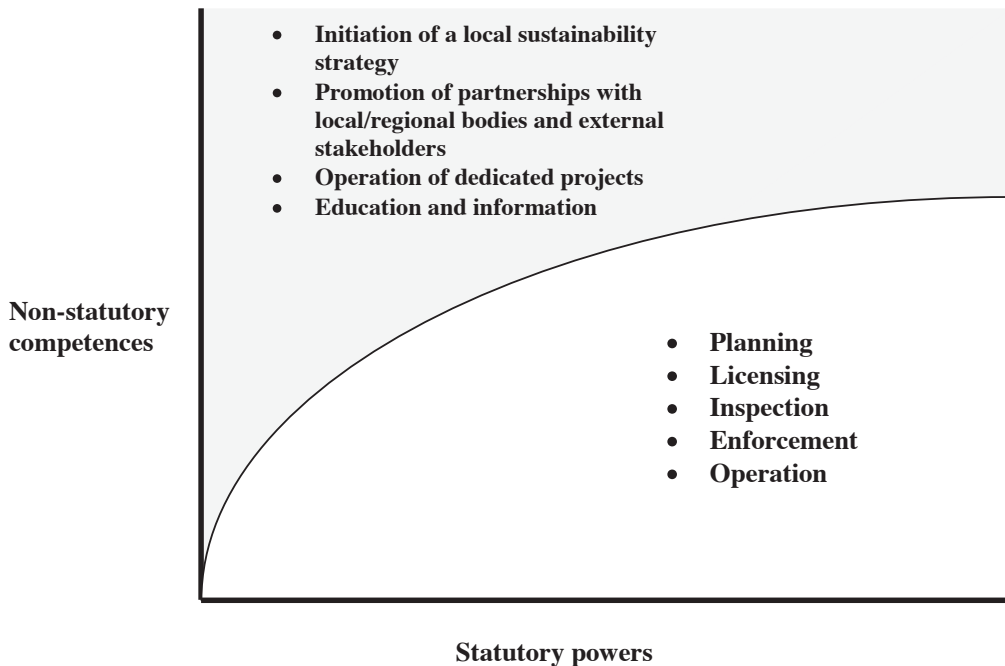
The local authority also constitutes a central framework for the provision of local services. These services are divided into two main categories: services under the direct authority of the local authority (“local services”) and services provided in cooperation with the state (“state services”). From an organizational and operative point of view, there are different options for the provision of services by a local authority:

- By means of its own mechanisms
- By means of service contractors on its behalf
- By means of delegated powers within municipal frameworks (municipal corporations) and inter-municipal frameworks (joint regional units, associations of towns or functional authorities such as drainage or river authorities).

These patterns do not change the public status and public responsibility of the local authority, even if different functions are delegated for the purpose of implementation to other bodies. By means of its tools and services, the local authority has direct impact on the wellbeing of the local population (in terms of opportunities and quality of life) and on the local economy (in a more limited manner).

Graphically, the impact of the local authority may be presented in the following form:

Range of Impacts of the Local Authority



The lower section of the figure depicts the statutory powers which may be used by a local authority to support local sustainability. The curved line delineates the border of the local authority's statutory power under existing law. The top (colored) section depicts the voluntary involvement of the local authority, in terms of initiatives and activities which are not based on legal requirements. These may include formulation of a local sustainability strategy, development of local partnerships within the local community around shared goals and means of action, development of partnerships with external stakeholders – inter-organizational and inter-sectorial partnerships, initiation and support of projects and plans targeted at sustainability, and integration of a sustainability routine within local organizations ('mainstreaming'). Since local authorities in Israel are not presently obliged to adopt a formal policy for local sustainability, a "sustainable local authority" – i.e., a local authority that embraces local sustainability and manages itself accordingly – must actively maximize the full potential of its statutory powers and competences, as well as its public standing as local government.

MANAGED MUNICIPAL SUSTAINABILITY: THE INDICATORS

Municipal sustainability is conceptualized here as a composite of three different, but interrelated aspects of local sustainability: environmental sustainability, social sustainability and economic sustainability. Within this context, “environmental sustainability” expresses the local authority’s rational use of natural resources, both as an expression of guiding values (e.g., concern for the future of the natural environment) and the careful local management of non-renewable resources, based on conservation, innovation and substitution. Conversely, rational municipal management of natural resources implies the ability of the local authority to prevent negative impacts, such as over-utilization, depletion, pollution, etc. “Social sustainability” expresses the ability of the local authority to advance personal development and social well-being without detracting from the needs and opportunities of future generations. It assumes the existence of conditions which enable the individual and the collective to develop their capabilities, based on an effective investment of resources, geared towards equitable and non-exclusive access to education and knowledge, health services, suitable housing and a physical and social environment which supports quality of life. Such resources are not only material but also social and civic. They are expressed in the organizational capacity of individuals, groups and communities to play an active role in decision making processes and their ability to shape issues of public interest. These are all in the context of a local governance system characterized by public transparency.

For the purpose of this study, key sustainability areas and subordinate measurable issues were mapped and categorized. The selected areas and issues were required to comply with two main criteria:

- Relative relevance: the subject of performance assessment is central to local sustainability;
- Municipal management: the subject is under the management responsibility of the local authority, either by means of formal powers and competences or by virtue of its public responsibility to local well-being.

Based on these criteria, environmental sustainability is expressed through eight main fields or areas and 32 correlated issues; social sustainability is defined by

seven key areas and 38 correlated subjects; while economic sustainability is defined by two main areas and eight subjects

The table below presents a summary of the proposed indicators in all three categories.

Environmental Sustainability Indicators

	Field	Subject	Indicator
1	Land Use - Planning & Building		
1.1		High-density built-up land cover (planned)	Percent of land cover planned for high-density building out of the total area of the local authority designated for building
1.2		High-density built-up land cover (actual)	Percent of built space in practice (high-density building) out of the total area of the local authority
1.3		Sprawl of built-up land cover	Number of building clusters in the total area of the local authority
1.4		Quality of open space	Percent of disturbed open space out of the total open space
1.5		Planned availability of open space	Percent of space planned as dedicated open space out of the total area of the local authority
1.6		Open spaces as natural assets	Total of open space designated to ensure protection of natural assets and local biodiversity
1.7		Land-use efficiency	Density increase in built space due to urban renewal

	Field	Subject	Indicator
2.0	Water		
2.1		Water recovery	Percent of treated effluents capable of reuse as a freshwater substitute
2.2		Use of recovered water	Extent of reclaimed treated effluent, including in irrigation, nature and recreation
2.3		Water savings	Percent of water loss in the local supply network
2.4		Water savings (municipal consumption)	Percent of water savings (municipal consumption)
3.0	Air Quality		
3.1		Reduction of air pollution from stationary pollution sources	Percent of exceedances of existing emission standards from stationary emission sources
3.2		Reduction of air pollution from mobile emission sources (vehicles)	Percent of exceedances from existing standards of vehicular emissions
4.0	Waste		
4.1		Reduction of waste (domestic, business and institutional waste)	Existence of a formal municipal policy
4.2		Extent of recycling	Percent of waste transferred for recycling
4.3		Reduction of environmental nuisances (construction and demolition waste)	Municipal formal requirements for the treatment of construction and demolition waste and prevention of nuisances

	Field	Subject	Indicator
5.0	Sustainable Building		
5.1		Green building – residential buildings	Number of buildings constructed/renovated according to green building principles
5.2		Green building – public buildings, facilities and local authority infrastructures	Percent of public buildings, facilities and municipal infrastructures constructed/renovated according to green building principles
6.0	Sustainable Transport		
6.1		Municipal policy on sustainable transport	Existence of a formal municipal policy
6.2		Non-motorized transport – plans for the reduction of vehicle-kilometers traveled	Percent of land-use plans incorporating the principle of vehicle- kilometers traveled reduction
6.3		Non-motorized transport – dedicated lanes	Length of dedicated lanes for pedestrians or bikers
7.0	Energy		
7.1		Increased energy efficiency of municipal buildings, facilities and infrastructure	Investment to increase energy efficiency of municipal buildings, facilities and infrastructure
7.2		Savings due to increased energy efficiency of municipal buildings, facilities and infrastructure	Ongoing financial savings derived from increased energy efficiency of municipal buildings, facilities and infrastructure
8.0	Management of Environmental Sustainability		
8.1		Municipal policy	Existence of a formal municipal policy

	Field	Subject	Indicator
8.2		Incorporation of environmental sustainability policy in the physical planning, management and operation of infrastructure services	Existence of standard operational procedures for the implementation of an environmental sustainability policy
8.3		Municipal management according to environmental standards	ISO 140001 based municipal management
8.4		Municipal procurement policy	Existence of standard operational procedures for the implementation a green procurement policy

Social Sustainability Indicators

	Field	Subject	Indicator
9.0	Municipal Strength		
9.1		Municipal financial resources	Income of the local authority per 1,000 residents
9.2		Municipal locally-generated financial resources	Percent of locally-generated income out of the total income of the local authority
9.3		Municipal financial constraints	Cumulative deficit in the ordinary budget per 1,000 residents
10.0	Public Conduct		
10.1		Public transparency on policy issues	Public transparency – right of the public to information on municipal policy
10.2		Public transparency on planning issues	Public transparency – right of the public to planning information
10.3		Public transparency on financial and operational issues	Public transparency – right of the public to administrative-financial information
10.4		Impact review of policy decisions	Public equity – procedure for reviewing the social impacts of policy decisions
10.5		Impact review of planning decisions	Public equity – procedure for reviewing the social impacts of planning decisions
10.6		Public participation – municipal policy formulation	Public participation in municipal policy formulation or in strategic planning decisions
10.7		Public participation – implementation of municipal policy	Public participation – number of services and plans prepared with the active participation of community organizations

	Field	Subject	Indicator
11.0	Access to Services and Quality of Life		
11.1		Local services – total expenditures	Total expenditures for local services according to population/service ratio
11.2		Local services – equity in service provision	Area-based gaps in municipal expenditures for local services
11.3		Open public space – availability of usable space	Open public space – usable park space per 1,000 residents
11.4		Open public space – equity in service provision	Area-based gaps in the availability of usable park space
11.5		Access and mobility – pedestrian-oriented streets	Percent of pedestrian-oriented streets and walkways
11.6		Access and mobility – assurance of access to the disabled	Extent of access improvements to buildings and roads for disabled persons
11.7		Traffic and accessibility – increasing the efficiency of public transport	Percent of main arteries with dedicated public transportation lanes
11.8		Traffic and accessibility – improvement of public transport service	Increase in the frequency of public transport lines
11.9		Social and community services – extent of total expenditure	Total expenditure per 1,000 residents
11.10		Social and community services – extent of expenditure for education	Total expenditure per 1,000 students

	Field	Subject	Indicator
11.11		Social and community services – extent of expenditure for student-focused educational services	Annual expenditure for student-focused educational programs per 1,000 students
11.12		Social and community services – equity in the provision of educational services (total inputs)	Area-based gaps in expenditure for preschool and primary school education (total expenditure per 1,000 students)
11.13		Social and community services – equity in the provision of student-focused educational services	Area-based gaps in expenditure for preschool and primary level education (annual expenditure for student-focused educational programs per 1,000 students)
11.14		Social and community services – sustainability curriculums in local schools	Percent of classes participating in educational programs on sustainability
11.15		Social and community services – sustainable schools	Percent of local schools operating according to sustainability principles
11.16		Social and community services – unequal opportunities	Percent of students dropping out of 9 th -12 th grade
11.17		Social and community services – educational achievements	Percent of those qualified for a matriculation certificate out of total 12 th graders
11.18		Social and community services – promotion of social capital	Support of civil organizations – extent of financial support for grass-root civil organizations per 1,000 residents
12.0	Personal Safety		
12.1		Violence and crime in the public domain	Intensity of the municipal effort to minimize violence and crime in the public domain

	Field	Subject	Indicator
12.2		Safety in the public domain	Intensity of the municipal effort to minimize road accidents
12.3		Transportation Safety – Investment Equity	Gaps in municipal expenditures for implementing plans to minimize road accidents
13.0	Public Health – Environmental Health Risks		
13.1		Air quality	Number of air monitoring tests per year
13.2		Air quality – public transparency	Percent of direct efforts to inform populations at risk in relation to the number of exceedances
13.3		Drinking water quality	Quality of drinking water supplied by the municipality
13.4		Drinking water quality – public transparency	Number and extent of disclosure of water quality reports to residents
14.0	Housing		
14.1		Socially inclusive housing	Percent of small residential units out of the total number of units planned or under construction
14.2		Increase in the inventory of social housing or its improvement	Percent of residential units for low income residents out of the total number of units planned or under construction
15.0	Local Identity and Heritage		
15.1		Municipal policy on identity and local heritage	Existence of a formal municipal policy
15.2		Identity and local heritage	Percent of protected historical sites or buildings

Economic Sustainability Indicators

	Field	Subject	Indicator
16.0	Local Economic Base		
16.1		Promotion of the local economy	Municipal policy for promoting the local economy
16.2		Total businesses creation	Number of new businesses due to the municipal promotion policy
16.3		Local businesses creation	Percent of businesses under local ownership out of the total of new businesses established due to the municipal promotion policy
16.4		Job creation	Number of local employees from new businesses established due to the municipal promotion policy
16.5		Job creation – educational requirements	Number of positions requiring higher education added to residents of the city/region due to the new businesses
16.6		Job creation – gender opportunities	Number of local women employees from new businesses established due to the municipal promotion policy
16.7		Promotion of local businesses by means of municipal procurement	Percent of municipal procurement from local businesses
17.0	Environmental Sustainability of the Local Economy		
17.1		Environment friendly local economy	Number of initiatives to promote environmentally-friendly economic activity

SUMMARY AND POLICY RECOMMENDATIONS

Municipal sustainability is a concrete phenomenon – a direct outcome of the local authority’s policies and actions. Municipal sustainability is in essence *managed sustainability*, whether as a result of intentional policy or as a passive byproduct of the municipal routines. As any other managerial activity, municipal sustainability is, therefore, both measurable and publicly accountable. From a “production” perspective, municipal sustainability entails the allocation of resources (physical, financial and organizational) and their conversion into concrete events (i.e., services, programs, projects) aimed to serve public needs. The allocation of resources, the nature of the adopted means and the public value of the resultant outcomes are legitimate subjects of monitoring, assessment and public evaluation. The quest for the measurement of managed local sustainability reflects a public need. In recent years we have been witness to both a growing awareness towards sustainable development and to the coming of age of an informed and assertive public who considers accountability a civil right and an institutional obligation. Accordingly, there is a need for robust and efficient instruments. This preliminary study outlines a conceptual and methodological information system for the measurement of managed local sustainability based on municipal performance indicators.

Context and “Language”

The approach herein presented is knowingly and specifically adapted to the municipal context of Israel. This approach focuses on aspects of sustainability which are directly linked (i.e., causally connected) to the local authority’s powers, competences and actions. Despite a greater awareness, local sustainability values do not guide the performance of Israeli local authorities. To a large extent, their *modus operandi* continues to be based on traditional municipal routines, colored by the unique values of each functional field. The language of sustainability, with its concepts and conventions, is not the dominant language of the local authority. As a result of these constraints, it is important to develop indicators which are directly linked to the fields of activity of decision makers and professionals in the local authority and to their organizational language, even if some of the subjects

included – or emphases given – are not common. Based on these pragmatic considerations, we have opted for a conceptual and operational framework that fits itself into the familiar world of content of local authorities. It explicitly poses key questions on the issue of local sustainability but within a context and a terminology that is accessible to local actors.

Content

The proposed indicators reflect the meeting points between subjects which are at the core of sustainability and municipal practice. In most cases, these meeting points denote high and even full congruence. Thus, for example, the wise management of land as a non-renewable resource – one of the normative assumptions of sustainability – is in functional congruence with municipal powers and competences, such as land-use planning, licensing and enforcement. Nonetheless, the proposed system also advances indicators which expand the boundaries of present conceptions and practices within the local authority (e.g., the inclusion of subjects such as green building and pedestrian-oriented streets or the promotion of an environment-friendly local economy). The inclusion of these subjects reflects a conscious decision to challenge present municipal policies and management and induce, by means of until now “irrelevant” indicators, the beginnings of a wider conceptualization of local needs and municipal responsibility.

Indicator Characteristics

The proposed indicators, without exception, are information units based on institutional data. The system outlined here does not include subjective indicators. We are fully aware that municipal sustainability, as a partial expression of local sustainability, cannot be fully expressed without taking account of the position of the residents and their subjective assessments. Municipal investments in the area of increased personal safety, for example, are an appropriate public input, but there may not necessarily be a correlation between such investments and the feelings of safety experienced by the individual or the community.

The declared preference for performance indicators based on institutional data takes into account methodological, logistical and economic considerations. Inclusion of a subjective dimension would require the development of an appropriate methodology, which must stand the test of institutional feasibility and funding possibilities. Unlike the collection of data from existing institutional databases, the planning and implementation of public opinion surveys are costly options. Considering the difficult financial condition of Israel's local authorities, it would be unrealistic to advance such an undertaking.

At this stage, the proposed system is based on basic or *first generation* indicators which provide a baseline for a later measurement of change (progress/retreat) based on new (*second generation*) indicators. For example, "the percent of built space out of the total municipal area" is an indicator which provides a static picture of the extent of the built space; a repeat measurement of this indicator will enable an assessment of the rate of growth of the built space over time, by means of a new indicator, such as "percent of growth of the built space in comparison to the preceding year." Another group of *second generation* indicators are inter-municipal comparison indicators whose production is dependent on the existence of basic indicators (*first generation*). At a later stage, it will be possible to review a convergence towards complex indicators (*index indicators*), which allow for the encapsulation of composite phenomena by means of one datum (e.g., the "Consumer Price Index").

A Preliminary, Flexible Framework

The indicator system herein presented is a preliminary framework expected to undergo future changes. These include:

- Reduction or addition of indicators within the framework of the defined fields.
- Addition of indicators due to changes or to a broadening of the examined subjects.
- Change in the definition of the proposed indicators.

The challenge is to expose the proposed framework to validity questioning based on conceptual and operational definitions, methodological considerations (e.g., availability and quality of the required data) and logistical implications of the proposed indicators in terms of organizational costs and benefits.

Policy Recommendations

There is a real chance to transform the methodological construct herein proposed into a tangible and practical tool for the management and control of municipal sustainability. Undoubtedly, it will be subject to further methodological clarification and to the complementary development of alternative or complementary indicators. International experience indicates that the incorporation of such systems is first and foremost dependent on the existence of a committed and mandatory government policy. In this spirit, it would only be right for the Ministry of Environmental Protection to adopt a consistent policy on the subject. At this point in time, such a policy must be based on four guiding principles:

- In light of the causal relationship between local authorities and local sustainability, the Ministry of Environmental Protection should formalize a uniform approach towards managed sustainability and support the effort to develop suitable tools.
- For this purpose, the Ministry should complete the methodological development of the performance indicator system outlined here, with the active participation of interested local authorities.
- In order to minimize the logistic burden which the proposed approach might impose on the local authority, the Ministry, with the assistance of the Central Bureau of Statistics and in cooperation with other government ministries, should explore the possible development of a common processing system.
- In a gradual process of up to five years, public reporting of municipal sustainability indicators should be institutionalized. This will allow for public assessment of local trends as well as comparison of performance on issues of public interest.

Next Steps

To complete the methodological development of the proposed framework and to test its practical feasibility at the local level, a pilot project in a number of local authorities is proposed. The pilot project will allow:

- The final definition of the selected indicators, the assessment of their validity and suitability given the variety of municipal contexts, and the determination of their calculation formulas.
- The assessment of the quality of available data at the local authority level and at the central level, and the possible ways for developing a more reliable and comprehensive database.
- The consideration of the position of different stakeholders vis à vis the proposed process, from a professional and organizational aspect.