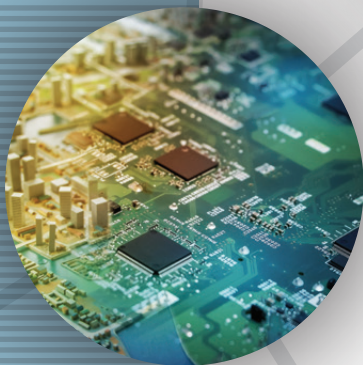
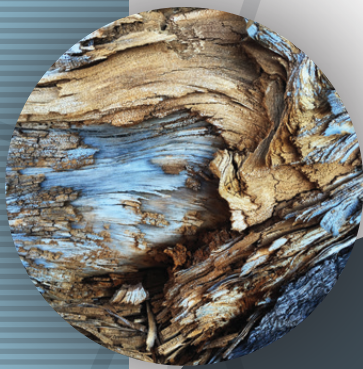


# Sustainable Well-being in Israel

Report of the Expert  
Committee of The Israel  
Academy of Sciences  
and Humanities



האקדמיה הלאומית הישראלית למדעים  
المجمع الوطني الإسرائيلي للعلوم والآداب  
THE ISRAEL ACADEMY OF SCIENCES AND HUMANITIES



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# Executive Summary

Well-being is a common human aspiration. Governments seek to promote and ensure the well-being of their residents; some even argue that this should be their primary goal. But it is not enough for a country to flourish and for people to enjoy a high level of well-being if these circumstances cannot be maintained over the long term. Well-being must be sustainable.

In order to promote the well-being of their residents, governments need tools for monitoring both the current status of well-being and its sustainability. In this spirit, the Israeli government, like other governments around the world, adopted a comprehensive set of indicators in 2015 for measuring current well-being in Israel. Since 2016, the Israel Central Bureau of Statistics has been publishing the assessment results on an annual basis.

Having determined that the monitoring of well-being in Israel should employ complementary indicators relating to its sustainability, the Israel Ministry of Environmental Protection, the Bank of Israel, the Israel Central Bureau of Statistics, and the Yad Hanadiv Foundation asked The Israel Academy of Sciences and Humanities to establish an expert committee to draft recommendations on this issue. The

Academy's assistance was sought in recognition of its statutory authority "to advise the government on activities relating to research and scientific planning of national significance." The Committee was appointed by the President of the Academy, Professor Nili Cohen, in March 2017. Its members are social scientists representing a variety of disciplines. This report presents the Committee's conclusions.

Well-being, in the Committee's conception, is multifaceted and goes beyond the concepts of standard of living and economic status. It also encompasses security, physical and mental health, social and communal belonging, happiness and satisfaction. This kind of broad-based and multidimensional approach to well-being is accepted worldwide and in the OECD. The indicators adopted by the Israeli government reflect that approach. Without seeing itself as bound to a precise definition of well-being or of its components, which are still matters of public and academic debate, the Committee aimed to determine what is needed to foster current and future well-being. In the Committee's view, the answer to this question transcends differences of opinion or preferences with regard to well-being itself.



Israel's ability to ensure the well-being of its residents depends on the resources (or capital stocks) available to it, and in particular its economic, natural, human, social, and cultural resources. These resources must therefore be monitored so as to ensure their presence in sufficient quantities for future generations of Israelis. At the heart of this report are a mapping of the aforementioned resources and recommendations on how to measure them. The mapping process drew on the insights of over a hundred experts from academia, government, and civil society, and it yielded a broad recommendation, one of the first in the world, that cultural resources be included among the indicators of sustainable well-being, due to their importance for well-being in Israel and in general.

Regular measurement of well-being resources can help decision-makers evaluate public policy, its impact on the future well-being of Israelis, and whether a specific policy depletes the stock of well-being resources, or maintains it, or promotes its growth. Moreover, as the relationships between the various resources for well-being become clear, a complex picture of the impacts of different policy directions and their tradeoffs emerges. The importance of a comprehensive system for measuring sustainable well-being has been underscored by the coronavirus pandemic that struck Israel and the rest of the world this past year, and which has yet to be fully resolved. This crisis has highlighted the interaction between the different well-being resources, and the critical importance of maintaining reserves of those resources so that crises and extreme events may be addressed effectively.

Aside from mapping the resources necessary for well-being, and the means of measuring them, this report also calls attention to several major challenges that are putting Israel's stock of those resources at risk. These challenges include: the non-renewable nature of some of Israel's natural resources, and the inefficient

and/or large-scale utilization of those resources; social diversity and high inequality levels; rising life expectancies and quality-adjusted life expectancies; and population aging. To all this one may add the burgeoning new technologies that present both dangers and opportunities for developing and expanding the resources for well-being. Israeli decision-makers should pay special attention to these challenges as they draft policy to promote the conservation of, and investment in, well-being resources – policy to ensure the future well-being of Israeli residents.

The framework for measuring sustainable well-being in Israel proposed in this report is not complete. Further development and updating are needed to ensure that all resources vital to well-being in Israel are indeed being measured, in ways that are valid and reliable. Other aspects of a comprehensive understanding of sustainable well-being in Israel, such as the mutual effects of various well-being resources on one another and on well-being itself, will require the development of additional evaluative mechanisms. Time and knowledge constraints, and the complexity of some of the well-being resources and their assessment methods, kept the Committee from exhaustively investigating these topics. It is hoped, however, that the present report will constitute another major step toward the widespread use of sustainable well-being measurement in Israeli decision-making processes.

Summary of the indicators proposed in this report for sustainable well-being in Israel

1

Economic Capital

Physical capital

- Physical capital
- Infrastructure capital
- Distribution of housing ownership
- Green capital

Knowledge capital

- R&D capital
- Patents
- Basic research capital

Financial capital

- Financial capital
- Financial inclusion

2

Natural Capital

Land

- Open space
- Planned open space
- Urban nature
- Protected open space

Ecosystems

- Biodiversity
- Endangered species
- Invasive species

Water

- Water level and quality
- Natural water flow
- Water allocated to nature

Air

- Air quality
- Pollutant emissions
- Greenhouse gas emissions
- Renewable energy
- Climate change

Mineral and energy resources

- Concrete price per m³
- Energy resources

3

Human Capital

Health

- Healthy life expectancy (HALE)
- Physical health
- Mental health
- Subjective health
- Healthy lifestyle
- Healthy lifestyle education
- Healthcare institutions
- Hospital beds
- Essential medical equipment
- Appointment availability
- Healthcare budget
- Healthcare R&D
- Healthcare workers
- Healthcare training positions
- Healthcare personnel attrition
- Percentage of elderly long-term care patients
- Support services for end-of-life well-being
- Private health insurance
- Private versus public healthcare quality gap
- Private versus public healthcare expenditure
- Healthcare inequality among the elderly

Education and skills

- Children’s competencies
- Core studies
- Attainment of high school diploma
- Post-secondary education degree
- Adult competencies
- Effective years of schooling

4

Social Capital

Social networks

- Social network volume
- Support network volume
- Social network diversity
- Leisure
- Civil society activity
- Popular group sports activity
- Occupational segregation
- Trade union membership
- Internet use

Social and civic engagement

- Volunteering
- Donations
- General election voter turnout
- Demonstration or rally participation
- Political efficacy

Shared values and norms

- Communal belonging
- Tolerance
- Traffic violations evincing lack of solidarity
- Political violence
- Ethno-linguistic fractionalization
- Economic inequality
- Multiple identities
- Political polarization
- Party-system nationalization
- Command of languages commonly spoken in Israel
- Discrimination

Trust

- Particularized trust
- Generalized trust

Governmental institutions and rights

- Democracy and rights
- Trust in governmental institutions
- Legal system efficacy

Crime and corruption

- Crime
- Personal security
- Perceived corruption

5

Cultural Capital

Cultural content

- New cultural content
- Usage of cultural content
- Cultural content diversity
- Heritage content

Cultural capabilities

- Professionals in the cultural sector
- Professionally trained graduates in the cultural sector
- Participation in cultural courses or amateur meetings
- Humanities matriculation certificate holders
- Humanities graduates
- Cultural training institutions
- Humanities faculty
- Graduates of cultural-discipline teaching programs

Cultural institutions

- Cultural institutions

Funding for culture

- National expenditure on culture

Identities

- Israeli identity
- Secondary identity in Israeli society

# Introduction

Just as people commonly strive for well-being, so do governments aim to ensure the well-being of their residents. Some even maintain that this is the *raison d'être*, and the duty, of every government. But it is not enough for a country to flourish, and for people to enjoy a high level of well-being, if these circumstances cannot be maintained over the long term. Well-being must be sustainable.

In order to promote the well-being of their residents, governments need tools for monitoring both the current status of well-being and its sustainability. For a long time, gross domestic product (henceforth, GDP) was used for this purpose. But the use of GDP as a measure of well-being drew criticism from the outset, as it assumes a narrow, economic interpretation of well-being as a mere function of people's economic status or their country's economic growth rate. Well-being encompasses other parameters that are not necessarily measurable in economic terms, such as a sense of belonging, communal life, happiness, and health. Dissatisfaction with the use of GDP as a measure of well-being led to multiple academic and public efforts to broaden the approach to well-being assessment. A number of national governments and international organizations were involved in these efforts, first and foremost

the Organisation for Economic Co-operation and Development (henceforth, the OECD).

In 2015, Israel adopted a comprehensive framework for measuring the well-being of its residents ([Government Resolution 2494 of April 19, 2015](#)). This framework, which is now regularly employed by the Israel Central Bureau of Statistics, was the product of a large-scale, in-depth effort on the part of the government and experts from academia and civil society, with public participation and assistance from OECD experts. The framework comprises 88 indicators that measure eleven dimensions of well-being: quality of employment; personal security; health; housing and infrastructures; education and skills; civic engagement and governance; environment; personal and social well-being; material standard of living; leisure, culture, and community; and Information and Communications Technology (ICT). The present report does not offer an opinion on this framework and the proposed alternatives to it, which focus primarily on measuring the current well-being of Israeli residents. This report is concerned, rather, with an issue not addressed by the 2015 framework: the future sustainability of well-being in Israel.

To complement the development of indicators for well-being in Israel with measures of its sustainability, the Israel Ministry of Environmental Protection, the Bank of Israel, the Israel Central Bureau of Statistics, and the Yad Hanadiv Foundation asked The Israel Academy of Sciences and Humanities to establish an expert committee to investigate this subject and draft recommendations. The Academy's assistance was sought in recognition of its statutory authority "to advise the government on activities relating to research and scientific planning of national significance" ([Israel Academy of Sciences and Humanities Law, 1961](#)). The Committee, chaired by Professor Menachem Yaari, was appointed by the President of the Academy, Professor Nili Cohen, in March 2017. Its members are social scientists representing a variety of disciplines. This report presents the Committee's conclusions.

Well-being in Israel will be sustainable if it can endure over the long term, that is, if future generations of Israelis will be able to attain at least the same degree of well-being that the current generation is privileged to enjoy. Thus, addressing sustainable well-being entails a change of perspective, namely, the adoption of a future orientation. We must focus not on well-being itself, but on the conditions that promote it and, in particular, the resources available to Israeli residents. The greater the extent of the available resources, the higher the chances of attaining well-being. By contrast, should this resource base dwindle due to overuse or erosion, the ability of Israelis to enjoy well-being in the future will be jeopardized. In other words, well-being can be sustainable only if Israeli residents have an adequate stock of resources available to them.

The question of sustainable well-being affords a certain distance from public and scholarly disagreement over the nature of well-being and the means of measuring it. Different people have

different perspectives on well-being, and a variety of measurement frameworks exist, including Israel's official framework, which aims to monitor the current status of well-being. As the Committee saw it, however, one need not align with a specific definition of well-being, or a specific framework for measuring it, when addressing the issue of its sustainability. Because different conceptions of well-being may be expected to require a similar resource base, a measurement framework may be achieved, and a broad consensus reached, even without commitment to any single conception of well-being.

Thus, an assessment framework for sustainable well-being in Israel needs to map the resources necessary for well-being, monitor them, and measure them. These resources are commonly divided into four groups, or types of capital: economic, natural, human, and social. To these we may add, in accordance with the Committee's approach, a fifth resource group: cultural resources. But because not all resources make the same contribution to well-being, the main challenge faced by the Committee was to identify those components of each resource group that are crucial to the well-being of Israeli residents. What made this challenge all the greater was that the critical necessity of some well-being resources may vary as different circumstances affect their availability, accessibility, or relative importance to different people's understanding of well-being. For this reason, the mapping of well-being resources of a particular country cannot be identical to that of another country.

Regular mapping and measurement of well-being resources can provide decision-makers with the tools they need to assess public policy and its impact on the future well-being of Israeli residents. They can help one understand whether a particular policy shrinks the well-being resource base, conserves it, or grows it. Moreover, as the relationships between the various resources for well-being

become clear, there emerges a complex picture of the impacts of different policy directions and their tradeoffs, all under a single conceptual umbrella.

The importance of a comprehensive framework for the measurement of sustainable well-being has been underscored by the coronavirus pandemic that struck Israel and the rest of the world this past year. Firstly, the crisis may have the effect of eroding or diminishing the resource stocks to levels that endanger the future well-being of Israeli residents. Therefore, in striving to cope with the pandemic, the government must give consideration also to its impact on the resource base, and to ensuring that the base is safeguarded and, where necessary, restored. Secondly, the pandemic has demonstrated how crucial it is to maintain reserves of well-being resources so that crises and extreme events may be effectively addressed. And, in particular, the pandemic has highlighted the importance of economic resources, healthcare and educational infrastructures, social solidarity, and trust in governmental institutions. The existence of these resources promotes Israel's national resilience. In this sense, mapping and measuring the resources necessary for well-being in Israel can provide a picture not just of the degree to which well-being is sustainable, but also of the state's resilience.

This report seeks to present a conceptual and practical framework for measuring the sustainability of well-being in Israel. The first part of the report provides the background and the conceptual framework for the Committee's work and for the measurement of sustainable well-being in Israel, while the second part offers a comprehensive mapping of the critical components of each of the five groups of resources for well-being in Israel. This mapping is accompanied by recommendations for monitoring and measuring the components.

The process of developing indicators for sustainable well-being in Israel does not end with this report. The conceptual framework and the well-being resource mapping that it proposes entail continued methodological and statistical development to ensure the measurement framework's incorporation into Israeli national statistics and decision-making processes. The full value of the conceptual framework and mapping proposed herein will be realized only if they are translated into ongoing and regular measurement by the Israel Central Bureau of Statistics. The information collected as part of the measurement process needs to be published frequently and made accessible to decision-makers and the public. It should be presented in periodic evaluations and in the course of decision-making processes as a tool for assessing policy options and identifying disparities and challenges that require the attention of Israeli policymakers.

Nor is this report complete from a conceptual point of view. It leaves major issues open, ones that, due to the Committee's time constraints and the limits of current knowledge, cannot fully be investigated. These issues include the need to develop measures of inequality with respect to distribution of and accessibility to well-being resources, and the need to delineate the complex relationships between the various well-being resources and well-being, and between the resources themselves. Only once these matters have been addressed in depth will it be possible to offer decision-makers a comprehensive toolkit for analyzing policy directions based on their potential impact on well-being and its resources. The list of well-being resources presented in this report also needs to be scrutinized and updated in accordance with developments as they occur. It reflects intensive, broad-based work with input from numerous organizations and experts, but it is entirely possible that important elements have been omitted.



Furthermore, the report's engagement with the cultural resources crucial to well-being in Israel is just the start of a discussion, following the relative neglect of this topic in comparable frameworks for measuring sustainable well-being in Israel and elsewhere. This report by no means addresses or analyzes it exhaustively, especially with regard to how different identities contribute to the well-being of Israeli residents. Identities may be the well-being resource that varies most starkly across national, geographic, and social contexts. Nevertheless, all agree on the necessity of identities to well-being – on their efficacy in promoting joint effort and a sense of belonging and meaning. A general Israeli identity is the basis for the social solidarity so vital to the country's survival and success as a common enterprise. Jewish identity was a crucial factor in the history of the state and a major force that shaped its present character; and many other identities, such as those of the country's Arab and ultra-Orthodox communities, have informed the activity of Israelis past and present. Unlike many other issues taken up in Israel, this one remains a topic for future public and academic debate.

The Committee hopes that this report will contribute to public and academic discussion on sustainable well-being in Israel, and encourage additional projects capable of broadening the dialogue and enriching the toolkit available to Israeli decision-makers and the Israeli public.



**A**

# **Background and Theoretical Framework**

# The Committee and Its Work

## ■ Background to the Committee's Establishment

In 2012 the Israeli government decided ([Resolution No. 5255 of December 2, 2012](#)) to embark on a large-scale process of measuring well-being, sustainability, and national resilience in Israel, similar to efforts undertaken by other countries around the world. The task of developing well-being indicators was assigned to the Ministry of Environmental Protection, the Prime Minister's Office, the National Economic Council, the Central Bureau of Statistics, and the Bank of Israel. The development process, which took three years, was outlined by the Ministry of Environmental Protection (Ministry of Environmental Protection, 2013). Experts from the government, academia, and Israeli civil society were involved in the effort, which also featured an element of public participation and assistance from OECD experts. At the conclusion of the process, a measurement framework comprising 88 indicators from eleven different domains was submitted to the government. In 2015 the government adopted this framework ([Government Resolution No. 2494 of April 19, 2015](#)), and the Central Bureau of Statistics was made responsible

for gathering the relevant information and publishing it annually. 2016 saw the release of the first report summarizing the process and presenting a snapshot of well-being in Israel for the year 2014 (Government of Israel, 2016).

In addition to adopting the aforementioned well-being indicators, the Israeli government decided ([Government Resolution No. 2494 of April 19, 2015](#)) to task the Ministry of Environmental Protection with drafting a complementary measurement framework that would assess the sustainability of well-being in Israel. In 2015 the Ministry submitted its outline for formulating the relevant indicators, with a recommendation that the capital approach to sustainability be adopted (Tzachor, 2015). In 2016 the Ministry of Environmental Protection, the Bank of Israel, the Central Bureau of Statistics, and the Yad Hanadiv Foundation asked The Israel Academy of Sciences and Humanities to establish an expert committee to examine this topic and draft recommendations for measuring the sustainability of well-being in Israel. The Academy's assistance was sought in recognition of its statutory authority "to advise the government on activities relating to research and scientific planning of national significance" ([Israel Academy of Sciences and Humanities Law, 1961](#)).

The Expert Committee to Examine Sustainable Well-being in Israel was appointed by the President of the Academy, Professor Nili Cohen, in March 2017. Its members include social scientists representing a variety of disciplines.<sup>1</sup>

<sup>1</sup> For a brief background statement on each Committee member, see [Appendix A](#).

## ■ Committee Members

Chair: Professor Menahem Yaari	Professor Orit Kedar
Professor Eran Feitelson	Professor Hadas Mandel
Yoel Finkel	Professor Avner Offer
Professor Ori Heffetz	Professor Nathan Sussman
Professor Elhanan Helpman	Ariel Weiss
Professor Eugene Kandel	Coordinator: Yarden Niv

## ■ The Committee's Work

The Committee began its work in July 2017. In the course of its activity, it interacted with a number of governmental bodies, in particular the Ministry of Environmental Protection, the Central Bureau of Statistics, the National Economic Council, and the Bank of Israel. The Committee convened seven times before the present report was submitted; at these meetings the Committee planned its activities, studied topics related to its work, consulted additional experts, and discussed its recommendations.<sup>2</sup>

The Committee laid the groundwork for its efforts by creating five sub-teams, one for each of type of resource on which well-being is based: economic, natural, human, social, and cultural. Each team worked on the Committee's conclusions in its assigned field, but the conclusions were all agreed upon and signed by the full roster of Committee members.

To lay the scientific foundation for its work, the Committee commissioned, and received, six expert reviews. The first, by Dr. Asaf Tzachor, presents the capital approach to sustainability as the

prevailing conceptual framework for discussion of sustainable well-being, and outlines measures for implementing that approach in Israel. Each of the other five reviews looks at one of the resources that make well-being possible, the elements of those resources that are crucial to well-being in Israel, the relations between them, the challenges they face, and the means of measuring them. The economic capital review was written by Dr. Michael Sarel; the natural capital review was written by Dr. Asaf Tzachor; the human capital review was written by the late Professor Dov Chernichovsky; the social capital review was written by Yinon Geva, Dr. Itay Greenspan, and Professor Michal Almog-Bar; and the cultural capital review was written by Professor Tally Katz-Gerro. These reviews make a major contribution to our understanding of well-being resources in general, and in Israel specifically (to read the reviews, see the [Digital Appendix](#) to this report). The reviews were preceded by a brief memorandum on measuring well-being and sustainability, received by the Committee from Professor Marc Fleurbaey.

On the basis of these reviews, the Committee ran a series of five expert workshops between December 2019 and March 2020, for the purpose of enriching and deepening the understanding of how each resource group contributes to well-being in Israel. Over a hundred experts from academia, government, and civil society, coming from a variety of fields, took part in the workshops, which were moderated by Dr. Anat Itay-Sarig and functioned as brainstorming sessions.<sup>3</sup> The insights obtained from the reviews and the expert workshops were documented by the Committee's sub-teams and formed the basis for their recommendations. This report presents the final recommendations approved by the Committee plenum.

<sup>2</sup> For a list of all of the entities and experts that provided the Committee with input and participated in its meetings or appeared as guests before the Committee, see [Appendix B](#).

<sup>3</sup> For a list of all of the workshop participants, see [Appendix B](#).



# The Theoretical Foundations of Measuring Sustainable Well-being

## ■ The State and the Well-being of Its Residents

All human beings yearn to live well and to achieve well-being, though these concepts are not always understood in the same way. Over the course of history, there have been those who viewed living well as the ultimate goal to which people aspire, and as the criterion for judging all of their actions. Aristotle (2016), for example, maintained that all human work and activity are channeled toward a single purpose, namely, the highest good of happiness, or a well-lived life.

Because well-being is so important to people, we should not be surprised that it is a topic of concern to states and governments. Not only that, but some feel that promoting well-being should be the state's overarching goal (Sumner, 1996), and that the state originated "in the bare needs of life, and continuing in existence

for the sake of a good life" (Aristotle, 2015, p. 13).<sup>4</sup> Even if the well-being of its residents need not be the government's sole objective, one cannot deny that it ought to be among its goals (for further reading on this topic, see Duncan, 2010; Taylor, 2018).

Although everyone recognizes the importance of residents' well-being, some fear and caution against the idea that the state should aspire to promote a specific conception of well-being. States that do so risk undermining the fundamental principles of liberal democracy, and may slide into coercive or paternalistic practices, or compromise the liberty of residents who hold other views of well-being. Some therefore maintain that the state should instead be concerned with ensuring that residents are free and have the opportunity to achieve well-being, each according to his or her conception of it (Nozick, 2001; Berlin, 1969; Mill, 2011). One way or another, monitoring the well-being of residents is necessary in order for the state to verify that it is succeeding in this task.

As an entity that exists over time, the state's duty toward its residents is not confined to the present. Just as the state is expected to see to its residents' current well-being, so must it strive to promote their future well-being. The state's obligation is similar to that of parents toward their children: parents are supposed to be concerned for their children's present and future well-being, and this obligation encompasses both existing and future children. In other words, the state has a duty to ensure that its residents can attain well-being both now and in the future. It must ensure that its residents' well-being can be maintained over time, i.e., that it will be sustainable.

The duty to ensure well-being also rests on the current generation's

<sup>4</sup> Aristotle's writings on the good life refer to *eudaimonia*, a Greek term commonly translated as "happiness" or "well-being." In Aristotle's view, the good life is more than just a combination of material and social conditions (encompassing elements such as wealth, friends, and influence). In addition, it incorporates a component of personal excellence, manifested in one's moral character and complete self-realization as a rational being.



responsibility and obligation toward future generations. This is an issue that has been recognized in recent decades with regard to the environment and the climate crisis. Scholars have argued that intergenerational justice obligates the current generation to leave the coming generations with sufficient resources to ensure their welfare. The intergenerational applicability of the principles of justice is not self-evident, given the clear lack of reciprocity between people living today and those who will live tomorrow – and yet the idea of the current generation’s responsibility toward its successors is founded on the unique character of their mutual affinity. This affinity is one of asymmetrical power relations, in which the actions of the current generation can strongly affect future generations and limit the range of options available to them. Among other things, such actions can determine the very existence of future generations, their number and identity (Barry, 1999; Meyer, 2016).

The responsibility of the current generation toward future generations can also be based on solidarity or a sense of intergenerational community. The impact of some human and social activity is not confined within the bounds of a single lifetime but constitutes, rather, an intergenerational collaboration that produces meaning and group identity. In this sense, current and future generations are part of the same human communal or social enterprise, one that extends through time. The interests of the present generation are therefore likely to be compromised if those of the coming generations are undermined. Solidarity also strengthens the desire to treat other people, both those who currently exist and those who will exist in the future, fairly and justly (De-Shalit, 1995; Heyd, 2009). This line of reasoning highlights the specific responsibility of the present generation toward earlier generations and its duty to honor and preserve their culture.

If we assume that the current generation’s actions affect the potential well-being of future generations, and that the principles of justice apply to the relations between these generations, then we need to examine how today’s policy measures will affect those who come after us. Sustainable well-being measurement provides us with the tools we need to do this.

## ▣ Well-being

If we are to measure well-being and draft policy aimed at promoting it, we need to have a definition of it. However, there is deep theoretical disagreement about what constitutes well-being. Different approaches and theories assign different components to well-being and rank them in differing orders of importance. Hedonistic theories define well-being as “happiness” or “pleasure.” These theories hold that a person’s well-being is a balance between the sum total of pleasure and the sum total of pain that s/he experiences (for more on this see Feldman, 2004; Crisp, 2006; Gregory, 2016). Other theories identify well-being with the satisfaction of ambitions, desires, or preferences, which vary from person to person. These theories of well-being are sometimes referred to as desire-satisfaction or preference-based theories (Bykvist, 2016; Heathwood, 2016). By contrast, there are theories that identify well-being with the attainment of various objective goals relevant to all people, such as autonomy, education, and close relations with other people (Hurka, 2016; Hooker, 2015).

One main line of differentiation between the various approaches to well-being is that of separating the objective from the subjective theories. Objective theories assume that there are things that by their very nature are good for all people, while subjective approaches hold that what is considered good varies from person to person and

depends on the value that each individual assigns to it (Sumner, 1995).<sup>5</sup> Although the subjective approaches have attracted growing support over the past few decades, and influenced well-being measurements (see the chapter [Measuring Sustainable Well-being in Practice](#)), a major challenge and concern pertaining to these approaches is the ease with which people's subjective attitudes are influenced by cognitive biases. This can manifest in large and puzzling gaps between people's material conditions and their subjective well-being, stemming from the human ability to adapt quickly to change (Schkade & Kahneman, 1998).

The theoretical dispute over the nature of well-being poses a challenge to any attempt to place well-being at the center of governmental policy and, in particular, to measure it. If the government is to conduct assessments or set policy objectives with regard to well-being, it needs to have a clear and orderly outlook on what constitutes well-being. Beyond this, there is a normative difficulty: when residents have diverse views of well-being, the government's adoption of one specific approach could result in that approach's imposition on residents who understand well-being differently.

Researchers have tried to address this challenge in a variety of ways. Some argue that, in a liberal-democratic context, a broad and pluralistic definition of well-being should be adopted, one that will be inclusive and comprehensive and give expression to residents' differing ideas about what makes life worth living (Haybron & Tiberius, 2015). Others feel that the discord between the various approaches to well-being is less serious than it appears. In their view, there is a broad consensus about the markers of well-being. These are things that, though not essential components of well-

being itself, nevertheless constitute outcomes or clear evidence of its existence. Focusing on these markers can therefore suffice for such practical purposes as well-being measurement (Hersch, 2020; Taylor, 2015). Furthermore, assessing well-being sustainability allows one to avoid this challenge, to some degree. Well-being sustainability measurement doesn't directly address well-being itself, but rather the factors that make it possible (see the chapter [Well-being Sustainability](#)). Although the approaches to well-being may differ or even contradict each other, if the conditions or factors that facilitate it are identical for all, then there is no need to choose between them in order to verify that they are indeed sustainable. A number of studies have supported this idea, showing how base variables such as material standard of living, health, environmental quality, civil liberties, social relationships, and security affect well-being and are crucial for it across its varying definitions (Clark, 2016; Eger & Maridal, 2015).

States and international organizations have chosen to face this challenge by adopting a pluralistic definition of well-being. This was one of the main recommendations of the Stiglitz Committee (Stiglitz et al., 2009), later implemented in various measurement frameworks, including those of the OECD and Israel (see [Measuring Sustainable Well-being Worldwide](#)). Such definitions view well-being as a multidimensional state comprising both objective and subjective elements. These elements generally include (in varying proportions): personal security; health; material standard of living (in particular, housing, infrastructures, and income); knowledge, education, and skills; personal and social welfare (in particular, life satisfaction, sense of belonging, and civic engagement); employment; leisure and culture, and environmental quality. These elements correspond to a great degree with those identified as well-being markers by different theoretical approaches (Taylor, 2015). Their validity is also supported by their emergence from public participation processes

<sup>5</sup> This distinction pertains not to well-being measurement, but rather to the essence of well-being. Both approaches can, in fact, be measured both subjectively and objectively. For example, pleasure, which is essentially subjective, can be measured subjectively (e.g., via self-reporting questionnaires), but also by objective means (e.g., physiological parameters).

in many different countries (Ministry of Environmental Protection, 2013), and in Israel (Government of Israel, 2016).

This report also takes a broad and pluralistic approach to well-being. It does not explore the precise characteristics of the various well-being components, nor is it bound by them. Rather, it focuses on the factors that facilitate these components – factors that, as noted above, may be expected to show similarities even if the components themselves are not uniform in nature. Accordingly, the report does not take a stand on the relative importance of each element of well-being; indeed, there is evidence that different people, based on their cultural background, age, etc., attach differing levels of importance to these elements (Benjamin et al., 2014a; Benjamin et al., 2014b; Balestra, Boarini, & Toso, 2018; Kasir & Romanov, 2018). Also, people may have different needs regarding these components. This problem is known to scholars as the “expensive taste” problem. This is one of the main reasons why many well-being measurement frameworks refrain from settling on a single index encompassing all of the different well-being components (see the chapter [Measuring Sustainable Well-being in Practice](#)). The present report does not take a stand on this issue either, nor, as will be seen below, does it set benchmarks for the various components; it merely suggests ways of measuring the factors that facilitate them.

## ▣ Well-being Sustainability

Sustainability is the ability of a thing to continue existing for a long period of time. In this sense, sustainability is not a thing in itself, but rather a quality. When we talk about sustainability, our discussion should therefore relate to the thing to which this quality is being attributed, or to which we would like to attribute the quality. The

present report is concerned with sustainable well-being in Israel. At the most basic level, well-being in Israel will be sustainable if Israeli residents’ current level of well-being can be maintained over the long term, and passed on to future generations.

But a precise definition of sustainable well-being is a more complicated matter than it at first appears. It entails normative assumptions on equality and justice in general, and on intergenerational justice in particular. We can illustrate this by comparing the common definition of sustainable development as it appears in the report of the Brundtland Committee with the definition given in the report of the Stiglitz Committee:

“Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (Brundtland, 1987, p. 43).

“Sustainability poses the challenge of determining whether we can hope to see the current level of well-being at least maintained for future periods or future generations, or whether the most likely scenario is that it will decline” (Stiglitz et al., 2009, p. 61).

The Brundtland Committee definition emphasizes the ability of future generations to reach a suitable level of well-being, one that meets their needs, while the Stiglitz Committee definition focuses on the final outcome – the well-being level that should be ensured for the future, which should be no lower than the present level. Each definition entails different normative assumptions (Fleurbaey, 2015). The Brundtland Committee’s focus on ability rather than final outcomes takes into consideration that our ability, today, to influence tomorrow’s well-being levels is limited: we can make sure not to place obstacles in the way of future generations, but we cannot control their actions. We can take care to pass on to them a pollution-free environment, but we cannot determine what kind

of pollution they themselves will produce. This focus on ability also reflects an awareness of our uncertainty regarding the needs of coming generations, which will not necessarily be the same as our own.

The various definitions of sustainable well-being also differ with regard to the level of well-being to which one should aspire. The Brundtland Committee definition avoids setting a clear standard, while the Stiglitz Committee definition takes the current well-being level as a benchmark: the minimum level to aim for. This is largely an intergenerational justice question, concerned with the extent to which the current generation is obligated to see to the needs of its successors. The issue also relates to the delicate balance between concern for future generations and concern for the people of today. Should we, for example, prioritize justice and equity between members of the current generation or, in the name of concern for the generations yet to come, be prepared to harm, to some degree, the current generation and, thereby, its disadvantaged subgroups? (For more on this issue, see Heyd, 2009; Meyer, 2016).<sup>6</sup>

The debate over how sustainable well-being should be defined is not merely theoretical. It has implications for how sustainable well-being is to be measured and promoted via policy. If there is a specific level of well-being that we hope to pass on to future generations, we can set a clear standard for sustainable well-being indicators, and it will be easier to push governmental policy in the direction of promoting sustainable well-being. However, this is a normative decision for Israeli residents and decision-makers to make. For this reason, it is hard to set explicit and commonly accepted benchmarks for many well-being components. The present report therefore refrains from making a determination in this regard; its recommendations do not give a definite answer.

<sup>6</sup> The Brundtland Committee takes an in-depth look at these intragenerational aspects of sustainable well-being, with an emphasis on their status in developing nations.

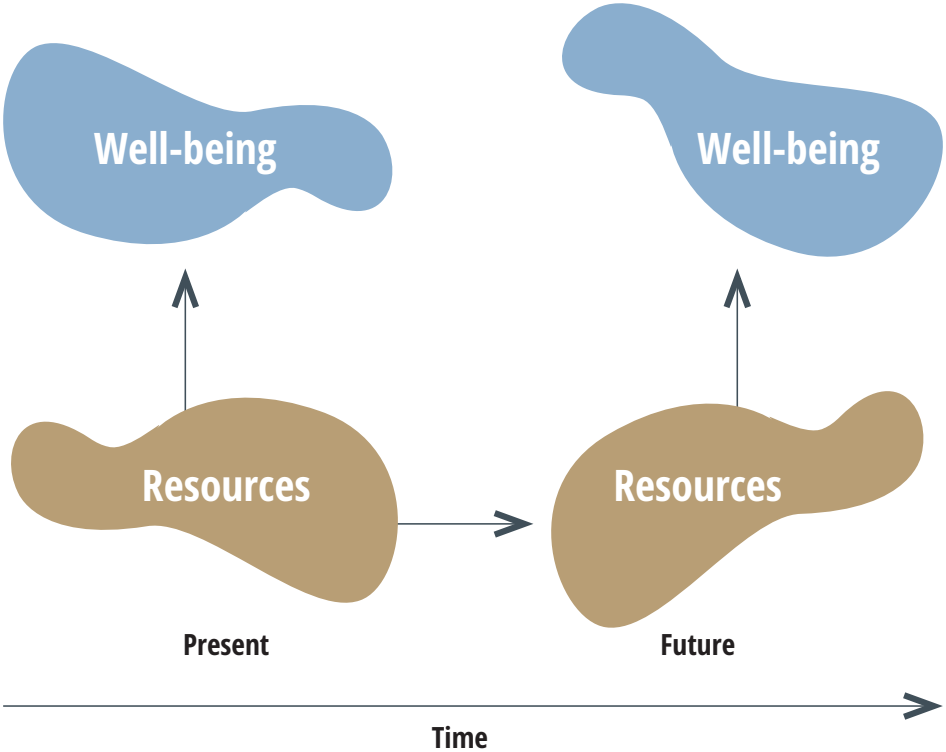
## ■ The Capital Approach to Sustainability

The capital approach is the framework most commonly used to assess sustainable well-being. It provides a conceptual framework for understanding it, and tools for measuring it (for more on this approach and its implementation in Israel, see Tzachor, 2021a). The capital approach's conceptual world is drawn from economics, in particular from the idea of the production function that links inputs and outputs (factors of production and product). It highlights the idea that measuring sustainable well-being entails a shift of perspective from well-being itself (the output) to the factors that enable it (the inputs). In order for well-being to be enjoyed in the future as well, one must verify that the inputs necessary to "produce" well-being will be maintained in sufficient quantities. These inputs are, first and foremost, the various resources, also referred to as capital stock, that are required for well-being (see Figure 1). They are commonly divided into four groups: economic, natural, human, and social resources (or capital). To these, the present report adds a fifth resource group: cultural resources. Monitoring the stock of these resources is at the core of well-being sustainability assessment.

The capital approach's conceptual framework also provides tools for understanding the processes that affect the stock of resources and how they are translated into well-being. Per this approach, there are various flows that affect the stock of capital, or resources. These flows include processes of using and exploiting resources, which generally result in dwindling resource stocks (though not always, as we shall see in the discussions of [human](#), [social](#), and [cultural](#) capital). The impact of these processes on well-being resources depends, among other things, on the efficiency of their use (as determined by the technological means employed), population size, and consumer preferences. These flows also include depreciation

processes that erode the stock of resources over time. These processes underscore the importance of monitoring the stock of well-being resources liable to diminish over time in the absence of an appropriate flow of investment aimed at increasing and developing the resource stock. An understanding of complex processes is also necessary in order to predict the future state of the resource stock.

**Figure 1. The Critical Resources for Well-being Are the Point of Connection between Present and Future**



Source: Based on UNECE (2014, p. 8)

The capital approach also helps resolve the great uncertainty involved in assessing sustainable well-being. The exact resources necessary for well-being, and their required amounts, largely depend on the technology available for their utilization. More and less efficient technologies can both promote the same level of well-being, but an

efficient technology will consume fewer resources than will a less efficient technology. Technological developments may also render certain resources obsolete, and others critical. Oil, for example, became a vital resource for humanity and well-being only during the modern era, though it had been used earlier as well. But its depletion, and technological developments that make alternative energy resources viable, may reduce our dependence on oil and make it a less critical resource. Awareness of these uncertainties should make us approach the assessment of well-being sustainability with great humility, and ensure that we periodically update the list of resources necessary for well-being.



# Measuring Sustainable Well-being in Practice

## ▣ Measuring Sustainable Well-being Worldwide

For the past several decades, efforts have been made to develop indicators to help governments monitor and promote the well-being of their residents. The indicators proposed over the years have reflected differing approaches to well-being. The best-known indicator for this purpose is that of gross domestic product (GDP), which quantifies current economic activity (including public expenditure) during a given period of time. Although GDP does not directly focus on well-being, its use for this purpose presupposes that economic prosperity can reflect it. However, critics have noted that this employment of GDP limits our understanding of well-being to its economic aspects (Stiglitz et al., 2009; Fleurbaey & Blanchet, 2013; Fioramonti, 2013).

The dissatisfaction with GDP as a well-being indicator led to alternative approaches offering broader frameworks for measuring well-being. The social indicators movement that emerged in the

1960s and 1970s proposed adding indicators for objective aspects of well-being not necessarily amenable to economic pricing. A well-known example of such an index is the Human Development Index (HDI), inspired by the capabilities approach formulated by economist-philosopher Amartya Sen. The HDI looks at three areas: economics, education, and health (Sen, 1993, 1999). Another approach calls for the use of psychological indicators emphasizing people's subjective experience, in particular their degree of life satisfaction and happiness. This form of well-being measurement currently underlies indicators designed specifically for this approach, such as the Happy Planet Index, but it has also been incorporated into broader and more general surveys such as the World Values Survey and the Gallup World Poll (Diener et al., 2009).

In recent years, it has been common for national and international policy agencies to integrate the various well-being measurement approaches. This was endorsed with the 2009 publication of the Report by the Commission on the Measurement of Economic Performance and Social Progress (henceforth, the Stiglitz Report). This report recommended that well-being be regarded as a multidimensional phenomenon measurable in terms of both objective and subjective indicators that relate to its various dimensions (Stiglitz et al., 2009). As we shall see below, the report's conclusions were adopted by many agencies and countries.

Concern for well-being sustainability arose from a growing engagement with sustainable development, which aims to strike a balance between economic development and natural resource conservation as well as environmental protection (Brundtland, 1987). Sustainable well-being measurement is essentially an extension of this idea: it shifts the emphasis from economic development to a broader target – well-being – and recognizes the necessity of other resources besides natural ones, and the challenges they embody.

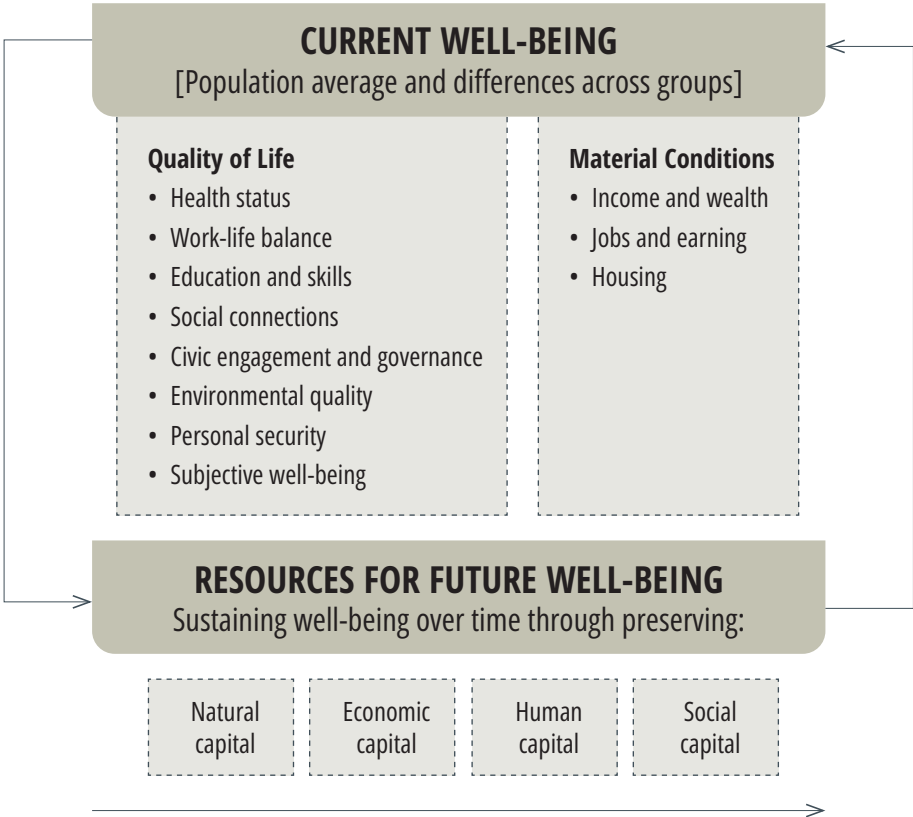
In this instance as well, the Stiglitz Report was a major appeal for the incorporation of sustainability parameters into well-being measurement. The principles delineated by the Stiglitz Report have gone far toward shaping the sustainable well-being measurement frameworks developed in various places around the world.

The Stiglitz Report recommended measuring sustainable well-being via the capital approach and the monitoring of four well-being resource groups: economic capital, natural capital, human capital, and social capital. For this purpose, it proposed using a set of separate measures rather than a single weighted index. This recommendation arose from uncertainty regarding the nature of the relationship between the relevant resources and well-being, and between the resources themselves. This uncertainty makes it hard to set the weights – the importance or relative impact of each well-being resource – in a weighted index. However, the recommendation also rests on a strict assumption regarding the substitutability of well-being resources, that is, the ability to use one resource instead of another. This assumption, also referred to as “strong sustainability,” holds that the ability to substitute one well-being resource for another is limited. Thus, each specific resource carries special importance, which would be obscured in a single, weighted, index.

The Stiglitz Report merely laid out general principles; it did not propose an orderly measurement framework for sustainable well-being. These principles were meant to be implemented individually by states and other organizations, based on their own unique perspectives. The OECD was one of the first organizations to develop sustainable well-being indicators per the Stiglitz Report’s recommendations. It publishes data for these indicators biennially as part of the How’s Life? report, which monitors well-being in the OECD member states (OECD, 2020). The OECD measurement

framework is economical and parsimonious, featuring just a few parameters for each type of capital. It relies on a basic commonality that allows international comparison of the indicators, but it does not exhaust all dimensions of the capital types, nor does it necessarily accord with the points of emphasis or the specific problems of each individual country.

**Figure 2. The Conceptual Framework for Sustainable Well-being in the OECD**



Source: OECD (2017, p. 22)

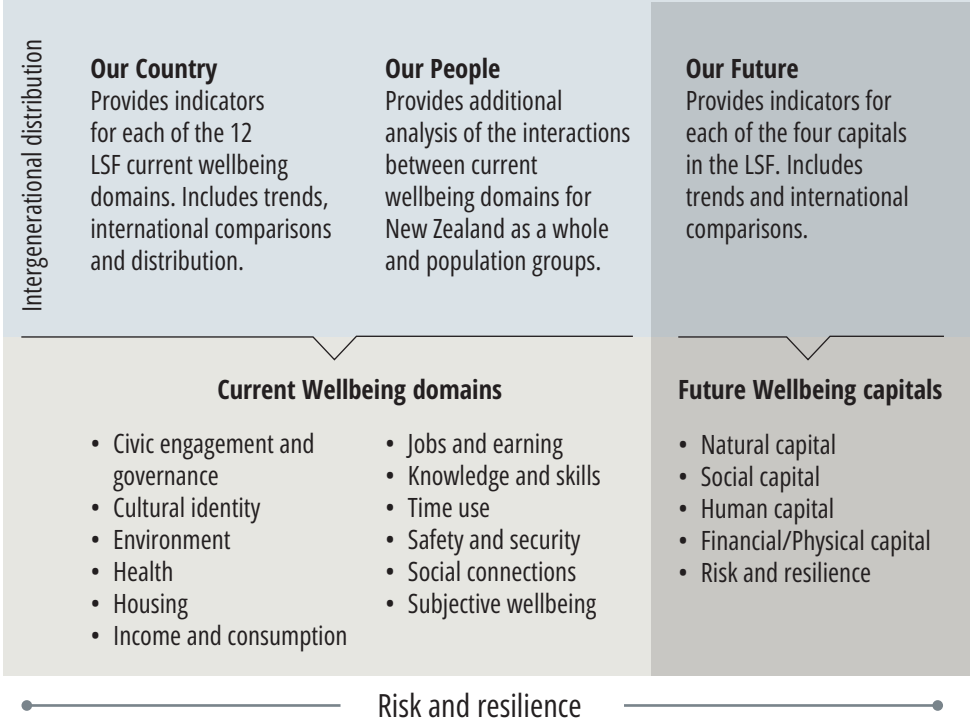
Another international development regarding well-being sustainability measurement frameworks was proposed by the United Nations Economic Commission for Europe (UNECE). This framework is also founded on the capital approach, and on the need to monitor the

four well-being resource groups. The organization’s report for 2014 mapped possible indicators and their international availability. It also stressed the spatial and global character of the sustainability question, which transcends national borders (UNECE, 2014).

At the national level, more and more statistical agencies have undertaken to regularly measure sustainable well-being and publish their findings. Virtually all of the indicators used are based on the principles of the Stiglitz Report as implemented in the OECD reports. One country that has been notably active in this sphere is New Zealand, which developed, under the leadership of the New Zealand Treasury, a framework for measuring well-being and its sustainability. The New Zealand measurement framework is also founded on the capital approach’s assessment of the four well-being resource groups, with the OECD indicators adjusted to suit New Zealand conditions (New Zealand Treasury, 2018). New Zealand has also spearheaded the use of these indicators in policymaking, and was the first country to base its national budget on these indicators, via a strategy known as the “Wellbeing Budget” (New Zealand Treasury, 2019).

A large-scale initiative based on another approach is that of the [Sustainable Development Goals](#) (SDGs) adopted by the United Nations in 2015. The initiative advances 17 goals with 169 focused targets that the world aspires to achieve by 2030. Although the initiative features a long list of metrics for monitoring progress toward attainment of the goals, it is not a concrete alternative to sustainable well-being measurement. The initiative’s emphasis is on goals, many of which are only marginally relevant to developed nations such as Israel (although in 2019 Israel submitted a [National Review](#) pertaining to the attainment of these goals).

**Figure 3. The Conceptual Framework for Sustainable Well-being Measurement in New Zealand**



Source: [New Zealand Treasury website](#)

The more common it becomes for countries and international organizations to measure sustainable well-being, the more evident grows the need to develop a complex measurement framework that will not only reflect the state of well-being or the resources necessary for it, but will also provide tools for understanding the exact relationship between the well-being resources and well-being, and between the resources themselves. Such a framework could help decision-makers assess the potential impacts of different policy directions on well-being and its sustainability, all under a single conceptual umbrella. Measures that might seem to involve a tradeoff at first glance (e.g., climate-related actions with a degree of negative economic impact) could thus be seen to advance the overarching goal of improved well-being (Llena-Nozal et al.,

2019; OECD, 2019). Attempts to map the complex relationships between the various well-being parameters and resources are still in the beginning stages, but they are based on the system analysis approach. A preliminary mapping effort along these lines has looked at the internal connections between the OECD's well-being and sustainability indicators (Ilmola-Sheppard et al., 2020). However, even a mapping of this kind needs to be adjusted to national contexts.

## ■ Measuring Sustainable Well-being in Israel

The worldwide trend toward sustainable well-being measurement has not bypassed Israel. According to an Israeli government resolution, and following a comprehensive index-development process involving experts from government agencies, academia, and civil society, and with professional guidance from the OECD, the Israel Central Bureau of Statistics began publishing an annual report on well-being in Israel. This publication – [Well-being, Sustainability, and National Resilience Indicators](#) – monitors the state of well-being in Israel in eleven domains: (1) material standard of living, (2) civic engagement and governance, (3) quality of employment, (4) personal and social well-being, (5) personal security, (6) housing and infrastructures, (7) health, (8) environment, (9) education and skills, (10) Information and Communications Technology (ICT), and (11) leisure, culture, and community.

Besides the official measurement process that took place in Israel, the OECD published a special review in 2015 devoted entirely to Israel that employed the organization's approach to well-being measurement (OECD, 2015). Beyond that, several civil society organizations have proposed frameworks for measuring well-being in Israel. The Van Leer Institute developed the Van Leer Wellbeing

Index, published in 2017 (Yeshurun, Strawczynski, & Kedar, 2017). This index is based on eleven well-being domains defined by the OECD; the choice of relevant parameters for each domain was aided by experts. The Van Leer Index has yet to be implemented. The Haredi Institute for Public Affairs also developed an index for well-being in Israel in 2018 (Kasir & Romanov, 2018). The well-being domains and metrics included in this index were based on OECD practice and on the official index of the Central Bureau of Statistics. What is unique about these two initiatives, as opposed to the Central Bureau of Statistics measurement framework, is that they offer a weighted index for well-being. In the Van Leer index, the relative weight given to each domain and component of the weighted index is determined by an expert team. By contrast, the relative weights set by the Haredi Institute for Public Affairs are based on a sample of the Israeli populace, with an emphasis on weighted indices for different sectors of Israeli society.

Measurement frameworks for sustainability have also been proposed in Israel, but they have generally been geared toward sustainable development and natural capital (Feitelson, 2004; Ministry of Environmental Protection & The Jerusalem Institute for Policy Research, 2012). In 2015, once the development of Israel's well-being indicators had been completed, the Ministry of Environmental Protection laid a foundation for the development of sustainable well-being indicators, in accordance with the capital approach and common practice in the OECD and other countries around the world (Tzachor, 2015). The present report is based on that foundation and proposes a framework for the measurement of sustainable well-being in Israel. The framework aims to provide an added, future dimension to the annual measurement conducted by the Central Bureau of Statistics, which is currently confined to current well-being levels. However, the framework is not bound to the specific well-being measurement method employed by the Central Bureau



of Statistics; it is suitable for use with other approaches and measurement methods as well.

### ■ A Framework for Measuring Well-being Sustainability in Israel

When developing indicators for sustainable well-being in Israel, we can draw on the experience, knowledge, and conceptual framework of similar initiatives around the world. However, our efforts cannot precisely mirror what has been done in those initiatives. Measurement frameworks such as that of the OECD are based on certain commonalities and are limited by the availability of data in each country under assessment. Measurement at the national level can benefit from a broader and deeper picture and a comprehensive set of indicators. Moreover, each national measurement framework for sustainable well-being has to be tailored to the relevant national context. Some well-being resources are crucial to one country but not to others. For example, water is a limited natural resource of critical necessity to Israel, but this is not the case for countries with abundant water sources.

The measurement proposed in this report is based on the capital approach used worldwide to measure sustainable well-being. However, it expands this approach, mainly by adding a fifth group of resources necessary for well-being: cultural resources. As we shall see in greater detail (in the chapter [Cultural Capital](#)), the present report emphasizes the importance of cultural and identity factors to well-being in general, and to the well-being of Israeli residents in particular. Essentially, the report proposes adding to the four types of capital commonly featured in well-being measurement frameworks worldwide – economic, natural, human, and social – a fifth type of capital: cultural capital.

In the effort to devise an Israel-specific measurement framework, the resources critical to well-being in Israel were identified with the aid of five tests (Tzachor, 2021a):

1. **The availability test:** There are resources whose availability is limited or whose stocks are smaller than those of other resources. The lower the availability of a well-being resource, whether in Israel or in general, the more critical it is likely to be.
2. **The depletability test:** Some resources are renewable – their stocks can be replenished by natural or artificial means. Other resources are depletable. Depletable resources, or resources in danger of depletion, are likely to be more critical than renewable resources.
3. **The substitutability test:** There are resources that can be entirely or partially replaced by other resources, such that the dearth or unavailability of the former can be compensated for by substituting the latter. On the other hand, there are resources for which no substitutes exist. The less readily substitutable a resource, the more critical it is likely to be. The substitutability of a resource depends on the utilization technology available (the technology's future availability itself being uncertain), but also on ethical decisions.
4. **The national linkage test:** There are resources that are more critical to well-being in Israel than elsewhere, for a variety of reasons, including the importance that residents attach to this or that element of well-being. The more strongly linked a resource is to well-being in Israel, the more critical it is likely to be. Our discussion of cultural capital will illustrate this point and attest to the degree to which a given national-cultural context may determine the necessity of a given well-being resource.



5. **The sovereignty test:** States do not have equal influence or control over all well-being resources. If the purpose of well-being sustainability metrics is to assist decision-makers, then a resource may be considered more critical if it lies within the state's sphere of responsibility and control.

Not only do we need to identify the well-being resources that are of special importance to Israel, but we also need to choose appropriate means of measuring those resources. A few principles guided our selection, which proceeded from the conceptual and theoretical framework of the various capital types. Thus, we can distinguish between the well-being resources identified in this report and the proposed means of measuring them. The indicators are an attempt to measure the well-being resources as efficiently and accurately as possible, but they can be replaced or improved in accordance with different developments in Israel or with better information availability. Because the purpose of sustainable well-being measurement at the national level is to provide a general picture of the state of well-being resources and to identify worrisome trends pertaining to those resources, the framework proposed here is relatively parsimonious and is no substitute for a complete and comprehensive measurement of sustainable well-being resources at all levels.

Like the approaches commonly employed worldwide, the measurement framework proposed in this report comprises a set of indicators but does not call for the development of a weighted index. As noted earlier, the use of a weighted index in well-being measurement tends to be avoided due to normative disputes about the relative weight of each specific well-being domain. This problem is not necessarily insoluble, as suggested by academic research on this subject (Benjamin et al., 2014a; Benjamin et al., 2014b; Benjamin et al., 2017), and by the initiatives of the Van Leer Institute (Yeshurun,

Strawczynski, & Kedar, 2017) and the Haredi Institute for Public Affairs (Kasir & Romanov, 2018). As noted above with regard to well-being measurement, there is another difficulty besides this one of ranking resources in order of importance, namely, disagreement about the substitutability of the various well-being resources, given that any weighted index has to be based on certain assumptions regarding their substitutability.

The measurement framework proposed in this report is not complete. It constitutes a sophisticated and in-depth effort to identify indicators of well-being resources in Israel, but it is not a final product. Some of the indicators need further development, while others may, on second thought, seem less precise than other potential indicators. This measurement framework leaves a few major issues open, ones without which no discussion of a sustainable well-being measurement framework would be complete. Firstly, it doesn't offer a comprehensive mapping of the relationship between the various resources and well-being, or of the relationships between the resources themselves. Such a mapping is necessary if we are to accurately predict the well-being resources' future status, and analyze the impact of policy measures on them – and, by extension, on well-being.

Secondly, it is not enough to measure the stock of well-being resources; we also need to know how the resources are distributed among, and accessible to, different population sectors and groups, though without committing to a specific idea of what constitutes just distribution in this regard. The framework proposed here does not adequately develop indicators of inequality or access to well-being resources; additional work is needed on these issues. The proposed framework leaves this topic unresolved, not because it is marginal or negligible, but due to its complexity.

The indicators that appear in this framework lack another dimension

that might have been worth including in the interest of bolstering the framework's usefulness to policymakers. They do not point to critical thresholds that we need to avoid approaching too closely or deviating from, lest Israel be pushed into an unsustainable path. This type of dimension would entail thinking about, and characterizing, each and every indicator for a depth and precision unattainable in the context of the present report. Furthermore, it might be hard to implement such a dimension, due to the differing attributes of the well-being resources. For example, it might be easy to determine what level of air pollution endangers well-being, but there is no clear answer regarding the level of trust needed to ensure proper societal functioning and well-being. Setting thresholds such as these would also involve determining well-being resource substitutability, an issue on which disagreement still prevails and one that is marked, in any case, by uncertainty regarding technological and other issues.

Finally, it should be noted that, as with other reports of the Israel National Academy of Sciences and Humanities, this report was composed in a consensus-report format. What this means is that all members of the committee whose work produced the report are its signatories. Clearly this does not mean that the committee members agree unanimously and are completely undivided on the issues covered by the report. Differences arose from the outset, when the committee members had to define what sustainable well-being in Israel means. It stands to reason that "in Israel" means "relating to the population in Israel," but the committee members did not agree on how that population should be defined. In general, well-being is the right of every human being as such.

But when well-being in a specific country is assessed in a national statistical framework, the focus is not on all human beings as such, but rather on those human beings with whom the state has a relevant relationship. In an ideal situation where all citizens of the state, and

only them, regularly reside within the state's borders, this question would be easy to answer. In reality, however, some citizens of a given state do not live there on a regular basis. Moreover, there are many permanent residents (official or unofficial) within the state's borders who are not citizens of the state, e.g., labor migrants, refugees, asylum seekers, and, in the case of Israel, Palestinians living in territories under Israeli civilian control but without Israeli citizenship, namely, in East Jerusalem and the rest of the West Bank (Area C). Frequently, the well-being of these non-citizen residents is substantially lower than that of the rest of the Israeli population, among other things because they lack full civil rights. Their inclusion in the national statistics would lower the average level of well-being in Israel, and the large variance in the well-being levels would present a different picture of its sustainability. The Central Bureau of Statistics defines Israel's statistical boundaries in accordance with its economic territory,<sup>7</sup> where data on non-citizen residents are lacking. Anyone engaged with the topic of well-being in Israel has to be aware of this matter and its implications for the statistical findings, without ignoring the importance of the related humane question: how high and desirable can our own well-being be considered if the well-being of others living among us is substantially lower?

7 "The economic territory of a country consists of the geographic territory administered by a government; within this territory, persons, goods, and capital circulate freely." See the definition in the OECD's [Glossary of Statistical Terms](#).



**B**

**Well-being  
Resources in  
Israel and Their  
Measurement**



## Economic Capital

Economic capital, which encompasses physical capital, knowledge capital, and financial capital, directly and indirectly promotes the well-being of residents. It contributes to a country's capacity to supply goods and services, both in the present and in the future, and is thus crucial to individual welfare in the most basic sense as well as in improving the standard of living. Sustainable well-being thus requires the maintenance of an adequate productive capacity, which in turn requires a suitable level of physical capital. Knowledge capital also plays a vital role in forming a country's productive capacity, while financial capital provides flexibility to acquire other forms of capital, offering protection against adverse economic (as well as medical and other) shocks.



## ■ Definition of Economic Capital

Economic capital comprises physical capital, knowledge capital, and financial capital.<sup>8</sup>

### ■ Physical Capital

Physical capital is regularly measured by statistical agencies, following OECD guidelines. It represents a country's accumulated value of residential buildings, all types of non-residential structures, as well as machines and equipment. To arrive at the net value of physical capital it is necessary to account for depreciation, some of it physical, some due to declining usability. Since different components of physical capital are aggregated to a single monetary value, depreciation is also measured in real value terms. After depreciation is accounted for, the remaining net capital provides a measure of usable capital.

Infrastructure capital, which is counted as part of physical capital, plays a distinct role in the evaluation of sustainability. This capital stock includes the value of items such as roads, bridges, railways, airports, water supply systems, communication infrastructures, and electrical infrastructures, most of which are owned by the government in one form or another.

The 2009 OECD guidelines broadened the definition of physical capital to include accumulated investment in research and development (R&D) and various forms of intellectual property. As a result, the unqualified term “capital” that is now used in national statistics consists of physical capital plus intellectual capital. We, however, believe that for the purpose of measuring sustainability, major forms of intellectual capital belong to the stock of knowledge, which is discussed below.

<sup>8</sup> For further discussion on economic capital in general and Israel in particular, see the economic capital review in the Digital Appendix to this report (Sarel, 2021).

## ■ Knowledge Capital

Knowledge capital is paramount for sustainability, because it plays a special role in modern economic growth, as discussed in the next section. At this stage we need to explicitly distinguish knowledge capital from physical capital, despite the fact that large parts of intellectual property (IP) are now included in the physical capital stock by using investments in R&D plus normal accumulated return, which are fairly imprecise measures of the knowledge stock. A country's knowledge capital is also reflected in the quality of its patents, the strength of its academic institutions, and the ability of its population to generate ideas. It is further embodied in its human capital ([which is separately addressed in this report](#)), as well as in what is sometimes referred to as organizational capital. The latter represents the tacit knowledge and modes of operation of business firms and governmental agencies (e.g., their organizational structure, “culture” and norms, trust, and the resulting efficiency), which are very hard to measure. It is well known that knowledge capital plays an essential role in shaping an economy's productivity level, which contributes in turn to the economy's capacity to supply goods and services.

An important caveat to measuring knowledge capital is the foreign ownership of the IP assets that have not been valued externally, or at least not adequately reported to the statistical agencies. We address this in our discussion of financial capital below.

## ■ Financial Capital

Financial capital is the claim of the citizens of a country to its financial assets net of their obligations to other countries. Financial assets represent claims to future cash flows that are generated by physical and knowledge assets. For this reason, one has to be careful not to double-count the underlying assets: once as part



of the physical or knowledge capital stock and the second time as part of the ownership claims to the same assets in the form of financial assets. For example, government bonds issued by Israel and owned by Israel's residents generate neither net obligations for the country nor net asset holdings: every shekel of this type of asset has a corresponding shekel obligation. Similarly, ownership by Israeli residents of shares in an Israeli company that has all its physical and knowledge assets in Israel should not be counted as financial capital. Otherwise, the company's assets will be counted twice: once in the physical capital stock and a second time in the financial capital stock. The exception is ownership of natural resources, as their reserves are not counted as physical capital. Financial assets holding such ownership do represent part of financial capital, appropriately apportioned to Israeli owners.

On the other hand, financial assets issued by a country's residents or other entities that are held by foreign residents do generate net obligations. Similarly, any holdings in a sovereign wealth fund should be considered as part of financial capital as they do not have financial obligations against them, while the reserves of the central bank should not. By the same token, holdings of foreign financial assets by a country's residents and other entities generate assets with no corresponding domestic obligations. For this reason, a country's total holdings of financial assets minus its total financial obligations, which equal the country's holdings of foreign financial assets minus foreigners' holdings of the country's financial assets, represent the country's financial capital.

## ■ Economic Capital and Well-being

Economic capital impacts well-being in many different ways: some direct, others indirect. Yet all three forms of economic capital – physical, knowledge, and financial – contribute to a country's capacity to supply goods and services, both in the present and in the future. The pathways through which they carry out these tasks differ, however.

Housing, food, and clothing, which represent **physical capital**, are high-priority consumption items in modern societies. Residential buildings provide housing services that are essential for well-being. Indeed, improvements in housing played a leading role in the rise of the standard of living during the second half of the 19<sup>th</sup> century and the early part of the 20<sup>th</sup> century. For these reasons, sustainability of well-being depends on the preservation of an adequate housing stock and an increase in its supply to meet the increase in demand, which in Israel grows rather fast.

Commercial buildings and machines and equipment are indispensable items in the production of goods (such as cars) and services (such as financial intermediation or retail). Larger quantities of these components of physical capital raise an economy's productive capacity, enabling it to produce more goods and services, and goods and services play a key role in engendering well-being. GDP measures the aggregate value of an economy's output of goods and services, and GDP per capita is often used as a measure of a country's economic well-being. Although GDP per capita is not an adequate measure of all aspects of well-being, it does contribute immensely to a country's standard of living and is correlated with other measures such as health, education, and personal safety. For this reason, sustainability requires the maintenance of an adequate productive capacity, which in turn requires a suitable level of physical capital.

**Knowledge capital** plays a vital role in forming a country's productive capacity. Economists distinguish between the contribution of inputs to GDP – such as labor, land, and machines – and total factor productivity. The latter represents many unmeasured factors that influence the value of output (given the inputs), such as quality of technology, institutional capital, organizational capital, and efficiency of resource use. Among these factors, knowledge capital plays a primary role. Knowledge contributes to productivity by enhancing the efficiency with which other inputs are used. It also raises the profitability of investment in capital equipment, thereby altering future capital stocks.

Some of the knowledge capital is embodied in production blueprints, which are often protected by patents and other laws designed to safeguard intellectual property rights. Others are protected by laws governing copyrights, design rights, and trademarks. But, as is widely recognized, specific knowledge-creating processes – such as R&D designed to develop a particular product – also contribute to broad, useful knowledge that is not protected by laws or trade secrets. This nonproprietary useful knowledge is then used by other economic entities to advance their own production of goods and services. It is recognized that these by-products of knowledge creation generate benefits that are not internalized by the knowledge creators themselves because these benefits accrue to other economic entities. As a result, the social benefits of knowledge creation exceed the private benefits by a substantial margin. This argument applies even more forcefully to knowledge acquired from basic research, carried out by Israel's universities, medical centers, and other research institutions. In this sense, investment in knowledge creation differs from investment in machines or infrastructures and it has a significantly higher rate of return. For this reason, it is important to measure the stock of knowledge capital separately from the stock of physical capital

and to emphasize its special role in shaping productivity, as is highlighted by the modern view of economic growth. Depletion of knowledge can indeed be very detrimental to sustainability, but it is very hard to measure in the short run.

As a contributor to sustainability, **financial capital** plays three roles. First, it provides flexibility to acquire other forms of capital according to need. Second, it provides protection against adverse economic (as well as medical and other) shocks. A country with a larger stock of financial capital can better weather severe shocks than a country that lacks these resources. In other words, financial capital acts as an insurance policy against an adverse economic shock that can diminish the country's productive capacity, reducing its well-being. Finally, a sizable stock of financial capital is often (but not always) associated with a well-developed financial system that can channel savings into the best available investment opportunities, increasing the future capacity of the economy to produce goods and services. For these reasons, sustainability requires a country to maintain not only a suitable net asset position, but also a well-functioning, efficient, and nonextractive financial system of adequate size relative to the size of the economy (which is currently not the case in Israel). To meet these needs, measures of financial strengths and weaknesses that are reflective of the entire financial system are required, including banks, stock exchanges, insurance companies, pension funds, and other fund management companies. A variety of measures of the strength of financial systems and their impact on growth are available in the literature (e.g., Beck, Levine, & Loayza, 2000; Levine, Loayza, & Beck, 2000).

## ■ Economic Capital Resources and Their Measurement

### ■ Physical Capital

It is evident from the above descriptions that some components of economic capital are easier to measure than others. Statistical agencies use a well-established methodology to estimate physical capital, which consists of infrastructures, machines and equipment, and intellectual property products using a well-established methodology. They take the previous net physical capital, add current investment, and subtract depreciation to obtain the current net physical capital. These calculations are done using the prices at which these assets were purchased and converting them to constant prices in order to make the estimates comparable over time in “real terms.”

The Israel Central Bureau of Statistics regularly reports the country’s net physical capital. Its components are residential buildings, non-residential buildings and other construction, machinery and other equipment, intellectual property products, and cultivated biological resources. While cultivated biological resources constitute a very small part of physical capital (about three-tenths of one percent), intellectual property products are of the same order of magnitude as machinery and other equipment (8% vs. 10%). By far the largest component is residential buildings, which accounts for almost one-half of the net physical capital, indicating that residential housing is the biggest part of this capital.

**Physical capital indicator:** This is the standard measure of physical capital discussed above. It is recommended to measure the physical capital because maintaining an adequate level of it is paramount for sustainability. In addition, it is recommended to separately report the net capital of residential buildings, because housing is a major contributor to well-being. As for intellectual property products, they should be considered as knowledge capital for the reasons delineated above.

**Infrastructure capital indicator:** Infrastructure capital should be computed in the same way as physical capital, by adding investment and subtracting depreciation, except that for this measurement investment should include only infrastructure items, such as the construction of roads, railways, bridges, airports, water supply systems, communication networks, electricity supply systems, as well as military installations. The Accountant General in the Ministry of Finance publishes the balance sheet of the Israeli government, and much of the infrastructure capital can be found there.

**Distribution of housing ownership indicator:** Measures the distribution of housing ownership (in terms of value) by income decile to capture the degree of inequality in the distribution of the main source of wealth in the population.

**Green capital indicator:** Measures the fraction of green housing and the fraction of green capital in the energy and other sectors. This indicator is recommended to measure the green capital because future sustainability depends on the extent of green economic activity that is driven by green capital.

## ■ Knowledge Capital

Knowledge is notoriously difficult to measure. Yet its importance in maintaining sustainability is so great that whatever useful measures can be amassed should be included in the menu of sustainability indicators. Chief among them is R&D capital. R&D capital is calculated in the same way as regular capital, namely, by adding to the previous net value of R&D capital current investment in research and development and subtracting from it depreciation in order to arrive at the current net value of R&D capital. This indicator is easy to compute and it provides essential information about an economy's core ability to produce goods and services.

Much of the private research and development conducted in Israel is performed for foreign multinational corporations (which account for over 40% of the R&D expenditure in Israel). As a result, a large share of the fruits of this research is appropriated by foreign companies. There still exist spillovers that contribute to general knowledge, but it has to be recognized that the net R&D capital indicator may overestimate this component of the knowledge capital. One way to address this difficulty is to adjust the measure of the knowledge capital by multiplying it by the percentage of R&D expenditures that are accruing to Israeli companies.

**R&D capital indicator:** This is the standard measure of R&D capital (with the possible adjustment) discussed above.

**Patents indicator:** Analyzing data on patents registered by Israeli entities and their quality is an additional approach to addressing the difficulty of measuring knowledge. This type of data is readily available in standard patent registries, such as the U.S. and the European patent offices. Patent citations can be used as a standard measure of patent quality (e.g., Gandal, Kunievsky, & Branstetter, 2020).

**Basic research capital indicator:** Measures basic research capital, based on expenditure on basic research in universities and research institutes.

Knowledge capital is calculated as a normative return (determined by the Central Bureau of Statistics) on investment in knowledge companies. In many cases companies are sold at early stages of technological development for values that greatly exceed the cumulative investment in their operation. This implies that only a small portion of the value of these companies' knowledge is captured by R&D accounting. Furthermore, such sales to foreign owners are not recorded as part of the GDP, but rather as international capital movements. As a result, these values are included in the financial capital and not in the knowledge capital. A large portion of profits from sales of these companies accruing to Israeli founders, investors, and workers (through employee options) reflect a return on knowledge and should therefore be considered as part of the return on knowledge capital.

## ■ Financial Capital

As we discussed above, calculating financial capital is conceptually simple: it consists of the country's holdings of foreign financial assets minus foreigners' holdings of the country's financial assets. However, this calculation misses the role of abnormal profits that cause the value of a firm's shares to exceed the value of its physical and knowledge capital stocks (a market-to-book value of more than one). One way to correct this measure is to compute the average market-to-book value of firms whose shares are publicly traded and assume that this ratio also applies to the rest of the productive assets with comparable characteristics (not including the value of residential buildings and infrastructure capital). Adding the estimated market-to-book value (minus one) times the value of the productive assets would provide an addition to the estimate of aggregate financial capital.

**Financial capital indicator:** This is the standard measure of financial capital discussed above.

There are many measures of efficiency of financial systems. The difficulty in applying them to Israel is that the financial system of a small and isolated country (excluding venture capital, which operates separately from the other financial institutions) cannot be easily compared to the financial systems of much larger countries at a similar level of development. Nevertheless, some measures of financial system efficiency need to be included for sustainability evaluation. Moreover, we recommend reporting measures of financial inclusion.

**Financial inclusion indicator:** Measures the number of people who have bank accounts or retirement savings accounts.



## Natural Capital

Humankind's existence on earth is based on natural resources, which constitute natural capital. Natural capital consists of natural resources that make human existence possible and that benefit human life and activities. As the stock of natural capital diminishes or deteriorates, opportunities to produce and consume goods and services dwindle, economic and human development are compromised, and general well-being erodes. Thus, if we are to promote sustainable well-being in Israel, we must manage, invest in, and efficiently utilize the stock of natural capital. Of particular importance in the Israeli context are land, ecosystems and the biodiversity present in them, water resources, air, mineral ores, and energy resources. Due to Israel's small land area relative to the intensity of human activity, it is particularly important that open spaces subject to heavy pressure be protected, and that institutional systems be established to manage the stock of resources from an intergenerational perspective.



## ■ Definition of Natural Capital

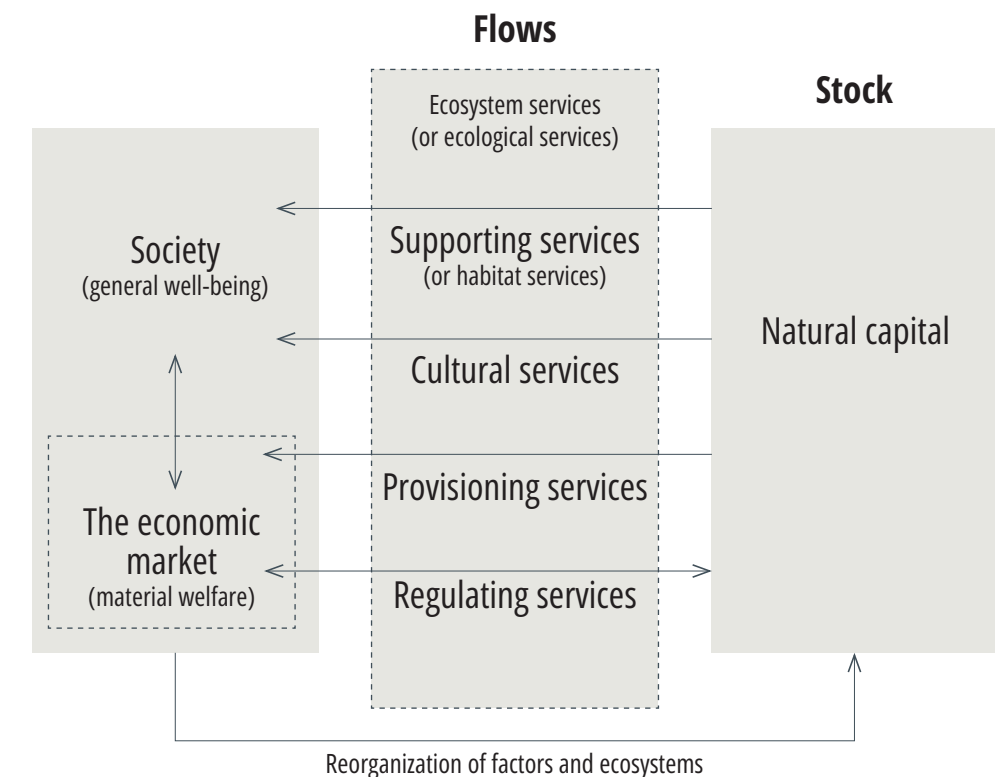
Natural resources comprise the total sum of biotic and abiotic factors in nature: land, water, and air, ecosystems, flora and fauna, all of which are useful or necessary for human existence and well-being.<sup>9</sup> The most comprehensive definition of the benefits and services that ecosystems provide appears in the Millennium Assessment. According to this definition, there are four different kinds of services (see Figure 4 below):

1. **Supporting services:** Also known as habitat services, these include the basic processes that make life possible. These include biotic processes such as the initial production of elementary biological compounds (via photosynthesis and chemosynthesis), as well as abiotic processes such as the formation of land and atmospheric oxygen.
2. **Provisioning services:** These include the provision of raw materials from nature, such as water, energy, and food.
3. **Regulating services:** These include natural processes, such as waste decomposition, carbon fixation, air purification, water storage, and pollination of crops.
4. **Cultural services:** These include recreation and the direct production of positive experiences, as well as the provision of non-material benefits such as scientific and artistic inspiration.<sup>10</sup>

<sup>9</sup> For further discussion of natural capital in general, and in Israel in particular, see the review of natural capital in the Digital Appendix to this report (Tzachor, 2021b).

<sup>10</sup> For more on cultural services, see also the discussion in the chapter [Cultural Capital](#).

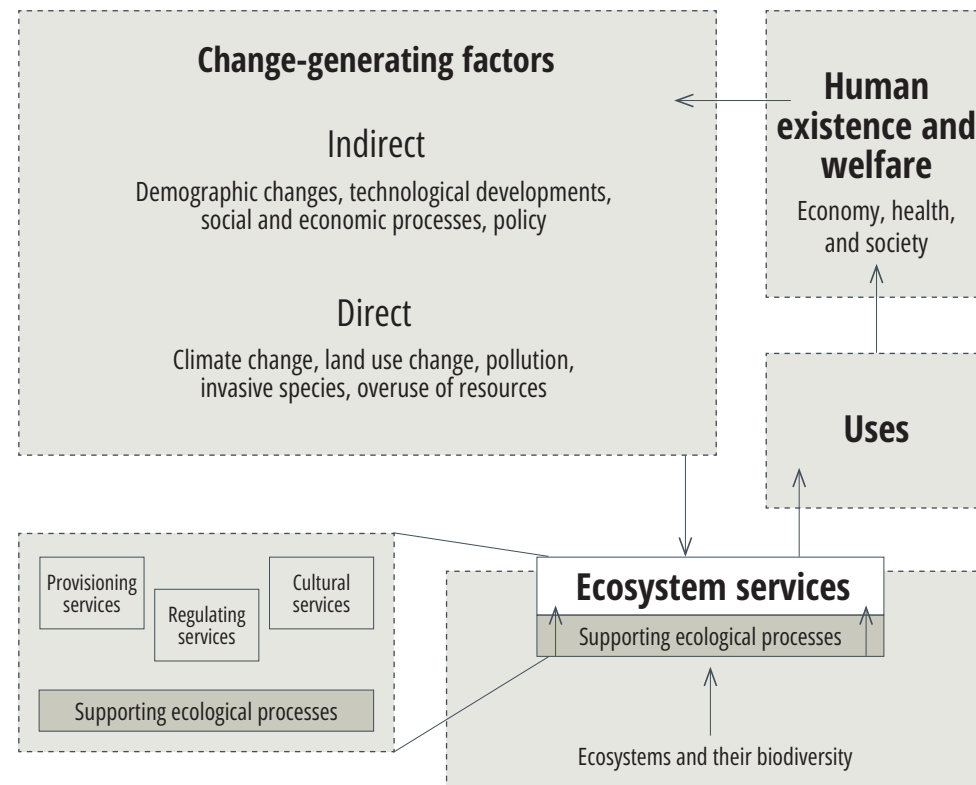
**Figure 4. The Stock of Natural Capital, Ecosystem Service Flows, Market and Society**



Source: Tzachor (2021b)

In the course of assessing Israel's ecosystem services, the service definitions were slightly altered. Supporting services were characterized as the basis for biodiversity, which is part of the natural capital that provides the three other services necessary for human well-being: provisioning services, regulating services, and cultural services. This model is shown in Figure 5. The figure's breakdown of services is the one that is proposed for the assessment of Israel's natural capital.

Figure 5. Ecosystem Services

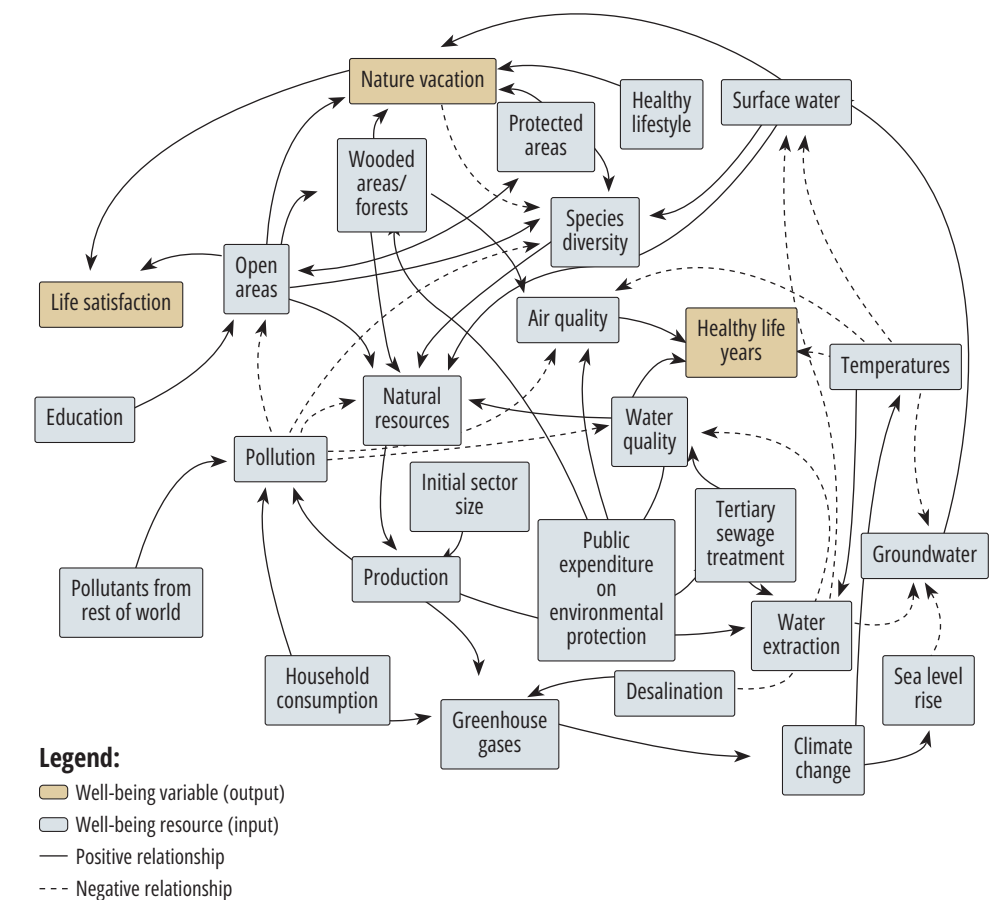


Source: Lotan, Safriel, & Feitelson (2017, p. 14)

## ■ Natural Capital and Well-being

Natural capital has several unique properties in comparison with other types of capital. At the most basic level, natural capital is what enables humankind to exist. It precedes humankind, is not produced by humans, but is affected by human activity. Natural capital is also subject to the principle of mass conservation, according to which matter is neither created nor destroyed. Human activity and, in particular, the creation of economic capital are therefore, in essence, transformations of natural capital. Economic activity cannot, in the material sense, produce an object ex nihilo. It involves the conversion

Figure 6. The Relationships between Natural Capital and Well-being in Israel



of natural materials that originate from natural systems. Moreover, natural capital's contribution to well-being is multidimensional, meaning that one natural capital resource can yield multiple services (regulating, cultural, and provisioning), and provide raw materials for different products, unlike manufactured and manmade capital assets that are of limited, unidimensional use. The ecosystem services approach underscores the importance of natural capital to well-being, and its relationship to it. In essence, different ecosystem services promote different aspects of well-being.

We can also learn about natural capital's contribution to well-being from the work of Ilmola-Sheppard et al. (2020), who mapped the relationships between the various natural systems or resources that promote well-being, as defined by the OECD. Figure 6 (see below) presents the mapping of the relationships between natural capital resources and well-being, adjusted to Israeli conditions. The figure focuses on two aspects of well-being as characterized by the OECD: healthy life years (HLY) and life satisfaction.<sup>11</sup> Added to these two is spending leisure time in nature, which is one of the main cultural services of natural systems and has special importance in a densely populated country such as Israel.

As we can see in Figure 6, HLY is affected by air and water quality. Air quality is an inverse function of pollution levels, which are determined by the volume of economic activity (production and consumption) and by pollutants transported from other parts of the world. Water quality is affected by the level of water treatment (a function of governmental investment) and, accordingly, by the level of wastewater treatment. It is also affected by the amount of water extracted from water sources, especially groundwater. The extraction levels themselves are determined by the amount of desalination that takes place, by wastewater reclamation levels, and by precipitation levels and weather (which in turn affect the amount of agricultural and urban irrigation). Water quality is also affected by pollution levels. It should be noted that, in order to adjust this mapping to Israel, two influencing variables were added – seawater desalination and tertiary, rather than primary, wastewater treatment – due to the scope of desalination and the widespread shift to tertiary wastewater treatment in Israel. Additionally, groundwater and surface water were separated, due to the centrality of groundwater to Israel's water supply, and the

importance of surface water in terms of tourism patterns and biodiversity.

The importance of water resources and air quality to well-being also illuminates the degree to which well-being is affected by climate change. The amount of water available depends on the amount and nature of precipitation (frequency and intensity). These, in turn, are affected by climate, which is changing. Climate change is expected to increase the number of extreme climate events and to cause sea levels to rise – in addition to raising temperatures, a phenomenon already apparent today. Climate change can therefore be expected to influence the supply of water in several different ways. In addition to its direct impact on precipitation levels (among other things, more frequent and lengthy periods of drought are anticipated), climate change will lead to more flooding events, and salinization of the Coastal Aquifer as a result of rising sea levels, which will reduce Israel's usable water reserves. Higher temperatures are expected to increase the evaporation rate, another factor that will reduce the reserves of surface water sources, first and foremost the Sea of Galilee. Climate change is also expected to have ramifications for air quality and, indirectly, life expectancy.

The amount of available open space, and options for spending time in nature, are factors that influence life satisfaction. Such options are in turn affected by the amount of surface water and open space, including forests and protected areas. The latter have particular importance in the Israeli context, and were specially added to this mapping due to the current pressure on Israel's open space, which is intensifying in the wake of governmental plans to increase the housing supply. The amount of protected area and surface water also affects species diversity, which, as can be seen in Figure 5 (above), is the basis for ecosystem services. Alongside the amount of open space, surface water, and forested areas, these constitute the

<sup>11</sup> In its well-being indices, the OECD refers to "life expectancy," but in the case in question this aspect differs from healthy life expectancy due to the importance attached not only to length of life but also to quality of life. For more on this topic, see the chapter [Human Capital](#).

foundation for our natural resources (including abiotic resources), some of which are used in production (i.e., provisioning services).

As natural capital stocks are depleted or decline in quality, opportunities for the production and consumption of goods and services diminish, economic and human development processes are impaired, and general well-being erodes. Efficient management and utilization of natural capital are therefore crucial to sustainable well-being, all the more so with regard to those of its components that are not renewable or whose rate of renewal is very slow. Besides efficient use of limited natural resources, we need to invest in other natural resources whose stocks can be increased and developed. In this context, we should note that investment in one component of natural capital may sometimes adversely affect another component. For example, seawater desalination may help maintain high water levels in the aquifers, allowing for greater allocations of water to nature (thereby improving the status of desiccated aquatic systems and supplying cultural services), but at the cost of air pollution, greenhouse gas emissions, and adverse impacts on marine ecosystems.

## ▣ Natural Capital Resources and Their Measurement

In accordance with the System of Environmental and Economic Accounting, or SEEA, an integrated framework jointly developed by the United Nations, the European Union, the International Monetary Fund, the OECD, and the World Bank, the present report highlights six natural resource categories that are critical to well-being in Israel: (1) land, (2) soil, (3) ecosystems and biodiversity, (4) water, (5) air, and (6) mineral ores and energy resources. A seventh category of “timber” is commonly added to this list, but

there is a broad consensus that this is not a resource necessary to well-being in Israel (trees are important in terms of biodiversity, but they should be seen as an element of the ecosystem).

### ▣ Land

Land is perhaps the most critical natural capital resource, due to its limited and depletable nature, as manifested in rezoning. There is currently great pressure on Israel’s land resources, due to population growth, economic development, a rising standard of living, and the amount of infrastructure required by the above, as well as the massive use of land resources by the military and for security. The pressure on land resources is expected to increase, given an anticipated doubling of the Israeli population within forty years. The criticality of land is partly due to the fact that ecosystems and biodiversity are dependent upon it.

The most important distinction regarding land is that between developed and open spaces. Construction in open spaces is, for all practical purposes, a point of no return. Thus, the more open spaces that will be available to future generations, the better their quality of life will be, and the wider their range of opportunities. Open spaces will give future generations greater flexibility to meet their needs. Due to the effects of cultivation on biodiversity, it is also advisable to distinguish between open spaces that have been cultivated during the past generation or two and those that have not. Other issues of importance besides zoning are the quality of the ecosystems that exist on the land, the contiguity of open spaces, their distribution, the climatic differences between them, and their history. A comprehensive measurement of land resources should ideally take all of these matters into account. In particular, the degree to which open spaces are preserved and protected should be monitored by geographic breakdown, with the highest priority



given to nature reserves, national parks, and forests. However, other open spaces protected by district and national outline plans should be monitored as well, as they complement the network of open spaces and are vital to their contiguity, which is of great ecological importance.

**Open space indicator:** The total amount and contiguity of open space in different parts of the country should be measured. When analyzing the country's open spaces, we must distinguish between those that have been cultivated and those that have not. We must also identify their distribution in different ecological and geographical regions, by region and by ecosystem, following the breakdowns proposed by HaMaarag, Israel's National Ecosystem Assessment Program (Sorek & Shapira, 2018). To measure open space contiguity, one may use the method developed by Noam Levin et al. (2007), which can be applied on different spatial scales.

**Planned open space indicator:** Besides looking at the amount and contiguity of open space relative to the present land cover, we need to examine zoning. Zoning offers an outlook for the country's future land cover and changes anticipated in light of planning trends. An indicator along these lines would have to determine the amount of open space slated for construction, minus the amount of open space that currently exists. A negative value for this index would indicate the degree to which open space may be expected to dwindle.

**Urban nature indicator:** An internal breakdown of the built-up area category should be included, for purposes of monitoring intra-urban open space, including urban nature areas, as these also provide system services, particularly cultural and regulating services.

**Protected open space indicator:** The degree to which open areas are protected should be monitored by tracking tools to ensure that open areas are conserved as such, with an emphasis on nature reserves, national parks, forests, and other areas eligible for protection in national or district outline plans. It is also advisable to monitor the degree to which the protected areas conserve nature. HaMaarag's State of Nature report (Sorek & Shapira, 2018) may be used for this purpose.

## ■ Soil

"Soil" relates to land profile and land type, factors that substantially determine the soil's fertility and influence the flora (and hence fauna) that grow on it. In actuality, due to land profile variation from place to place, and the difficulty of gathering aggregative land profile data, we have little information about land profiles. There is more information about land types. The SEEA proposes employing the [Harmonized World Soil Database](#), which offers a taxonomy and relevant assessment and classification methods. By means of this database one can monitor the degree to which different types of land remain open, but such assessments do not add information about land profiles. Thus, the adjustment and formulation of soil indicators for Israel will require additional research and development work that lies beyond the scope of this report.

## ■ Ecosystems

Ecosystems are a dynamic array of flora, fauna, microorganisms, and abiotic factors that function interactively as a single unit. They can be small or large, and can exist on land but also in bodies of water or in the sea. They constitute the basis for provisioning, regulating, and cultural services. They are highly complex, which makes it hard to understand how their components interact and how external factors affect them. Among other things, they are sensitive to irreversible processes, and small changes to them can produce large unforeseen effects.

Biodiversity is the basis for ecosystem monitoring and conservation, as ecosystems cannot exist without it. Particular attention must be paid to the number of species and to species' uniqueness and population size, and we must distinguish between natural diversity and alien and invasive species. All beneficial species should be monitored, including tiny ones whose presence in very large populations is an important part of an ecosystem<sup>12</sup>.

<sup>12</sup> Saltwater fish are also part of our natural capital, but it should be noted that they are only some of the fish available in Israel because some fish constitute manufactured (economic) capital.

**Biodiversity indicator:** Biodiversity measurement should be based on the stock of flora and fauna. For this purpose, use may be made of the biodiversity survey in HaMaarag's State of Nature report (Sorek & Shapira, 2018). In this context, we should distinguish between endemic, especially endangered, species, invasive/outbreak species, and synanthropic species. We must also differentiate between the various natural systems. The [Central Bureau of Statistics](#) monitors changes in biodiversity, based on species and land changes (in scope and contiguity) in natural land units. This kind of measurement provides an overview of change in the amount of natural capital, but does not represent the entire stock (i.e., the scarcity of the various units). HaMaarag data, as updated through monitoring and surveys, may prove helpful in bridging this gap.

**Endangered species indicator:** Measures the number of species that are extinct or are in danger of extinction. For this index, use can be made of HaMaarag's State of Nature report (Sorek & Shapira, 2018).

**Invasive species indicator:** Measures the number of invasive species, their population size, and their distribution. For this indicator, use can be made of HaMaarag's State of Nature report (Sorek & Shapira, 2018).

## ■ Water

Water's importance to human life is basic, direct, and critical. We need water to drink, for hygiene and cooking, and for growing food (much

of which is imported, meaning that it does not depend on local water).<sup>13</sup> Beyond this, water resources are also important to ecosystems, especially to terrestrial-aquatic natural systems, currently the most vulnerable in Israel. The dwindling of water resources could potentially harm ecosystems. While desalinated seawater and recycled wastewater may add to the total quantity of water available, the substitutability between natural water resources and desalinated water is limited, as the water types are not identical in character or quality, and substitution could harm biodiversity by encouraging the growth of invasive species. Thus, the contribution of desalinated water lies in its potential for home use, making it possible to leave more water in the natural systems.

In arid regions such as that in which Israel is located, the most important water resource component is the reservoirs (whose quality is also crucial), inasmuch as water has to be stored from winter to summer, and from years of abundance to years of drought. The amount of water in the reservoirs, and their quality, must therefore be monitored. Because the main reservoirs, the mountain aquifers, are shared with the Palestinians, it is necessary to monitor the reservoirs throughout Israel and the West Bank. Furthermore, we need to monitor the quantity of natural surface water flows, as that water is the basis for a significant proportion of recreational activity in Israel during the warm months, beyond its importance to aquatic biodiversity. A special problem in this sphere is that of the natural water that flows in the southern Jordan River, an international river that (together with its main tributary, the Yarmouk) is the Kingdom of Jordan's main water source. It should be noted that at present, Israel also has manufactured (desalinated and reclaimed) water available for household use: this water is not part of the nation's natural capital but rather is produced

via economic investment. However, the country's large scale of desalination and high rate of wastewater reclamation are crucial in reducing pressure on the country's natural capital and allowing that capital to be conserved and even improved.

**Water level and quality indicator:** Measures the level and quality of water in the natural reservoirs, broken down by source. The Central Bureau of Statistics monitors these parameters based on data from the Israel Hydrological Service. Alternative proposals for measurement points were not considered, as that would fall outside the bounds of the Committee's work. However, the Israel Hydrological Service data enabled us to examine additional points.

**Natural water flow indicator:** In addition to reservoir water level and quality, it is important to monitor natural flows as manifested in groundwater elevation.

**Water allocated to nature indicator:** It is advisable to measure the amount of water allocated to the aquatic systems – the water that reaches nature. This parameter is not always identical to that of natural flows, as water sometimes reaches nature via extraction or artificial discharge of natural water.

In this sphere, regarding the amount of water both in the reservoirs and in the aquatic systems, red lines have already been drawn for use in situational assessment, based on Central Bureau of Statistics and Israel Hydrological Service data.

<sup>13</sup> The water contained in imported food is called "virtual water." In Israel, most of the water used for growing food is actually virtual water. However, growing fresh food locally is important as well.

## ■ Air

Air is not traditionally considered a form of “capital” or “stock.” However, it is still an aspect of the natural system that is crucial to human life and health. Air quality has two main components: dust concentration (some dust comes from natural sources), and the presence of pollutants (products of human activity that have health consequences). Human activity also has an impact in terms of greenhouse gas emissions. Pollutants are created mainly by production and consumption processes and transportation systems. Due to air’s dynamic nature, the state often has limited control over air quality; dust and pollutants can, for example, arrive from other regions.

**Air quality indicator:** Air quality measurements are not estimates of capital, but it is important to monitor air quality for purposes of well-being assessment. Air pollution and air quality are measured in Israel today by the Ministry of Environmental Protection and the National Monitoring Program; some parameters are reported by the Central Bureau of Statistics, per pollutant. The air quality indicator could be the amount by which the various pollutants exceed air quality standards. A special issue of relevance here is that of dust concentration’s impact on air quality. A substantial proportion of dust comes from natural sources outside the state’s borders, but because of its health impact it is advisable to monitor the quantity and sources of dust.

**Pollutant emission indicator:** Pollutant emission levels should be monitored by source.

**Greenhouse gas emission indicator:** Greenhouse gas emission levels should be monitored by source. Such monitoring is of particular importance due to Israel’s commitment, like that of other nations, to mitigating greenhouse gas emissions. Monitoring will make it possible to determine the extent to which Israel meets the targets it has set for itself.

**Renewable energy indicator:** Long-term impacts should be assessed by monitoring renewable energy as a share of total energy. This indicator is also important for determining the extent to which Israel meets international commitments in this sphere.

**Climate change indicator:** It is advisable to monitor how climate change affects Israel, with an emphasis on temperature, precipitation, and the number of extreme weather events (large-scale deviations from average values). This monitoring is an important means of assessing the impact of global climate change so that measures can be planned and taken for Israel’s adaptation to them.

## ■ Mineral Ores and Energy Resources

Mineral ores and energy resources are depletable. Unlike other natural resources, they do not constitute life-supporting environments; rather, they are production inputs. Because most of these resources are underground, their stocks are not precisely known. When measuring minerals and energy resources, it is important to determine their concentration levels, as that will affect the cost of producing the resource.

The more critical resources are those that cannot be imported (or for which the cost of importing is very high). In Israel, these are

sand and other aggregates. However, some of these resources can be substituted for each other, for example by changing the style of construction or switching energy resources. On the energy side, gas resources are of the utmost importance to Israel at present. Although oil shale can be found in Israel as well, the cost of producing it is high and the environmental damage caused by its production process is extensive, making it doubtful whether the resource will be utilized. Israel also has minerals of great economic importance, some or most of which are exported; the most notable of these resources are phosphate and potash.

**Concrete price per m<sup>3</sup> (cubic meter) indicator:** An earlier report (Feitelson, 2004) proposed monitoring the price of a cubic meter of concrete, which reflects the demand and supply of sand and construction aggregates. Aggregates are used primarily in the local market and are expensive to import; their price thus indicates their scarcity and the demand for them. As part of National Outline Plan – Mining and Excavation (NOP 14 and its various amendments), a survey was conducted of the various stocks. The stocks can be monitored via the plan updates, and with the aid of the Commissioner of Mines. However, the effective stock is also a function of production efficiency and regulation levels; regulation determines whether reserves can be realized (Ministry of Energy, Natural Resources Administration, March 2019). It is worth noting that the reserves available for utilization could be enlarged via underground mining, which is more costly. Currently identified stocks do not include aggregates that require underground mining.

**Energy resources indicator:** Measures the stock of local energy resources, gas and oil shale in particular, by type of resource.

## ■ Principal Challenges

### ■ Depletable Resources

Natural capital components cannot be produced, nor do they have perfect substitutes. Although treated effluents can be discharged into streams, they cannot replace natural water due to their composition and flow intensity differences. Similarly, urban green space, which provides many important ecosystem services, is no substitute for extra-urban open space – neither in terms of flora and fauna, nor in terms of the cultural, regulating, and provisioning services that extra-urban areas provide. The depletable nature of these resources can lead to market and regulation failures when policymakers rely on the indicators by which these resources are assessed. Due to the growing scarcity dictated by their depletable nature, these resources' future real value will exceed the values that can be estimated at present. The rise in real future value, which will continue over generations, is not reflected in the markets or in decision-making processes. It is therefore possible that the indicators will be designed as deficit indicators in terms of natural capital depletion, the emphasis being on those components that are considered to be life-supporting. Accordingly, we should abide by the precautionary principle and ensure optimal utilization and savings of natural capital resources. This is especially true regarding open spaces. Hence the great importance of protecting these spaces and thwarting attempts to weaken relevant planning regulation.

### ■ Utilization Efficiency

The scarcity of depletable natural capital components, and the scope of their loss, are functions of the efficiency with which such resources are utilized. For example, water conservation levels affect the amount of water extracted and diverted from



the natural systems. Similarly, the efficiency with which materials are mined and extracted affects the size of mining and quarrying sites, while building density affects the degree to which open spaces are rezoned for construction. Natural capital measurement should accordingly reflect not only depletion rates but also the efficiency with which the components of natural capital are utilized. Indicators of efficient use can drive policies to increase natural resource utilization efficiency, so that we can ensure sustainable well-being.

One means of improving efficiency is by recycling, per the circular economy approach. The circular economy promotes the extensive use and recycling of all materials, thereby encouraging servicizing, i.e., the provision of services (such as transportation services) instead of products (cars). A circular economy thus curbs natural capital erosion. It is therefore appropriate to monitor recycling and servicizing levels, and in particular the connection between economic expansion and natural capital erosion, so as to estimate the degree to which growth and resources are decoupled – decoupling being the goal of the circular economy.

#### ■ Lack of Knowledge

Some components of natural capital are invisible, and so their true situation is unknown. Knowledge is notably lacking with regard to biodiversity; we do not know what the full stocks of species are. Mineral and energy resource stocks are also not fully known. Thus, we are liable to find ourselves in a situation where construction or development will come at the expense of these unknown stocks, or severely compromise diversity through harm to species whose existence at the relevant sites was unknown. To prevent such damage, surveys are conducted, sometimes as part of building plans. But the knowledge provided via ad hoc surveys is not necessarily preserved or amassed to the point of offering a comprehensive

picture. Thus, the measures used to illuminate the status of natural capital component stocks are almost of necessity biased.



## Human Capital

Human capital comprises both the physical and mental health of individuals and the knowledge, skills, and competencies that they have acquired throughout their life – attributes that improve their welfare and well-being. The human capital of individuals also contributes to the welfare and growth of the society in which they live, for example through its major role in elevating labor productivity and creating economic capital. At the national level, population composition, migration trends, and labor market characteristics also affect society's ability to care for its members and their quality of life. Rising levels of life expectancy and standard of living in many countries, including Israel, challenge the ability to sustain and develop human capital over time, and underscore the need to shift from a focus on general life expectancy and material standard of living to a focus on quality of life. Israel faces additional challenges concerning human capital: certain aspects of human capital, such as labor market skills and knowledge, are still far behind those of the most developed countries, and exhibit a high degree of inequality. Although Israeli residents' health status is among the best in the world, underinvestment in the healthcare system threatens its quality. Finally, like other developed nations, Israel will be facing many challenges to its existing stock of human capital, posed by technological developments and the transition to a green economy.



## ■ Definition of Human Capital

Human capital comprises knowledge, competencies, skills, and other attributes that enable the individual to achieve well-being (OECD, 2001, p. 18).<sup>14</sup> The components of human capital are commonly divided into three categories: (1) health, (2) education and skills, and (3) population and employment. In this sense, the definition of human capital in a sustainable well-being framework is broader than the classical definition that originated in economics, which emphasizes the human capital components that are necessary for productivity and economic growth. Different elements of human capital, such as emotional and social skills, are crucial for attaining well-being in its wider sense. Human capital also differs from social capital in that, despite being affected by interpersonal relationships, it lies within the individual.

Like other types of capital, human capital can depreciate, and its preservation and development require investment. Non-use of human capital resources can lead to their erosion, such as skills atrophy. Moreover, because human capital resources are embedded in the individual, they are lost when the individual passes away. Continual investment in human capital is therefore crucial. Unlike with other types of capital, especially natural capital, the use of human capital resources does not cause its depletion – rather, the opposite may be the case. For example, the use of certain skills serves to improve them. In this sense, the use of human capital resources is another means of investing in them. Therefore, when examining sustainable well-being we should measure not only the stock of human capital, but also the factors of production (inputs) and the infrastructures that sustain it.

<sup>14</sup> For further discussion of human capital in general, and of Israeli human capital in particular, see the review of human capital in the Digital Appendix to this report (Chernichovsky, 2021).

## ■ Health

Health encompasses people's physical and mental state and is a necessary condition for their ability to function and flourish. It does not relate solely to the medical sphere in its narrow sense, but rather also includes mental health, the prevention of health problems, leading a healthy lifestyle, and more. Maintaining human health requires a stock of health-related infrastructure and assets made available to the individual and society at large, such as healthcare institutions, medical equipment, a trained and skilled personnel in a variety of healthcare fields, a body of medical knowledge that is continually updated, social and cultural awareness of risk factors and health-conducting behaviors, and more. These stocks facilitate and maintain the health of the country's residents, in both the present and the future.

## ■ Education and Skills

Human capital also encompasses the stock of knowledge, skills, competencies, and qualifications that a person acquires throughout his or her life. In the education sphere, as in the health sphere, the stock of infrastructure and assets that allow residents to acquire and cultivate skills, such as schools and teachers, is of decisive importance.

Although it is considered to include only formal education (primary, secondary, or tertiary), it actually encompasses a much broader range of social institutions and avenues of skill acquisition. Firstly, skill and competency acquisition takes place in other institutions, such as preschools, vocational training institutes, workplaces, and more. It can also ensue in informal frameworks, such as extracurricular classes and community centers. Secondly, skill and competency acquisition is not limited in time or to a specific stage of life. People acquire and keep acquiring skills and competencies

throughout their life, though how they do it, and the types of skills or qualifications they acquire, may change.

### ■ Population and Employment

Although human capital is measured at the individual level, aggregate human capital is also contingent on the population's composition. For example, its age composition, diversity, and immigration and emigration trends impact the effective stock of human capital available to society. Therefore, policymakers should concern themselves not only with human capital components at the individual level, but also with their aggregation at the societal level. As well as being the main arena in which human capital is realized, the labor market is also a factor in its development. Attributes of the labor market – such as population composition (especially the ratio between the population's productive and unproductive segments) and migration trends – are closely related to realizing human capital in society and incentivizing its development.

### ■ Human Capital and Well-being

Human capital plays a dual role in well-being: it determines well-being, and enables and preserves it. Regarding the former role, some components of human capital are integral to the very definition of well-being: mental and physical health are major factors in ensuring a high level of personal well-being. Thus, measuring some aspects of human capital is tantamount to measuring current well-being. Regarding the latter role, some human capital components are the building blocks of well-being, i.e., the resources or factors of production that enable the attainment of well-being in the future. The skills or lifestyle that a person acquires at a young age can serve them in the acquisition of additional skills, or in the attainment of

better health, later on in life. A person who leads a healthy lifestyle in the present is likely to enjoy better health in the future. This perspective on future well-being and the ability to maintain well-being over time lies at the heart of the present report.

At the national level, the preservation and development of our stock of human capital requires various factors of production and infrastructures. These are crucially important because human capital lies mainly with the individual, and is lost when one dies. Developing and monitoring the factors of production and the infrastructures needed for human capital is therefore necessary for ensuring well-being, including that of those yet to be born.

The role of individuals' health, education, and skills in their well-being is of course clear. However, the contribution of the population and employment sphere is indirect and operates through its impact on society's ability to care for, and economically support, all its members. Naturally, not all segments of society are capable of making the same contribution to the resources of well-being, which makes it imperative to achieve a balance between different segments of society. The ability to contribute to the resources of well-being is usually a consequence of the individual's stage of life. For example, children and the elderly (as well as people with disabilities or chronic illness) are usually only able to make a relatively small contribution to well-being resources, inevitably using many more resources than they can provide. The economic aspect of this is the need for a sufficiently large productive population to finance the various social services needed by the dependent population. There are also nonmarket issues, such as the time and attention necessary to care for the dependent population.

The dependency ratio (the ratio between these two segments of society) is largely an outcome of the rate of natural increase, but is also affected by migration trends. Thus, just as the dependency

ratio affects other aspects of human capital, immigrant and emigration characteristics also have an impact on other aspects of human capital. On the one hand, the immigration of young and healthy individuals who undertake necessary work that the local labor force cannot perform enlarges the productive portion of society and improves society's ability to care for all of its members. On the other hand, the emigration of productive members of society, as exemplified by the brain drain, leads to the reduction of the productive segment of society, meaning that fewer individuals in the population are contributing to well-being-related resources. Finally, apart from the demographic structure, there are other characteristics of the labor market that have an impact on well-being, such as the level of job security and the unemployment rate. This impact is, first and foremost, an outcome of the centrality of work in the lives of modern human beings, who devote many hours of the day to it.

Human capital affects well-being also via the relationships between the various components of human capital, and between those components and components of other forms of capital. There is abundant evidence indicating that education and skills are dependent on health. For example, healthy people are likely to find it easier to acquire education and skills than less healthy people are; likewise, educated people are likely to find it easier to maintain a healthy lifestyle than less educated people, due to their higher awareness and understanding of the health issues they encounter. Beyond this, as noted earlier, human capital increases labor productivity and creates physical capital, allowing society to fund the institutions necessary for creating and maintaining individual human capital, thereby improving their material welfare. Given that human beings are social creatures, human capital also impacts the development of social capital, as one's health and social skills are crucial to a membership in a community. Human capital is also important

for the advancement of cultural capital, mainly because cultural creation and consumption often entail personal competencies of various kinds, such as education and acquired skills.

## ▣ Human Capital Resources and Their Measurement

The measurement of human capital should encompass all aspects that make up this type of capital at both the individual and the societal level: indicators related to health, education, and skills acquisition, and indicators related to population and employment. In addition to these indicators, any such measurement must address the factors of production necessary to maintain and develop all aspects of human capital. The measurement of factors of production should encompass, at the very least, several types of stock: infrastructure, budgeting, and workforce. The measurement of every such element should be supplemented with an assessment of their accessibility and distributional inequality.

When measuring human capital, it is advisable to use, insofar as possible, administrative data and “big data” that are now available from various entities. Currently, the National Insurance Institute, the major healthcare organizations (Kupot Holim), the Ministry of Education, and other healthcare and education entities possess considerable information that can help attest to the status of Israeli human capital. This includes information on the functional level of Israeli residents, chronic health problems, medication use, and more. Various organizations are already using this information for their own needs. The usage of this data by the Central Bureau of Statistics can provide a more comprehensive and accurate picture than that currently offered by the other kinds of data that the CBS currently collects, such as sample surveys of self-reporting questionnaires.



## ■ Health

The health status of Israeli residents can be measured in a variety of ways. Here we suggest a few basic indicators that can provide a general picture. As noted above, it is advisable to measure these aspects using big data and administrative data available from the state's healthcare and social services organizations, rather than relying solely on self-reporting in sample surveys. However, subjective indicators, especially with regard to mental health, should also be collected and incorporated. When measuring healthcare-related infrastructure and budget, emphasis should be placed on both the average and the inequality (dispersion) of these indicators. Health capital should be broadly defined, and not be confined to narrow medical fields; it should include resources of mental health, of physical and mental well-being, and of prevention.

### Health

**Healthy life expectancy (HALE) indicator:** A healthy life expectancy indicator should be developed, preferably based on indicators commonly used worldwide, such as quality-adjusted life years (QALY) and disability-adjusted life years (DALY). Such indicators should be accompanied by a measurement of the gap between life expectancy in Israel (as measured in national statistics) and HALE.<sup>15</sup> Noting the gap between life expectancy and HALE is important, given that rising life expectancy alone can be inversely related to well-being. Reducing the gap between the two is therefore crucial to well-being.

**Physical health indicator:** Measures the percentage of people suffering from physical health problems that impede their daily functioning, broken down by severity and type. It is recommended to use administrative data to measure physical health, e.g., data from the major healthcare organizations and the National Insurance Institute.

**Mental health indicator:** Measures the percentage of people suffering from mental health problems that impede their daily functioning, broken down by severity and type. It is recommended to use administrative data to measure mental health, e.g., data from the major healthcare organizations and the National Insurance Institute.

**Subjective health indicator:** A subjective indicator should be developed that measures the individual's self-assessment of his or her health status, with a distinction between physical and mental health. This indicator could draw on Central Bureau of Statistics data on self-assessment of health and reported feeling of depression already collected. However, consideration should be given to expanding the measurement of mental health to other dimensions, such as anxiety, stress, and more.

<sup>15</sup> Healthy life years (HLY) are already being measured today as part of the well-being indicators published by the Central Bureau of Statistics. The CBS measures healthy life years in terms of DALY.

**Healthy lifestyle indicator:** A healthy lifestyle indicator should be developed in consultation with relevant experts. It should cover aspects of physical exercise and healthy nutrition, provide the highest-resolution picture possible, and enable international comparison. For this indicator, existing Central Bureau of Statistics measurements of individual health behaviors can be used.<sup>16</sup> A healthy lifestyle attests to the individual's health status at the time of the measurement, but also reduces his or her chance of suffering from health problems later on.

**Healthy lifestyle education indicator:** An indicator that measures the national investment in education on a healthy lifestyle should be developed. This indicator can be based on public expenditure intended for this purpose, the number of study hours devoted to the topic in schools, or the number of relevant job positions in the education system (e.g., nutritionists and physical education teachers).

### Healthcare infrastructure

People's ability to enjoy good health depends largely on the healthcare infrastructure available to them. The existing healthcare infrastructure should therefore be properly maintained, and should be updated in accordance with medical developments and changes in the size and composition of Israel's population. In addition, the infrastructure's geographic and cost availability should be measured.

<sup>16</sup> This indicator was developed by the CBS in cooperation with the Ministry of Health, and is reported among the well-being indicators published by the CBS.

**Healthcare institutions indicator:** Measures the ratio of healthcare institutions per thousand people in Israel, broken down by type of institution. This indicator should include the full range of existing healthcare institutions, such as hospitals, community clinics, and social services organizations.

**Hospital beds indicator:** Measures the average occupancy rate of hospital beds during the winter months, by type of hospitalization (general, mental health, and long-term care). Measuring occupancy, in addition to a simple bed count, enables one to estimate the gap between demand and supply.

**Essential medical equipment indicator:** Measures the number of available pieces of essential medical equipment per thousand people in Israel, by type of equipment. A precise list of critical medical equipment, such as ventilators and imaging equipment, should be developed with the aid of experts in the field.

**Appointment availability indicator:** Measures the average time needed to secure an appointment for a basic healthcare service (including consultation, treatment, or tests), by type of service and geographic location. Appointment availability gives an estimate of the gap between demand and supply for various healthcare services. For example, low availability of equipment-based appointments can indicate an inadequate availability of the relevant equipment.

### Healthcare budget

All activity in the healthcare sphere is supported, and indeed made possible, by the funding allocated to it. In Israel, some of this funding comes from private health insurance, while the rest

comes from the public sector. In order to sustain adequate levels of healthcare resources in the future, the allocated public budget should be proportionate to the size and needs of the population. From a future-oriented perspective, improving human capital also entails developing new knowledge and technology. Although the status of Israel's human capital can also be affected by R&D in other countries, it is very important that R&D processes take place in Israel. Such processes facilitate the formalization of solutions suited for the Israeli context, enrich the country's healthcare workforce, and bring Israeli residents to the forefront of healthcare innovation and development.

**Healthcare budget indicator:** Measures public expenditure on healthcare, by healthcare subfield. Because public spending on healthcare and changes in that spending must accord with changes in population size and demand, such an indicator should be estimated in relation to Israel's population growth rate and the healthcare consumer price index.

**Healthcare R&D indicator:** Measures the ratio between healthcare R&D expenditure and GDP, by funding and performing entity.

### Healthcare personnel

The healthcare services provided to Israeli residents do not depend solely on the available infrastructure, but also on the availability and quality of healthcare personnel. Healthcare personnel measurement should focus on at least three aspects. Firstly, it should consider the percentage of people currently employed in the healthcare professions. Secondly, in order to provide a future-oriented perspective it should address the availability and quality of training of healthcare professionals. Thirdly, it should examine healthcare

personnel attrition. Rapid and frequent turnover of healthcare personnel undermines sustainability, as it reduces the workforce stock and wastes the extensive resources allocated to the training of these personnel. Looking toward the future, we need to develop indicators for remote medical care, and for the use of robotics and artificial intelligence in medicine, which could mitigate problems of healthcare personnel availability and attrition.

**Healthcare workers indicator:** Measures the percentage of workers in each healthcare profession in Israel, per 1000 residents.

**Healthcare training positions indicator:** Measures the number of training positions for workers in each healthcare profession in Israel, per 1000 residents.

**Healthcare personnel attrition indicator:** Measures the percentage of workers in each healthcare profession who left their jobs within a short period.

### End-of-life well-being indicators

Scientific and technological developments in the medical sphere are one of the main drivers of rising life expectancy and also one of the main contributors to the prolongation of life among the elderly. This increase in the percentage of the elderly population poses economic challenges to society as a whole, but it can also have a negative impact on the well-being of the elderly themselves and the family members who care for them. It is therefore appropriate to monitor these implications of rising life expectancy with additional indicators that can complement the measure of the gap between actual life expectancy and HALE, as discussed above.

**Percentage of elderly long-term care patients indicator:**

Measures the percentage of people aged 70 and over suffering from physical disability or cognitive decline who require full-time nursing care (based on administrative data, e.g., from the National Insurance Institute and the health service organizations).

**Support services for end-of-life well-being indicator:**

With the aid of relevant experts, an indicator should be developed to determine the scope and quality of well-being support services for people at the end of life. Such an indicator could, for example, utilize data on the occupancy rate of beds in nursing homes, on the number of patients receiving palliative or geriatric care at home, and on the percentage of physicians and medical staff providing such care.

**Accessibility and inequality of healthcare services**

As with other types of capital, a large stock of human capital is not enough to support well-being; the capital stock must also be accessible in order to ensure equitable care, timely treatment, and adequate prevention for all Israeli residents. One way of assessing inequality is to break down the indicators proposed above by gender, age, geographic location, socioeconomic status, nationality, and other parameters. Manifestations of inequality in these indicators could also be presented in a comprehensive and holistic way to assist in the detection and evaluation of systemic inequality that occurs across multiple indicators. Finally, additional indicators could help quantify the scope of inequality in healthcare from a different perspective by focusing on the gap between public and private healthcare services.

**Private health insurance indicator:**

Measures the percentage of Israeli residents who have private health insurance, broken down by type of coverage (long-term care, surgical, prescription drug insurance, etc.). Distinctions should also be made between the different types of private insurance. Specifically, the indicator should measure the percentage of people with supplementary health insurance provided by healthcare organizations, of people with insurance from private insurance companies, and of people with both of these types of insurance.

**Private versus public healthcare quality gap indicator:**

Measures the availability gap between the public and private healthcare systems with regard to various kinds of service, e.g., appointments with specialist physicians, treatments, operations, and medications.

**Private versus public healthcare expenditure indicator:**

Measures private healthcare expenditure relative to public healthcare expenditure.

**Healthcare inequality among the elderly indicator:**

An indicator (or several indicators) that measures different aspects of inequality in healthcare – in the availability and quality of healthcare services – for the elderly population should be developed. The purpose of this indicator is not to assess disparities between the elderly and the general population, but rather to identify gaps between different groups within the elderly population. For this indicator, the demographic breakdowns proposed above for other indicators could be used here as well, or other specific parameters, focusing on this population and its needs, could be developed.

## ■ Education and Skills

Education and skills measurement should be broad enough to incorporate a variety of skills, even ones without direct economic value, as well as those acquired in informal education frameworks. In this sphere as well, we need to calculate not only the levels of the measures, but also the degree of inequality in them. Special emphasis should also be placed on measures of the quality of education and skills, as a focus on the number of years of schooling or on the percentage of those enrolled in educational institutions could pull our assessment in the direction of quantity rather than quality.

### Education and skills

Human capital manifests first and foremost in the stock of knowledge and skills available to the individual. Measurement of this stock should relate to Israeli residents' hard and soft skills alike. Moreover, looking toward the future, our focus should not be solely on current skill levels but also on the percentage of those studying in various frameworks as an indication of Israel's future stock of competencies and skills.

**Children's competencies indicator:** Measures Israel's results on the Programme for International Student Assessment (PISA), by field of study tested. In consultation with experts, consideration should be given to the addition of soft-skill measures, and to the development of an assessment tool for children similar to the Programme for the International Assessment of Adult Competencies (PIAAC) for adults.

**Core studies indicator:** Measures the percentage of Israeli children not studying core subjects.

**Attainment of high school diploma indicator:** Measures the percentage of high school diploma holders within the Israeli population, as well as the percentage of these who studied mathematics or English at the 5-unit level.

**Post-secondary education degree indicator:** Measures the percentage of Israelis who attained a post-secondary education degree standardized by the quality of the educational institution, by type of degree and field of study.<sup>17</sup>

**Adult competencies indicator:** Measures Israel's results on the PIAAC assessment, by subject. Consideration should be given, with expert input, to adding soft-skill assessment measures.

**Effective years of schooling indicator:** Measures the number of years of schooling of Israeli residents, standardized by contribution and relevance to the labor market, and by the quality of studies or of the educational institution (e.g., Argov, 2016).

**Enrollment in post-secondary institutions indicator:** Measures the percentage of adults studying for academic degrees or pursuing vocational training (in certificate or non-certificate programs), by type and field of study, and standardized according to quality of program or study institution.

<sup>17</sup> Several Israeli studies have tried to determine the importance of the quality of studies and of educational institutions. These studies could be helpful in standardizing the academic institutions, by quality of the institutions or of the programs they offer (Krill, Fischer, & Hekt, 2018; Achdut et al., 2018; Chief Economist Division, 2020).



### Educational infrastructure

Although people can acquire education and skills in various ways, including self-study and life experience, institutions established for educational purposes are still the primary channel for doing so, especially in the early life stages. To ensure that Israeli residents can acquire education and skills relevant to the modern labor market, the existence of an adequate stock of relevant infrastructure and such institutions must be sustained.

**Educational and training institutions indicator:** Measures the number of institutions for education and skills acquisition in Israel, by institution type. This indicator should encompass formal institutions such as preschools, schools, and institutions of higher education. It should also include informal institutions such as community centers and vocational training and retraining institutes. Additionally, an indicator should be developed to measure educational institution quality. For schools, attempts have been made to quantify the quality of the education system by district, based on teacher psychometric scores or on PIAAC results within the local-authority jurisdiction. For institutions of higher education, see Footnote 17.

**Technological infrastructure of the education system indicator:** Assesses the availability of the technological infrastructure (e.g., computing equipment, fast Internet connectivity, and the possibility of effective remote learning) required for study and for the acquisition of education and skills, for both children and adults.

### Education budgeting

As in the healthcare sphere, a person's ability to acquire education and skills throughout his or her life depends on the existence of opportunities and relevant institutions, which require funding if they are to endure in the long term. Again, as in healthcare, resource allocation to R&D in the education and skills sphere is highly important for empowering Israel's future human capital. Because public expenditure on education as a share of total public expenditure is large, it is important to determine the efficacy of that expenditure.

**Education and skills budgeting indicator:** Measures public spending on education and skills relative to Israel's population size, by educational or skill field (e.g., preschools, schools, institutions of higher education, training institutes, religious educational institutions, and more).

**Education and skills R&D indicator:** Measures public expenditure on education and skills R&D, relative to GDP.

### Education and skills personnel

Education and skills are generally acquired with the help and instruction of appropriately trained personnel, such as teachers, counselors, and lecturers. The percentage of those employed in the education professions therefore affects the possibility of Israeli residents to acquire education or skills. The quality of these personnel is very important as well.

**Number of workers in the education and skills professions indicator:**

Measures the number of workers in each of the education and skills professions in Israel, per 1000 residents. This measure should also be standardized by the size of the relevant population (schoolchildren, higher education students, etc.).

**Education and skills personnel quality indicator:** Consideration should be given, with input from relevant experts, to developing an indicator for the quality of personnel in the education and skills professions. Teachers' psychometric and PIAAC scores are sometimes reported, but these reflect only limited aspects of education personnel quality. Another option is to measure the wage differences between workers in these professions and other workers of similar educational attainment. The larger the gaps disfavoring education and skills personnel, the more these professions may be expected to attract a lower-quality workforce, and the faster the attrition rate will be.

**Education and skills personnel attrition indicator:** Measures the percentage of workers in each of the education and skills professions who left their jobs within a short period.

**Accessibility and inequality**

As in healthcare, measurement of the education and skills sphere must address inequality and accessibility disparities. As noted earlier, one way of assessing inequality is to break down the indicators proposed above by different segments of the population: geographic, socioeconomic, nationality, and more. Beyond this, special indicators could be proposed to assess the scope of inequality by way of focusing on the public-private services gap.

**Private per-pupil education services expenditure indicator:**

Measures the percentage of private expenditure per pupil for education services, by gender, income level, and geographic area.

**Population and Employment**

When conducting measurement in the population and employment sphere, three main issues should be addressed: population composition, migration trends, and labor market characteristics.

**Population composition**

The ratio between the economically active population and the economically dependent population is a major factor in society's ability to see to the needs of all of its members. The indicator commonly employed to measure this assesses the dependency ratio based on labor market participation, broken down by age. However, it is important to estimate the dependency ratio using the share of employed to unemployed people. Technological developments may also affect the meaning of the dependency ratio as currently measured, and it would be appropriate to develop additional dependency measures that are more closely linked to worker output (productivity). Still, this is a narrow economic view of the contribution or dependency of the various population segments. People of retirement age may not contribute to the labor market workforce, but they make other contributions to well-being, in familial and community contexts. It is therefore worth considering additional measures based on, for example, the share of those involved in community or familial activity, relative to the dependent population.

**Employed-to-unemployed ratio indicator:** Measures the ratio between the number of employed and unemployed working age people, by various demographic categories, both at present and in accordance with the future demographic forecast. As an alternative to this ratio, it is worth considering the ratio between the individual's earnings and the benefits s/he receives.

### Migration

Trends in migration to and from Israel should be monitored, with an emphasis on migrants' education and skills attributes, and on their age composition. Immigration to Israel of educated working age people could have a positive impact on the country's human capital, its population composition, and other well-being resources, such as economic capital and growth.

**Migration indicator:** Measures the number of people emigrating from Israel, people immigrating to Israel, and the balance between them. Apart from quantitative assessment, a qualitative component should be developed for this indicator that would take migrants' human capital into account. This component would illuminate the flow of human capital into Israel and out of Israel (as exemplified by the brain drain).

### Employment

The attributes of the labor market have an impact on well-being and other aspects of human capital. The work-life balance is important both in terms of physical and mental health and in terms of one's ability to maintain meaningful social relationships (see the chapter [Social Capital](#)). This balance is largely determined by labor market

characteristics, and varies among countries and occupations. It is also important that one's education and skills match one's work. A mismatch in this respect can give rise to problems and frustrations; the worker may feel unfulfilled, and be unable to maximize his or her potential and labor productivity. Given the rapid technological development of the past few decades, it is also worth examining how technology threatens various professions and occupations. Certain occupations may become irrelevant, and this may endanger the employment of segments of the population. This would, of course, have consequences for well-being and related issues, such as the dependency ratio.

**Work-life balance indicator:** Measures the average number of hours per day available to a person for leisure purposes. This data is generally based on time-use surveys, but due to their cost, such surveys are rarely administered in Israel. Alternative measures can be considered for this indicator, such as average number of daily work hours in Israel in comparison to other countries. This latter measure would be appropriate given Israel's low productivity per hour worked, which is partly an outcome of having a higher number of work hours than other developed countries. Not only does working many hours reduce the leisure time available to Israeli residents, compromising their well-being; it also yields no economic benefit.<sup>18</sup>

**Education system efficacy indicator:** An indicator should be adopted or developed that determines the degree to which skills acquired in the various education systems are currently well suited to the demand in the labor market, and as projected for the future (Mazuz-Harpaz and Krill, 2017).

<sup>18</sup> As noted above, leisure is also of great importance in terms of social capital; a similar indicator is thus proposed in the chapter [Social Capital](#).



**Job–education congruence indicator:** Measures the percentage of workers whose work is matched with their field of study and with their skill level.

**Efficacy of human capital investment in well-being terms indicator:** Measures should be adopted or developed that assess human capital return on investment in well-being terms (e.g., wage and life satisfaction). This kind of test can be done at the individual level, for example, with regard to the effect of additional years of schooling on wage and life satisfaction

**Occupations threatened by technology indicator:** Measures the percentage of workers employed in occupations threatened by technology.

**Labor market mobility indicator:** An indicator should be developed that assesses current labor market mobility, whereby workers dismissed from their jobs can find new jobs according to their skills, and others can advance in their careers and change jobs. This kind of mobility is important for workers' ability to utilize their skills. When developing this kind of measure, consideration should be given to the ease of finding a new job (e.g., job search duration or the ratio between jobseekers and job openings), the economic protections given to workers when changing jobs (e.g., eligibility for various social and unemployment benefits), the degree to which the new job is suited to the worker's skills, and the availability of vocational training and retraining courses.

**Labor market accessibility indicator:** An indicator should be developed that assesses the labor market's accessibility to different population groups, with an emphasis on high-paying jobs. The indicator could be based on data relating to labor market discrimination, geographic segregation of various fields, and remote work options.

## ▣ Principal Challenges

There are several challenges that could potentially diminish and endanger Israel's human capital stock. For example, there are social disparities with regard to human capital, rising life expectancy and population aging, and changes in skills requirements (of the individual and the labor market as a whole) resulting from technological developments or artificial intelligence.

## ▣ Social Inequality

Human capital is not distributed evenly across the Israeli population.<sup>19</sup> In some areas, the Arab and ultra-Orthodox sectors' starting point is substantially lower than that of the secular Jewish sector, and the same is true of those living in Israel's (geographic-social-economic) periphery compared to those living in central Israel. This situation is due in part to an unequal allocation of human capital factors of production, e.g., budgets and infrastructures. Other factors have to do with values and culture, e.g., the ultra-Orthodox sector's low math, science, and English study levels and low employment rates among working age males. To these, one may add forecasts pointing to changes in Israel's population composition, including a rise in the share of the Arab and ultra-Orthodox sectors compared to other, more economically productive sectors. If these trends

<sup>19</sup> This topic is discussed at length in both the economic capital review ([Sarel, 2021](#)) and the human capital review ([Chernichovsky, 2021](#)).

pointing to a rise in the share of these two sectors are realized, then Israel's human capital stock is in danger of relative diminution.

### ■ Rise in Life Expectancy and Well-being

In recent years, countries around the world have experienced a substantial rise in life expectancy. This increase is largely due to improved living conditions and the wonders of modern medicine. The rising life expectancy poses a major challenge with regard to sustainable well-being.

Firstly, rising life expectancy entails a new perspective on well-being. For years, high life expectancy attested to welfare and good living conditions as people could only reach an advanced age in their presence. Today, however, it is clear that, at least for the very old, long life expectancy is not necessarily associated with high levels of well-being. It is therefore important that we estimate the gap between healthy life expectancy (e.g., of the population not requiring full nursing care) and life expectancy itself. Concern for future well-being, and hence for the availability of the resources that facilitate it, should focus not on prolonging life, but rather on the mental and physical welfare of the ailing and the elderly. A higher healthy life expectancy will enable the elderly population to keep contributing economically and socially.

Secondly, a higher life expectancy followed by rapid technological development compels people to adjust and adapt their skills to an ever-changing reality. Skills and competencies that were relevant in the past may lose their value, thereby eroding the stock of human capital. After a few decades of life and employment, people may find themselves lacking the skills or competencies needed in order to thrive. Finding training frameworks and methods for all stages of life is a necessity if we want to ensure that rising life expectancy will not lead to an erosion of Israeli residents' well-being.

Thirdly, the rise in life expectancy, if not accompanied by a rise in healthy life expectancy, worsens the dependency ratio due to population aging. As our population discussion showed, a change in the dependency ratio may impair society's ability to care for all of its members. The higher the share of the aging and unproductive segment of society, the larger and more disproportionate the amount of resources it needs, especially in the healthcare sphere. If Israel does not find the resources to meet this demand, the future well-being of its residents will be at risk.



## Social Capital

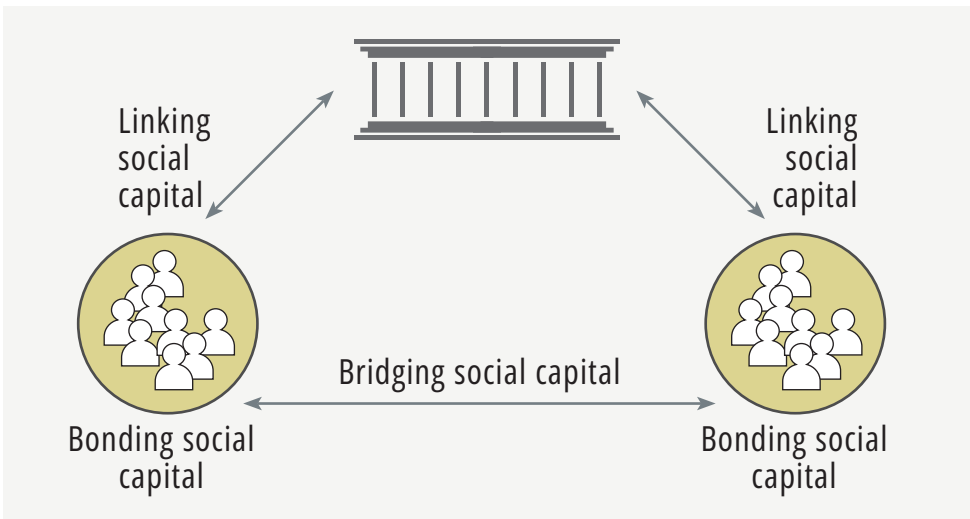
Human beings are social creatures. In order for societies to flourish, certain resources that, over the years, have come to be known as “social capital” must be available. These resources allow one to cooperate with others, to be aided by them, to aid them in turn, and to enjoy a sense of belonging and community spirit. Social capital resources are important for people’s ability to act both within their more immediate circles of belonging, e.g., their families and local communities, and within broader circles. These resources include the social networks one has joined, one’s civic and political engagement, one’s trust in others, as well as shared values and norms. They also include resources that ensure social and political conditions for flourishing: democratic institutions, rights and liberties, and an absence of crime and corruption. The coronavirus pandemic that plunged Israel and the rest of the world into crisis this past year underscored the importance of social capital for residents’ well-being, the state’s resilience, and its ability to cope with the challenge. Technological developments, Israel’s social diversity, and demographic trends pose challenges for sustaining Israel’s social capital, challenges that must be addressed if we are to maintain and develop it.



### ■ Definition of Social Capital

Social capital comprises the resources that allow people to forge social relationships with others, acquire social standing, and act cooperatively and effectively to achieve common goals.<sup>20</sup> These resources include structural resources such as the support networks available to people. Social capital resources also include attitudinal resources – norms of reciprocity and trust in other people – as well as institutional resources pertaining to the character of the political regime, human and civil rights, and crime and corruption levels. Social capital resources differ from other capital resources: they do not have the clear material attributes that characterize natural capital resources and some economic capital resources. Nor are they like human capital resources, which are embedded in people themselves. Rather, they exist in the (actualized or potential) relationships between people.

**Figure 7. Three Types of Social Capital**



<sup>20</sup> For further discussion of social capital in general, and Israeli social capital in particular, see the social capital review in the Digital Appendix to this report (Geva, Greenspan, & Almog-Bar, 2021).

There are three types of social capital. *Bonding social capital* refers to the social resources of relatively homogeneous groups, e.g., families and local communities. By contrast, *bridging social capital* consists of the social resources and relationships that arise between groups or between people of different and heterogeneous groups, such as relationships between people of different religions or nationalities.<sup>21</sup> Finally, *linking social capital* differs from the first two types, which are based on horizontal relationships, in that it consists of vertical relationships between people or between groups of differing statuses or degrees of power, e.g., between the resident and the governmental institutions.

Unlike economic and natural capital, social capital does not become depleted with use, but rather the opposite: its use increases and strengthens social capital. However, investment is required in order to bring social capital resources to an appropriate level. Investment is also necessary if these resources are to be conserved in spite of developments that could potentially erode them, as discussed below regarding the challenges facing social capital resources in Israel. When investing in social capital, care must be taken to strike a balance between its different components, as an imbalance (e.g., an excess of bonding social capital and a dearth of bridging social capital) could produce negative outcomes from a societal perspective.

### ■ Social Capital and Well-being

The importance of social capital to well-being lies in the fact that the other types of capital are insufficient to ensure people's well-being. People's use of the natural, economic, human, and cultural resources available to them, and their enjoyment of those

<sup>21</sup> The tension between bonding and bridging social capital manifests in the ideological preferences of individuals and the groups to which they belong, which also shape them, e.g., the tension between universalism and communal values (Enke, Rodriguez-Padilla, & Zimmermann, 2020).

resources, depend on the social context in which they live and their ability to engage in social relations with others. Social capital facilitates joint and reciprocal activity, some amount of which is crucial for the existence of any society or human association. The abundance in our world would not have been possible without social capital. Furthermore, the relationships that social capital facilitates give people a sense of belonging. Norms of cooperation and trust that are elements of social capital contribute to people's sense of personal security by keeping crime levels down. Social capital is a necessary condition for a democratic and tolerant society that provides people with an appropriate environment for flourishing and for improving their well-being.

Social capital's importance was highlighted during the coronavirus pandemic that plunged Israel and the rest of the world into crisis this past year. Alongside the medical aspects of coping with COVID-19, social capital emerged as a major resource for effective social response, particularly in terms of reciprocity, trust, cooperation, and taking personal responsibility for the welfare of others – including anonymous others. Community values, concern for the weak, and mutual responsibility were factors in society's ability to withstand the crisis and cope with the lockdowns, solitude, and associated economic challenges. The pandemic also illustrates the importance of public trust in science and expertise. Scientific knowledge is a public good that is useful for society as long as the public trusts the higher education system that produces that knowledge. Societies characterized by abundant social capital are less polarized, and are therefore more receptive to the knowledge that comes from experts or scientists, who are perceived as an elite. In many countries, it emerged that demographic, economic, and social processes had eroded social capital. The lessons learned from the coronavirus crisis emphasize the importance of social capital in future crises, especially the climate crisis.

Social capital also affects well-being indirectly through its contribution to other types of capital. Abundant social capital, primarily bridging social capital, contributes to economic capital by lowering transaction costs, encouraging entrepreneurship, and promoting economic growth. It facilitates more effective management and utilization of natural capital resources. Also, the support networks that it creates have an impact in terms of health and the ability to acquire education (human capital). Finally, social capital is the basis for various aspects of cultural capital, in particular the development of identities, aspects that strengthen and flourish in the presence of norms and conditions for tolerance and interpersonal trust.

Yet some components of social capital threaten well-being, making it necessary to strike a balance between them. For example, excessively high levels of bonding social capital can promote prejudice, exclusion, and corruption, if it is not balanced by bridging social capital. In multicultural societies like Israel, it can lead to radicalization and hostility between different social groups, or promote conformism, impairing the creativity and innovativeness of the group members themselves. The value of social capital to general well-being also depends on the substance of the social activity it facilitates. Crime and terrorist organizations enjoy high levels of bonding social capital, but their activity does not contribute to general well-being.

## ▣ Social Capital Resources and Their Measurement

Three principles guide the formulation of the social capital indicators proposed in this report. Firstly, valid measurement of Israeli social capital must be multidimensional, so as to encompass the various

social capital resources while also giving separate expression to the three types of social capital: bonding, bridging, and linking. A society characterized by high levels of bonding capital but low levels of bridging capital would, for example, be essentially different from a society in which those levels are reversed.

Secondly, because social capital's modes of expression differ across places, their measurement needs to be adjusted to the Israeli context. A balance must be struck between the choice of unique indicators for Israel and the choice of widely used indicators that allow international comparison. Unlike natural, physical, or human capital, social capital is challenging to measure. This kind of capital is usually not measured directly (in contrast to years of schooling or number of machines per factory), but rather via its manifestations. We must therefore pay attention to the different ways in which social capital is manifested in different segments of Israeli society, and adjust our indicators so that they capture these differences, to ensure validity. For example, the ways in which social capital emerges and is manifested among Israeli ultra-Orthodox Jews differ from the ways in which it does so among secular Israelis, even though the two groups' social capital levels do not necessarily differ. A measurement format that focuses on specific modes of expression of a specific component of social capital may produce a distorted picture of social capital levels among groups whose social capital manifests differently.

Finally, the use of big data should be promoted as an innovative tool that complements the traditional measurement methods for social capital, which are generally based on surveys. Surveys measure certain concepts with relative precision, but their measurement of other concepts suffers from systemic bias or large random measurement errors. Big data can be helpful in addressing this problem and shedding light on important social phenomena. Various

kinds of big data on social capital are already available and accessible (see below).

The discussion below points to the direction along which each of the proposed indicators should ideally progress. However, due to the tension between the three types of social capital (bonding, bridging, and linking), the optimal direction for some of the indicators is not necessarily linear: rises and declines on a given parameter may be desirable only to a point. For example, trust (whether placed in others or in governmental institutions) is important for a functioning society, but absolute trust can be harmful.

### ■ Social Networks

Social networks are the interactions and relationships between people. Because people's well-being is affected by their ability to enlist the help of others, the more highly developed the social networks available to them, the greater their chances of enjoying well-being. These networks provide material and emotional support, and are based on information flow and access to societal resources and norms. From the perspective of bonding social capital, ties of family, friendship, or community become especially important in times of crisis, when the individual needs help. From the perspective of bridging social capital, social networks facilitate social mobility, establish trust, and create new opportunities, including employment opportunities, for their members; they are also fertile ground for the economic growth of society as a whole. For example, studies have demonstrated the impact of social networks on access to credit, and in particular to micro-funding and microcredit (Kuchler et al., 2020; Lin, Prabhala, & Viswanathan, 2013).

Network quality is assessed from several perspectives. *Volume* relates to the number of network members, and to this we may add the degree of *density* that characterizes these relationships.



*Diversity* refers to the degree to which the network transcends communities and groups; it is also a major factor behind the variety of aid and support options that the network can offer. Another perspective is that of the network members' *ability* or *competency* based on their skills, training, and status, as well as the number of *opportunities* available for the members' use.

The study of social networks is highly developed, and there are readily available, commonly accepted metrics for assessing network attributes and quality. The measurement of digital social networks is, of course, relatively simple. But one must take into account that digital relationships and relationships that involve face-to-face meetings are not the same, and cannot be substituted for each other. They can be thought of as complementary, with each mode contributing to social capital at a different stage of the connection, or along a different dimension of it.

Social network measurement is generally accomplished through surveys. But, as noted above, such networks can, in theory, also be measured by big data, such as the information obtained from cellular phones and online activity. Social activity restrictions during the coronavirus pandemic increased the digital modes' degree of penetration into everyday life, producing new opportunities for the use of big data to measure social activity and illustrating the potential embodied in such activity. [Google](#) created an index for people's mobility by activity type (shopping, leisure, work, etc.). Such indices are worth considering for use in Israel. National aggregative measurement could potentially resolve problems that arise in this sphere due to privacy considerations. New studies in the field show that such data can also be used to deepen our knowledge of face-to-face interactions (Atkin, Chen, & Popov, 2019).

### Social networks

In light of the above, it is recommended that the following indicators be used to measure the characteristics and quality of social networks.

**Social network volume indicator:** Measures the average number of people with whom a person is in regular contact during leisure hours. This indicator should also be used to assess information on contact frequency; face-to-face contact and interaction should be examined separately from remote interaction (e.g., via telephone or the Internet). This indicator is primarily concerned with voluntary social networks, those with whom people are involved of their own free will and on their own initiative, not in the framework of, say, work relationships, which are generally not a matter of choice. The indicator would likely provide a more accurate picture of the state of social networks, as not all everyday interactions, such as those with coworkers, are strong enough for social capital development.

**Support network volume indicator:** Measures the average number of people available to one in times of need for emotional, financial, or healthcare assistance, or for advice when making important decisions. In order for an accurate picture of a support network's attributes to emerge, it is recommended to report on a summative indicator as well as on the segmentation of the available support network by area in which assistance is provided.

**Social network diversity indicator:** Measures the degree to which a person's social network is heterogeneous in demographic terms (gender and socioeconomic status) and in terms of ethnicity and nationality.

### Opportunities to create social networks

Apart from measuring social networks and their attributes, we should consider the contexts in which social networks emerge and become established. Such an examination could indirectly shed light on the present volume of social networks, as well as on their potential future status. It is recommended to focus on a few different contexts where people can build and develop their social networks: civil society groups, trade unions, sports activities, and workplaces. Face-to-face interaction has clear advantages, but online interaction has value as well, making it worthwhile to also measure online activity. In essence, each of these contexts facilitates relationships and allows different kinds of interaction and social capital to develop. The diversity of these contexts in terms of their participants' demographic characteristics is important for the diversity of social networks and bridging social capital, and can be an indication of solidarity. Besides measuring people's participation in these contexts one may also measure the free time available to people, which affects their ability to devote time to forging and strengthening social ties.

**Leisure indicator:** Measures the average number of hours available to a person for leisure purposes.<sup>22</sup>

<sup>22</sup> Leisure is also important for human capital, especially with regard to employment. For this reason, a similar indicator appears in the chapter [Human Capital](#).

**Civil society activity indicator:** The average number of associations, civil society organizations, and hobbyist or shared interest groups to which a person belongs (excluding trade unions; see the separate discussion below). This indicator should also address the variance in network membership between different people, inasmuch as, in terms of social capital, limited involvement on the part of most of the population is preferable to large-scale involvement on the part of just a small population segment. It is particularly advisable for this indicator to include measurement of the share of the population that belongs to civil society associations and organizations; it should also calculate the average number of civil society associations and organizations in which a person is a member, divided by variance.

**Popular group sports activity indicator:** Measures the percentage of the population that engages in popular group sports, whether regularly or occasionally, distinguishing between different frequencies.

**Occupational segregation indicator:** Measures the degree to which employment sectors or occupations are represented by distinct groups (national, ethnic, religious, or gender).<sup>23</sup>

<sup>23</sup> See the related discussion on employment in the chapter [Human Capital](#).

**Trade union membership indicator:** Measures the percentage of workers in the economy who belong to trade unions. Membership in trade unions is a major indicator of mutual responsibility. It testifies to the existence of both bonding and linking capital. Studies have shown that in trade unions (as opposed to plant- or industry-level unions), the contribution of bridging and linking capital is great (Calmfors & Driffill, 1998; Carruth & Oswald, 1987).

**Internet use indicator:** Measures the volume and frequency of social media use via the Internet.

## ■ Social and Civic Engagement

Social engagement and civic engagement are important for well-being because they give people a sense of meaning and belonging, and give rise to collective efficacy, i.e., the possibility of cooperation to achieve common goals. The ability to act jointly is particularly important in times of crisis, and is a source of community resilience. Social and civic engagement can be measured at the individual and community levels. The indicators proposed here incorporate both of these perspectives.

### Social engagement

Volunteering and giving to the community are two major modes of social engagement. They reflect people's willingness to give of their time and money to others. In Israel, the percentage of those who participate in volunteer activity rose gradually over the past twenty years, but is lower than the OECD average (in 2016, 26% of Israelis reported volunteer activity over the previous year [Central Bureau of Statistics, 2019a]). However, when we try to measure

volunteering and community involvement, we must remember that they are not just a function of supply – the willingness to contribute – but also of the demand for contribution. In developed welfare states, the demand for contribution to the community is lower than in countries where the state security nets are more limited. Political culture also differs between these two types of state, as reflected in the contrast between the philanthropy approach and the ideal of social justice as realized through the state budget. The volume of contribution should therefore be normalized per the level of public welfare expenditure or the degree to which the state's economic policy is progressive.

**Volunteering indicator:** Measures the average number of hours per month that a person devotes to volunteer activity, and the percentage of volunteers in the population as a whole.

**Donations indicator:** Measures the average monthly sum that a person donates to organizations or to other people. Because donations do not have to be monetary and may be in the form of goods, it is worth assessing the volume of goods donations in terms of monetary value (a donation can, of course, take the form of services or time, but these would be included in the volunteering indicator). To enable us to better understand the phenomenon of donations in society, this indicator should ideally be accompanied by data on the average number of organizations to which a person donates.

### Civic and political engagement

Political participation is a kind of public good. It is an important expression of an involved public, one that is not alienated and is active in determining the shared fate of all of its members. It



relies on political efficacy, a key factor in maintaining a public's involvement in politics. Voter turnout is the most basic form of political participation, and in Israel it has been trending downward since the founding of the state (during Israel's first two decades of statehood, voter turnout was more than 80%, while since 2000 it has generally been lower than 70% [Central Bureau of Statistics, 2019a]). However, because citizens staying outside the country are not allowed to cast absentee ballots in Israeli elections, this indicator has comparative disadvantages in the Israeli context; its findings should be interpreted with caution, as a decline in voter turnout could also be due to a rise in the percentage of Israelis staying abroad. Also, because of the relatively low frequency of elections (once every few years), voter turnout cannot provide a sufficiently continuous picture of Israeli citizens' civic and political engagement. One should therefore incorporate the measurement of other political participation modes. As of 2018, only 14% of Israelis aged 20 and over reported public or political engagement at the national or local level (Central Bureau of Statistics, 2019a). It should also be noted that political participation can take on a negative aspect, such as in those instances where it is characterized by violence or unlawful behavior. Although the indicators proposed here do not distinguish between positive or legitimate political participation and the opposite kind, these differences still merit attention.

**General election voter turnout indicator:** Measures the general election voter turnout rates. In order to address the fact that citizens staying abroad cannot vote in these elections, it is important that this indicator be standardized to the number of Israeli citizens staying abroad (extended stay) at the time of the elections. In addition, data collected from surveys of hypothetical voter turnout, i.e., information on citizens' willingness to participate in elections were they to be held today, could be incorporated into this indicator. The integration of these two data sets could provide a more complete picture.

**Demonstration or rally participation indicator:** Measures the number of demonstrations or rallies in which a person testified to having participated over the past year. A situation where a small population group exhibits large-scale participation, while most of the population does not participate at all, could attest to relatively little social capital compared to a situation where most of the population displays similar participation levels. Accordingly, it is recommended that this indicator be accompanied by data on participation level differences between different population segments, e.g., via reporting on the average of the variance components, or through separate presentation of participation rates of different population segments.

**Political efficacy indicator:** Measures the degree to which a person agrees or disagrees with statements commonly used to measure political efficacy, e.g., "The government listens to people like me," "People like me can generate change," and the like.

## ■ Shared Values and Norms

Shared values and norms are necessary for social cohesion. They create a sense of belonging and give meaning to life. They facilitate broad social solidarity, which in turn makes it possible to maintain a welfare and mutual aid system at the individual, civil-society, and state levels. Shared values and norms are important for every community, but their necessity grows as the group becomes larger, more heterogeneous, and more multicultural. In multicultural Israel, with its many and deep social cleavages, shared values and norms are a critical resource for the continuation of our common life (see also the chapter [Cultural Capital](#)). Attention should also be paid to the substance of shared values and norms. These should reflect reciprocity and pluralism, as well as tolerance, which promotes the flourishing of all of the residents. Shared values and norms can arise only when there is a social interface of some kind between the different segments of society. Thus, processes such as social segregation can potentially undermine national solidarity and the adoption of shared values and norms. Values and norms are not easy to measure, but their importance for social capital is great. They should be measured carefully (whether directly or indirectly) per the following suggestions. Many of the proposed metrics are widely used in the social sciences.

### Tolerance and solidarity

Monitoring tolerance and solidarity levels in Israeli society can teach us about the distribution of the shared values crucial to the establishment of social capital. Tolerance is largely connected with bridging capital, while solidarity is related to both bridging and bonding capital, in the form of dependence on a group or on people with whom one feels solidarity (whether or not they belong to one's immediate group). The indicators proposed here focus on

bridging capital, and on how Israeli residents relate to people from groups that differ from their own.

**Communal belonging indicator:** Measures the percentage of those who vote in local elections. Attention should be paid to the limitations of this indicator, similar to those of the general election voter turnout indicator mentioned above.

**Tolerance indicator:** It is an accepted practice to employ a tolerance indicator whereby subjects are asked which group they most dislike, and then asked a series of questions about that group that assess their openness to a common life with that group, e.g., whether they would be willing for their children to marry people from that group, whether they would be willing to be neighbors of people from that group, and so on. Another, broader, way of assessing tolerance is to look at the public's degree of openness to, and support for, immigration, especially for immigrants from groups other than the state's majority group. For comparison purposes, the formulas employed by the European Social Survey (ESS) and other international surveys can be used.

**Traffic violations evincing lack of solidarity indicator:** Measures the number of traffic violations evincing a lack of solidarity, with an emphasis on violations committed consciously or deliberately, e.g., driving on the shoulders during rush hour, parking in handicapped parking spaces, entering and blocking already congested intersections, not yielding, hit-and-run collisions, and more. It should be noted that fluctuations on this indicator may stem not from increases or decreases in the number of these violations, but from changes in enforcement or reporting. An effort should be made to eliminate these external effects insofar as possible.

**Political violence indicator:** Measures the number of hate crimes committed over the past year. The indicator testifies to hostility toward certain groups in society, and to a certain degree it reflects issues of graver concern than those captured by the previous indicators.

### Polarization and segregation

The above tolerance and solidarity indicators attest to current social capital levels. Indicators that measure polarization and social segregation in Israel can reflect tolerance and solidarity levels indirectly or deductively; beyond that, they can indicate what the future may hold. Even if present polarization and segregation levels do not translate into intolerance or hostility between social groups, their existence and increase could later undermine the creation of bridging capital. They indicate a potential degree of severance between different population segments. We suggest examining several possible facets of polarization and segregation.

**Ethno-linguistic fractionalization indicator:** Measures the level of religious, ethnic, national, or linguistic diversity in the state or its specific localities. Insofar as possible, smaller geographic units, such as neighborhoods, should be preferred. The indicator assesses the number of groups with attention to their relative size.

**Economic inequality indicator:** Measures economic inequality levels by income, at the national level and at the level of more focused geographic units such as locality, district, or subdistrict. Information on income distribution both before and after transfer payments should be included.

**Multiple identities indicator:** Measures the degree to which people have multiple and intersecting identities (e.g., ones that are shared by different groups in society). One may assume that the smaller the number of identities that a person holds and shares with other people (overlapping identities), the lower the level of his or her bridging capital. This indicator could consist of questions that test the person's identification with a variety of identities (as Israeli, Jew or Arab, urban or rural resident, member of an ethnic group, woman or man, and so on); it could also look at the average number of identities per person, and the degree of shared distribution of these identities (in a similar context, see our discussion of identity measurement in the chapter [Cultural Capital](#)).



**Political polarization indicator:** This indicator measures the degree of ideological distance between individuals in society: the more voters are concentrated at the ends of the ideological spectrum, the greater the ideological distance between them, and the more pronounced the political polarization. Political polarization measurement takes into account the relative sizes of different population groups and their opinions, and can integrate voting data (to determine group size) and questionnaire findings (to determine opinions). Dalton (2008) proposes a political polarization indicator for the elite, which can also be used to measure polarization within the entire population.

**Party-system nationalization indicator:** Measures the degree to which voting patterns in each region reflect the electoral distribution in the state as a whole and are, therefore, similar to each other. In other words, it measures the degree to which voters with different opinions live in distinct areas. This indicator measures the regional segregation of the vote. For example, one can compute a Lorenz curve that examines votes by locality or region and marks the inequality of the distribution of votes across localities/regions. This graph will plot the share of the total votes coming from each locality as compared to the share of a particular party's votes coming from each locality. This measure indicates the degree to which different localities/regions differ. If the distribution of votes substantially differs across regions/localities (as opposed to a nationalized party system whereby votes are distributed in a similar way across regions) it suggests that there is a significant political difference across regions.

**Command of languages commonly spoken in Israel indicator:** Measures the percentage of people who speak languages commonly spoken in Israel other than their native language, e.g., the percentage of Arabic speakers among those whose mother tongue is not Arabic. The list of common Israeli languages might include Hebrew, Arabic, Russian, Amharic, and Yiddish. Command of the languages of other groups in Israeli society is very important for the creation of bridging social capital. Such capability facilitates both unmediated dialogue with members of the group, and a better understanding of its culture. When developing this indicator, one should place emphasis on knowledge of the languages of Israel's larger minority groups, and such knowledge should be weighted accordingly.

### Discrimination

Discrimination is a negative facet of bonding capital that compromises bridging and linking capital. It testifies to low levels of solidarity and shared norms and to deep societal polarization. Discrimination measurement assesses the degree to which different groups are represented, relative to their population share, in positions, key roles, budget allocations, and other social frameworks. However, the over- or underrepresentation of a given group may not necessarily stem from discrimination, but rather from differences in the group's attributes (due, for example, to differing preferences and choices). For example, the low share of women in the STEM professions could be due to discrimination, but it could also be the result of women's preferences, as opposed to men's, in the choice of fields of study. Therefore, discrimination measurement should be accompanied by econometric analysis to verify that the various groups' relative representation deviations from their shares in the population reflect discrimination rather than the groups' choices.

**Discrimination indicator:** An indicator should be developed to assess gender, ethnic, and age gaps in education, employment, wage, occupations engaged in, positions in management and in governmental institutions (including the Government of Israel and the Knesset), public expenditure, healthcare, and crime (e.g., the prison population).

## ■ Trust

Trust is a person's estimation that others will treat him or her fairly. Strong trust increases people's willingness to turn to others for help, and to help them. At the most fundamental level, trust is important for the health of any relationship. A distinction is usually made between two main types of trust: particularized trust, which is associated with bonding social capital, refers to a person's attitude toward their close acquaintances and immediate community, whereas generalized trust, associated with bridging social capital, refers to a person's attitude toward others in general, including those whom they have yet to meet.<sup>24</sup> We propose one indicator for each type of trust.

**Particularized trust indicator:** Measures a person's level of trust in his or her immediate environment.

**Generalized trust indicator:** Measures a person's overall level of trust in other people. As a basis for this indicator, we should use a commonly accepted formula for measuring generalized trust that also allows international comparison. To bolster accuracy, we should consider adding questions about the person's degree of trust in certain groups in Israeli society.

<sup>24</sup> A third type of trust associated with linking social capital has to do with a person's attitude toward governmental institutions. This type of capital is separately discussed below.

## ■ Governmental Institutions and Rights

The civic and political contexts in which people live also affect their well-being. A functioning democratic society is the necessary platform for people's personal development and individual expression. The freedoms and the tolerance assured by such a society enable people to plan their lives according to their personal preferences, and to achieve self-fulfillment. The existence and functional status of the various democratic institutions and of the rights and liberties associated with a democratic society are major institutional pillars of social capital. Additionally, citizens' trust in governmental institutions (as opposed to partisan institutions or individual figures in public life) is important for the development of linking capital.

**Democracy and rights indicator:** Israel's [Freedom House](#) score.

**Trust in governmental institutions indicator:** Measures the degree of trust in governmental institutions, including the Knesset, the government, the court system, and the law enforcement system.

**Legal system efficacy indicator:** Israel's score on the Enforcing Contracts part of the World Bank's Ease of Doing Business index.

## ■ Crime and Corruption

The state's crime and corruption levels affect people's personal security. Low security levels can compromise people's physical and mental health status, and cause economic damage to individuals and to society as a whole. They also affect other social capital resources,

such as the public's trust in governmental institutions, social solidarity, and interpersonal trust. In general, making inferences about crime and corruption levels based on administrative data is not an easy matter as such data is also based on the norms, reporting, and activity of the law enforcement system. For example, data on instances of violence against women could reflect a true increase in the number of such cases, but it could also indicate a change in the normative or legal definition of violence against women or in the willingness to report such occurrences; it could also attest to a rise in police enforcement. Thus, crime and corruption measurement should be normalized in accordance with current reporting and enforcement levels.

**Crime indicator:** Measures the number of instances of crime perpetrated over the past year, by type of crime, e.g., theft, murder, other violent crimes, tax evasion, and more.

**Personal security indicator:** Measures the sense of personal security, e.g., the degree to which the respondent feels safe walking outside late at night. This commonly used indicator is based on sample surveys.

**Perceived corruption indicator:** Israel's score on the [Corruption Perceptions Index \(CPI\)](#).

## ■ Principal Challenges

Like any society, Israeli society has unique attributes that pose challenges for accumulating and preserving social capital. There are several trends and developments that could prove problematic for

Israeli social capital, and endanger its sustainability. These include technological developments, social diversity and inequality, and changes in population structure and composition. To cope with these challenges, the state should invest in the preservation and reinforcement of social capital.

### ■ Technology

Technology alters the character of social capital, and the ways in which it manifests. Interactions that were once face to face are giving way to digital interactions. They are taking on different shapes, requiring different sorts of resources, and hence different means are needed for social capital measurement and preservation. It has been argued that technological development is actually causing social capital resources to erode, as people have fewer opportunities, and perhaps less need, to meet others and engage in social interaction. Even so, there can be no doubt that technological developments also bring with them new opportunities to increase social capital, e.g., by promoting social mobility, broader access to diverse social networks, and more. Technology's impact on social capital is not yet clear, and requires attention and monitoring.

### ■ Social Diversity

Israeli society is multicultural, and characterized by social cleavages, including national, religious, ethnic, and more. This situation creates challenges for the preservation and development of social capital in Israel. On the one hand, Israel's social diversity encourages the development of binding social capital within each group, though the groups frequently do not share values and norms. Binding social capital is necessary for the groups to keep providing their members with the advantages of this form of social capital. On the other hand, the differences between the groups and the potential



tension between their identities and values make it hard to create bridging social capital between them, which is the basis for a shared existence. The difficulty posed by social diversity and the great differences between the various groups are intensifying due to the prevailing hostility and in response to the social segregation tendencies exhibited by some of the groups – arising mainly, though not solely, from the Israeli–Palestinian conflict and struggles over Israel’s religious character. If Israeli social capital is to be maintained, it will be necessary to monitor how social diversity affects it, and to strike a delicate balance between its components. See the related discussion below on [Cultural Capital](#).

### ■ Changing Population Structure and Composition

Demographic trends affect society and, consequently, social capital. Three main trends of this kind may be identified that could potentially have a substantial impact on Israeli social capital in the coming years. One trend is urbanization. More and more Israeli residents are living in cities, which are becoming denser and characterized by high-rise construction. This trend has many upsides in terms of the other well-being resources, such as natural capital, but it threatens the country’s social capital resources. Dense, high-rise living can reduce people’s contact with their neighbors and pose problems for local community activity and growth. In such environments, civic engagement and generalized trust are sometimes diminished. At the same time, urbanization creates opportunities for social capital by, for example, facilitating social mobility. Planning and other processes can address problems with urban structure and promote a sense of belonging and community.

Second, Israel, like many other nations, is subject to the population-aging trend. The share of the elderly in the population as a whole is growing due to falling fertility rates and rising life expectancy. Older

people sometimes have sparser social networks than do younger people, and they are more isolated. This population, whose health is improving as medicine advances, also has more time for community and civic engagement. In light of this trend, the resources invested in Israeli social capital development need to be adjusted so as to give this growing population segment the social capital resources that it needs (for a discussion of other ways in which population aging affects the stock of well-being resources, see the chapter [Human Capital](#)).

Third, demographic forecasts indicate that the size and share of the ultra-Orthodox and Arab sectors in Israel’s total population will gradually increase. Both of these sectors tend to have relatively high levels of bonding social capital, but their degree of involvement in Israeli public life is comparatively small, as are their stocks of bridging and linking social capital. They are differentiated or segregated, geographically and socially, from the rest of the population, and tend, each sector for its own reasons, to relate with distrust to governmental institutions. As these two sectors grow, greater effort will have to be invested in the development of bridging and linking capital in Israel.



## Cultural Capital

Culture and identity are basic human needs; when these needs are met, well-being is enhanced. Culture is an element of the sense of identity that subgroups and individuals in society possess, and itself possesses values that bridge different identities. The substance of cultural resources may differ from place to place, between time periods, and between people, due to their positions, values, and identities. It is particularly challenging to estimate Israel's resources in this sphere, due to the country's great social and cultural diversity. With special regard for the Israeli context, the resource stock should generate a wide range of possibilities for cultural experience, to encourage new cultural creation and preserve those features of a heritage whose neglect could result in their loss. From a sustainable well-being perspective, public funding is crucial for the development and preservation of cultural resources.



## ■ Definition of Cultural Capital

Four groups of resources are commonly regarded as necessary for well-being: economic capital, natural capital, human capital, and social capital. However, there are resources that cannot be confined to any one of these four groups: cultural resources. Cultural resources should be viewed as a fifth resource group: cultural capital. A separate discussion of cultural capital will facilitate in-depth exploration of this topic, which up to now has been neglected in the context of sustainable well-being.<sup>25</sup>

Cultural activity contributes to well-being through its intrinsic value. It meets a human need. Melody, beat, dance, poetry, and narrative give direct satisfaction. This is a universal human quality that exists in all known societies. The experience of culture differs from person to person in accordance with their needs, inclinations, natural abilities, and skills acquired at home, school, or through self-training. Modern societies spend a significant percentage of GDP on culture in all of its forms. In terms of time allocation, cultural activity is always accommodated. People of religious faith, for example, spend a certain amount of time every week in houses of worship, while soccer fans may never miss a game. Most people consume culture primarily during their leisure hours, but culture is also a nontrivial employment sector. Many different occupations are engaged in cultural production: the skilled people who specialize in creating, sustaining, and transmitting culture, as well as the administrative, logistical, and financial support systems needed for the purpose.

We can distinguish between active and passive uses of culture, between creation and experience. There is also an active element to experience, as in nature hikes that require advance preparation,

folk dancing that entails knowledge of the steps, choral singing that involves varying degrees of skill on the part of its participants: the composer, conductor, singers, and listeners, who all have greater and lesser levels of expertise.

A distinction is commonly drawn between high and popular culture. This distinction rests on the influential thesis of the French sociologist Bourdieu, who argued that the control of culture (and especially of high culture) is a means of social segregation. But what allows culture to be used for social segregation is its intrinsic value. It is culture's distinctive emotional, cognitive, and psychological impact that makes it a vehicle for social segregation. The competencies required to engage with culture (at every level) are what produce the opportunity to segregate those who lack the necessary taste or abilities, but this does not cancel out the substantive value of culture – on the contrary, this is the secret of its power to enchant, and its importance in human life.

## ■ Types of Cultural Capital

Ongoing cultural activity relies on a large stock of sustainable assets, some of them intangible, and some of them embedded in material existence. These can be broken down as follows.

**A. Content:** Cultural content is cultural activity and its products: language (including culturally distinctive communication practices and slang), cuisine and food, clothing, historical knowledge, moral thought, cultural studies, non-applied science (science as a value and form of deductive reasoning), literature (fiction and poetry), the performing arts (dance, theater, cinema, and classical, folk, and popular music), the visual arts (painting, sculpture, and design), religious heritage and ritual, access to the environment, nature, and landscapes, archaeological, architectural, and national heritage, and the various forms of

<sup>25</sup> For further discussion of cultural capital in general, and Israeli cultural capital in particular, see the cultural capital review in the Digital Appendix to this report (Katz-Gerro, 2021).



physical activity. Each of these spheres has a rich tradition and bodies of knowledge, some of which are undocumented.

**B. Capabilities:** These are individual cultural capital assets. They are required for cultural creation and for its dissemination to the public. People with talent, skill, experience, and expertise are the ones who produce and update cultural content, whether on a professional basis as artists, curators, scholars, or cultural entrepreneurs, or on an amateur basis. Teachers convey values to the public, while parents transmit cultural values to their children. Additionally, abilities are necessary for cultural experience, as such experience presupposes the various levels of competency required to connect with the content.

**C. Institutions:** Cultural institutions are systems of rules, conventions, contracts, knowledge bases, professional staff, and sustained interpersonal relationships that facilitate cooperation in pursuit of complex goals. They provide the physical or organizational platform where cultural activity takes place and is made possible. These institutions include schools, religious educational institutions, religious communities and societies, universities, foundations, government ministries, theaters, orchestras, museums, archives, sports leagues, culinary establishments, and commercial broadcasting and entertainment services. It is these institutions that permit and promote content creation; they also coordinate or curate content: libraries have books, museums have pictures and sculptures, and national parks contain heritage sites and archaeological ruins. Cultural institutions are organized in a hierarchy of settlements. In major cities, one finds the top-tier institutions, which attract people from across the nation and from abroad. At each lower locality level, there are institutions that serve the settlement and its catchment area.

In other words, *institutions* are the frameworks in which cultural activity is pursued by people of varying types and levels of *ability*, who produce and enjoy cultural *content*. Each of these assets is necessary for the development and preservation of culture.

These cultural stocks need to be renewed through investment, which maintains and enhances them. Some content is not eroded through use, and some capabilities develop as they are utilized. By contrast, cultural institutions, physical content, and abilities that are not in constant use diminish over time. Institutions and physical content are subject to natural wear and tear, but also to deterioration through use. Abilities atrophy and are forgotten, and because they belong to individuals, they are lost when the individuals pass away. The preservation of an existing cultural stock entails constant investment, both to address deterioration and to teach relevant skills to the younger generation. Improvement or enrichment of the cultural stocks requires additional investment.

The cultural sector in the narrow sense consists of cultural content and the aforementioned institutions, but there are three other systems that create and sustain significant cultural assets, although this is not their sole purpose and they overlap with other types of capital, mainly human capital. These are: the education system, which transmits an array of cultural values; religious systems, which provide a framework for religious identities and experiences; and science, which has a non-utilitarian cultural dimension reflecting norms for deductive reasoning and for understanding the physical, biological, and social environment. Cultural production in higher education systems and research institutions is carried out in tandem with other purposes, such as advancing scientific and technological knowledge, transmitting competencies and civic values, as well as preparing people for life.

## ■ Identities

Another distinction can be made between cultural assets of a predominantly universal nature, and those that mostly embody local identities. Universal cultural assets can be found in nearly every country, and are presumably accessible to all (although a level of skill and personal dedication is sometimes required), e.g., music, painting, literature, and drama. There are also local versions of popular music, television series, sports activity, nature and scenery, and heritage. By contrast, identity-oriented cultural assets have a local character and reflect values that are specific to particular groups and are not accessible to those outside them. Such assets distinguish between insiders and outsiders, between those who are eligible to partake in them and those who are not. Due to this agonistic dimension, the identity-oriented values attract a sense of communal identity, and function both as a unifying factor (among the group members) and a separating factor (between the group and others), based at least in part on a rejection of the other. Such are the cultural assets that mark out subgroups in the form of nationality, ethnicity, and religion. They include language, nationalism and its attributes, religious affiliation, dress codes, and cuisine. Cultural assets are situated along this universal-to-identity-oriented continuum, depending how open they are to others, and on the size of the group with which they are associated.

Every person has several identities that define his or her place in society and give meaning and value to life. These identities consist of values, perceptions of past and future, emotions, and social ties. They provide a sense of family, group, and community identification, but also differentiate between them and others. Identities can differ in their degree of openness and acceptance, and how they are acquired: some identities are imposed by life circumstances, while others are chosen freely.

Identities are not material things, and in this sense they are not subject to wear and tear. However, because they constantly change, they can be forgotten, weakened, and their salience can vary. For this reason, groups attach great importance to the continual preservation and cultivation of their identities. One of the main ways of preserving identity is to use it: when activity is derived from a particular identity, that identity is strengthened and becomes more deeply entrenched.

## ■ Mentality

Mentality is the set of personal traits that shape one's way of thinking and acting. Although mentality is a quality belonging to individuals, groups often have shared features that, taken together, can be regarded as a group "mentality." The shared mentality is shaped and perpetuated directly through formal and informal education, but also indirectly through the absorption of behavioral patterns from the group environment. Thus, mentality is affected by identities insofar as identities drive group behavior and determine the values that are important to the group.

Qualities such as *chutzpah* (cheek), boisterousness, directness, improvisation, entrepreneurship, warmth and openness, family orientation, informality, disregard for rules, social boldness, and skepticism are often ascribed to Israelis. Some maintain that the Israeli mentality is one of the secrets of the country's success – that it enabled Israel to gain its independence, flourish, and become a technological and high-tech trailblazer. If this is true, then the aforementioned qualities have had a decisive impact on Israeli well-being, and should be included in sustainable well-being measurement.

However, this topic is subject to dispute and raises practical difficulties that kept it from being developed in the present report.

The glorification of mentality and national character has been a typical feature of human history’s darker ideologies and regimes. The Israeli mentality could also be linked to things that undermine well-being, such as corruption and complacency (e.g., the “It’ll be okay” culture), disrespect for law and rules, a culture of boisterous discourse and, indeed, of physical violence. From a practical point of view, the topic is uncharted territory: there has been little scholarly attention given to it, and the existing well-being measurement frameworks have not been much concerned with it. For these reasons, the Committee has refrained from taking a stand, leaving the importance and legitimacy of mentality indicators and their development open to future discussion.<sup>26</sup>

## ■ Cultural Capital and Well-being

Culture is inseparable from well-being. Identities and mentalities shape our thought and behavior, and fill our actions and our lives with meaning. Furthermore, creation and active participation in cultural endeavor are means of individual expression and self-fulfillment. More passive forms of participation, such as listening to music, reading books, and the like, give direct satisfaction to participants: they spark the imagination, stimulate thought, arouse emotion, shape and intensify identity and belonging, and confer pleasure while providing a refuge from everyday life.

The importance of culture to Israeli residents can be seen in Israel’s current expenditure on culture, which amounts to about 5% of GDP (Central Bureau of Statistics, 2019b). It can also be seen in

the amount of time devoted to cultural activity. A representative sample of the Jewish population shows that Israeli residents devote 4.34 hours per week, on average, to sports and hobbies, 3.7 hours to recreational activity, 3.16 hours to spiritual or religious activity, and 5.7 hours to study and cultural enrichment (Lahat and Sened, 2019). A substantial proportion of these activities are cultural and they account for over a tenth of total weekly hours. The fact that a “leisure, culture, and community” category was added to the well-being indicators adopted by the Israeli government, following a public participation process, also testifies to the importance that Israelis accord to these activities.

Culture also contributes to other forms of capital. Some cultural activity has an impact on economic capital. It creates employment, and some of its products are traded in the market. Cultural values and attributes affect the stock of natural capital by shaping the patterns of its consumption. Cultural resources also entail human capital resources, due to their ability to amplify abilities and skills that are important not solely for cultural activity. Culture also imparts habits and preferences that may affect people’s education and health resources, for example by encouraging them to study and investigate, engage in physical activity, and more. Finally, culture and, in particular, identities and mentalities shape people and their accomplishments, thereby also influencing their economic output (confidence, integrity, skepticism, and work ethic), and they also contribute to social capital. Culture, identity, and mentality form the basis for the social cohesion and solidarity that make collective effort possible.

<sup>26</sup> Attempts to measure the normative differences between different cultures are not new. Major examples of this are the works of Schwartz (1992), Hofstede (Hofstede, Hofstede, & Minkov, 2010), and Inglehart (Inglehart & Welzel, 2005). Many studies have also tried to determine how these differences translate into behavioral differences that affect well-being, economics, and society. However, these studies do not necessarily include individual or measurable characterization of the character and mentality traits relevant to Israel. Nor do they solve the theoretical problem of whether it is legitimate to promote or encourage a given national mentality. Nevertheless, these studies can be a starting point for those who wish to develop this topic within the framework of Israeli well-being measurement.



## ■ Cultural Capital Resources and Their Measurement

The aspiration is to arrive at an estimate of the stock of culture (or cultural capital). The starting point is the level of activity and ongoing use of cultural assets in their various forms. Capital is defined as a multiple of current output, and in a well-being context it has no meaning without output. The definition of stock (or capital) is an evaluation of the ability to sustain the activity. This is not a simple task: only some cultural content can be directly measured and quantified, and even when measurement is possible, it is hard to estimate its quality. Capabilities and institutions, the two other categories, can, in principle, be quantified. The proposed method of measuring the three categories that make up cultural capital is to assess current usage flows and the volume of assets that sustain them. We suggest performing a two-part measurement: of activity level and stock of sustaining assets, and of financial flow. Each measurement raises its own difficulties. Policy is usually reflected in financial allocations; separate measurement of activity makes it possible to monitor the impact of allocations. We also propose that the indicators be standardized to per capita income, which will make it easier to perform international comparison, and comparison over time.

Defining indicators for cultural capital also raises the problem of identifying capital resources that need to be measured. Unlike other types of capital, cultural capital resources may differ between societies, and their selection will also reflect a normative preference. Drinking water and a certain level of social solidarity are resources necessary for the proper functioning of any society. By contrast, an ultra-Orthodox Israeli and a secular Israeli will each seek the cultural resources that suit them. This chapter aims only to highlight the cultural aspect of well-being, which is generally

neglected by those engaged with the issue of well-being, in Israel and beyond. The guiding line here is that cultural diversity should be promoted, and opportunities for cultural activity expanded as much as possible.

Cultural resource measurement should distinguish, where possible, between the various sectors and subsectors of culture. [Supplement A](#) includes a proposal for seven main sectors – literary arts, performing arts, visual arts, screen arts, nature and heritage, religion, and sports and physical activity – as well as their subsectors and the features that need to be measured. This is a preliminary suggestion; it should be tested and validated with the aid of experts and professionals relevant to each of the sectors, and in line with data availability.

## ■ Content

The stock of cultural content available to Israeli residents directly affects their ability to use and enjoy that content. The current stock should be maintained and expanded. Measuring the stock of existing content, e.g., the number of items in museums or the number of titles in libraries, may be hard to do, and it is not always clear what such measurement means, as some content is not available to the general public due to being privately owned or housed in closed collections. It is also problematic to determine the nature and quality of content, e.g., the cultural value of a single rare coin from a given period is not identical to the value of another ancient coin of which many copies are available. Quality depends on context, and is determined by society's cultural priorities. The current usage levels of cultural content attest to current priorities, but there is cultural content of high and singular value that is little used but whose absence would be a great loss, e.g., rare manuscripts or archaeological sites of cultural significance. It is

important to sustain content of this type, and to make appropriate allocations to that end.

Due to the difficulties noted above, it is proposed that the stock of cultural content be measured with a focus on the annual output of cultural activity, that is, on the annual addition of new cultural content. When measurement is in percentages, one also obtains an estimate of stock magnitude. The usage of cultural content can also be measured as an indirect but limited indicator of the abundance and availability of existing content. Over and above these two indicators, it is also possible to measure of the diversity of new content. Content diversity is necessary to ensure a broad range of cultural options and to give expression to the democratic and pluralistic character of a society in which different people need different kinds of cultural content. Diversity can also manifest in other ways: in the values expressed in cultural content, in content genres, language, and more. For practical reasons, it is suggested that the focus be on a basic division between local and foreign content that reflects Israeli residents' exposure to cultural material from around the world. The addition of content diversity indicators would be worth considering later.<sup>27</sup>

It is also appropriate to measure the stock of heritage content. The measurement of new cultural content, the usage of cultural content, and the diversity of existing content mainly reflect the fluid and evolving character of culture which, in order to flourish, requires an environment that allows and encourages new creation. However, cultural capital and cultural investment encompass not only what is new, but also that which merits preservation. Cultural wealth also depends on existing cultural content that should be

<sup>27</sup> Measuring cultural content raises difficulties with regard to the cross-border nature of cultural activity. Much cultural content is created abroad, and is accessible to Israelis from abroad. Many Israelis are exposed to major world heritage sites during vacations abroad, and many cultural creations are available and disseminated via the Internet to anyone interested in accessing them, regardless of geography. In this sense, setting national limits on cultural activity measurement would be a vague, artificial undertaking capable of providing only a partial picture, at least for some cultural fields. Additionally, Israel has many heritage sites of global importance, meaning that their preservation has additional significance beyond their importance to Israeli residents' well-being.

preserved for the present generation and for those to come. This cultural content links people with their location and past, and is thus important for their identity as well. Heritage content is cultural capital that is passed down from generation to generation, encompassing archaeology, architecture, and art. Israel is blessed with an abundance of such content. Some of it belongs to specific groups in Israeli society or elsewhere, while other elements belong to humanity as a whole. Most heritage content is unique, and the failure to preserve it may result in absolute loss. It is therefore of particular importance that the stock of this content be measured.

**New cultural content indicator:** Measures the number of new items added over the past year in each cultural sector, and the percent change vis-à-vis the previous year.

**Usage of cultural content indicator:** Measures the degree to which cultural content has been used or consumed over the past year, and the percent change vis-à-vis the previous year.

**Cultural content diversity indicator:** Measures the share of new cultural content added over the past year that is not of Israeli origin.

**Heritage content indicator:** An indicator should be created to monitor the stock of major heritage content segmented in various ways, e.g., by the heritage represented in it, by the type of content (archaeological, historical, architectural, artistic, etc.), and by the content's degree of rarity. Recognition of the importance of heritage content and its preservation manifests in legal and institutional structures established for that purpose, including heritage sites, preservation sites, national parks, archaeological

sites, and archives. These structures can be used as a basis for measuring the stock of heritage content.

### ■ Capabilities

Cultural abilities manifest in people with creative skills (creators) and in those with hobbyist or amateur skills (amateurs or people who enjoy, use, or consume cultural content). The core cultural capabilities manifest in the number of creators employed in cultural institutions, plus independent creators. Over time, this figure provides a picture of the net stock. Sustainability is measured via the net number of those who join and leave from one year to the next. For purposes of ensuring personal development and skill maintenance, one should also monitor the relevant training institutions. If possible, these parameters should be broken down by cultural sector.

#### Professionals

The work of cultural creation often requires a high level of skill, acquired through years of training. There must therefore be constant training of new skilled personnel, so as to replace those lost through retirement or death. The list of skilled personnel should be adapted to each cultural sector and subsector. In some sectors there are skills of many kinds, e.g., in music there are composers, singers, and instrumentalists.

**Professionals in the cultural sector indicator:** Measures the number of people with professional expertise in each cultural sector. The actual measurement process should reflect the information available and the nature of the relevant cultural activity. For some professionals, such as rabbis and other clerics, official credentials will be a possible criterion. For others, membership in professional associations, or the number of those employed in relevant cultural institutions, may be relied on.

**Professionally trained graduates in the cultural sector indicator:** The number of new graduates of relevant cultural institutions over the past year, by discipline. In contrast to the previous indicator, which looks at existing stock, this indicator looks at the annual addition to the stock. Also, because the stock indicator may be expected to provide only a partial picture, this indicator would provide a supplementary picture of the number of people with professional qualifications.

#### Basic capabilities

There are forms of cultural participation that require lower skill levels, such as amateur involvement in cultural creation, or the enjoyment of professionally produced creative products. The basic skill level of the general population can be assessed indirectly by looking at the percentage of those attending courses or enrichment activities of a cultural nature. To complement this picture, it is recommended that the focus be on the younger population (school-age and undergraduates). This type of focus has several advantages: first, young people usually acquire skills through formal education, which makes for good data availability; second, the data on this population provides a good prospect of the future. As



data accumulates from previous years, we can reach approximate conclusions about the adult population as well.

**Participation in cultural courses or amateur meetings indicator:** Measures the number of participants in courses or hobbyist/ amateur meetings in the various cultural disciplines, by discipline and age (school-age or adult participants). Amateur meetings should include regular meetings not necessarily held as part of an official course offered for a fee, e.g., participation in a choir or an amateur sports league.

**Humanities matriculation certificate holders indicator:** Measures the number of those who became eligible over the past year for matriculation certificates and who studied at least one humanities subject (including religion and heritage subjects) at the 4-unit level or higher, and the share of such people out of all those who became matriculation-eligible during the same year. For this indicator one could substitute the average number of weekly study hours devoted by the education system to humanistic subjects. This would likely provide a more comprehensive picture of the scope of investment and basic training in cultural fields within the education system, but might be less rigorous. The emphasis on matriculation studies is not meant to undercut the value of study in other curricular frameworks. It assigns special weight to the more serious training acquired as part of matriculation studies in concentration subjects – training that also reflects pupils’ personal choice.

**Humanities graduates indicator:** Measures the number of people who completed undergraduate degrees in the humanities over the past year, and their share in the total of new bachelor’s degree holders. Like the previous indicator, this one can be replaced by an indicator that does not measure achievement, but instead focuses on the percentage of those studying for undergraduate degrees in the humanities. In this case as well, the alternative indicator might be less rigorous.

Training

To ensure that the level of professional and amateur skills relevant to the various spheres of culture remains adequate, attention must be paid to the training frameworks that impart those skills.

**Cultural training institutions indicator:** Measures the number of existing institutions that provide advanced training in cultural disciplines, broken down by sector and type of institution (university, college, religious educational institutions, vocational school, and the like). For example, it would measure the number of university and college literature departments, the number of acting schools, etc.

**Humanities faculty indicator:** Measures the number of full-time faculty members who teach humanities courses in institutions of higher education, and the percentage of these faculty members in the institution.

**Graduates of cultural-discipline teaching programs indicator:** Measures the number of people who received teacher certification over the past year in the various cultural sectors, by discipline.

## ■ Institutions

The number of existing cultural institutions has an impact on opportunities for participating in cultural activity. However, this number can give only a general idea, as it does not measure the quality of institutions, or the volume of their activity. Accessibility of cultural institutions is also important: access via transportation, geographical and economic accessibility, and more. Israeli residents' access to cultural institutions should be as equal as possible. But because measuring the accessibility of these institutions is a complex matter, it is proposed here to measure only the stock of such institutions, and consider adding accessibility indicators at a later point.

Cultural institutions indicator: Measures the number of cultural institutions that exist in each of the cultural sectors.

## ■ Funding

The funding of cultural activity is necessary for its existence. The training and activity of people working in cultural fields and employed at cultural institutions entails financial expenditure. In order to ensure adequate cultural resources in the future, appropriate funding for the resources' maintenance and development is necessary. Since 1990, Israel's national expenditure on culture, entertainment, and sports has been about 5% of GDP. In 2018 it was 4.6%, divided into cultural sectors as per Table A (see below). The expenditure is broken down by sector into two categories: demand and output.

Eighty-two percent of revenues come from household expenditure. Public funding is divided into central government funding (5%) and local authority funding (11%); funding from nonprofits accounts for all the rest. Sixty-five percent of goods and services output comes from the business sector; nonprofits supply 22%, local authorities, 11%, and the government provides the rest.

**Table A. Breakdown of Current Expenditure on Culture by Type of Activity, 2018**

Type of activity	Percentage of current expenditure
Music and performing arts (concerts, cultural shows, nightclubs, etc.)	22.9
Sports and games (sports clubs, swimming pools, etc.)	17.6
Socio-cultural activities (community centers)	16.1
Radio and television (television and radio broadcasting, cable broadcasting, etc.)	8.9
Nature and the environment (zoos, gardens and planting)	8.5
Computers and use of the Internet	6.3
Gambling (the national lottery and the sports lottery, excluding prizes)	6.2
Literature and periodicals	6.0
Cultural heritage (museums, antiquities)	3.1
Cinema and photography (production and screening of films, filming equipment, etc.)	2.9
Visual arts	0.8
General administration and unclassified activities	0.7

(Source: Central Bureau of Statistics, 2019b)

Thus, two-thirds of the current output of Israel's current cultural production comes from the business sector. In capital accounting, the ratio is reversed, with nearly two-thirds of the activity depending on the public sector, which also includes nonprofit organizations (see [Supplement C](#) to this chapter). Hence the public sector has

greater importance in the formation of well-being policy. The market response to changes in cultural demand is flexible. Cinema, for example, is a cultural sector sustained for the most part by the market, in a way that does not require public intervention. Yet the demand for Hebrew-language films is not usually large enough to ensure commercial profit, and government support is needed to sustain it. Market forces must be supplemented: cultural content, institutions, and capabilities, although for the most part sustainable, require long-term investment and do not provide quick returns; they are not suitable for bank credit, and cannot be adequately provided by the business sector. On the other hand, cultural capital provides forms of satisfaction that no society would wish to do without. To ensure funding for culture, the policy focus should be on the public sector, as cultural provision via the business sector sustains itself with no need for guidance, and the public sector needs to provide most of the capital required for cultural activity.

**National expenditure on culture indicator:** Measures the share of culture in GDP, broken down by the activities and sectors defined by the Central Bureau of Statistics (see [Supplement B](#) to this chapter). Ongoing monitoring of the financial flow in these areas of activity would provide a current picture of cultural trends. Besides these sectors, which for measurement purposes fall under the CBS cultural umbrella, there are two other areas that are not included in the calculation: expenditure on religion and the share of expenditure on education devoted to the maintenance and preservation of cultural values. If the expenditure on culture within the education system cannot be separated from the total expenditure on education, an effort should be made to estimate the share of the former indirectly, however roughly. For example, one could take the percentage

of students studying cultural disciplines in the country's universities and academic colleges, and regard that percentage as the share of expenditure on education that is allocated to culture.<sup>28</sup>

## ■ Identities

Israel is a place of many identities. At the national level, there is a vigorous ongoing debate about the existence and attributes of an Israeli identity that is shared by all sectors of society. There are also the narrower Jewish and Arab identities, within which great diversity exists. For example, Jewish identity can be broken down into secular, religious, and ultra-Orthodox, as well as ethnic identities such as Mizrachi and Ashkenazi, as well as identities based on specific countries of origin such as, Ethiopian and Russian – all with their own unique cultural assets. Some of these identities transcend the state's borders: the Jewish identity, for example, links Israeli and Diaspora Jews. Each of these identities has gender-based subidentities, and there is also an identity that transcends gender.

The collective Israeli identity is the foundation for the social solidarity necessary for Israel's continued existence and flourishing as a social endeavor. In reality, this collective Israeli identity serves as an anchor of meaning and belonging for many. Israeli cultural capital measurement should therefore monitor the distribution and strength of that identity (see also the discussion in the chapter [Social Capital](#)).

<sup>28</sup> Measuring national expenditure on culture can shed light on the relative importance of culture in society. Another way to assess relative importance is to determine the number of workers in the cultural sector as a percentage of the total number of workers in the economy. The personal income of cultural workers as a percentage of total personal income adds a qualitative indicator. The ratio between the former and latter percentages is an indicator of worker quality in the cultural field, e.g., if the ratio is 1.5, then worker quality in that sector (per the income indicator) is fifty percent higher than the average.



Jewish identity has been a determining factor in Israel's history and in the shaping of its present character. For Israel, which was founded as the nation state of the Jewish people, this identity provided those involved in the enterprise with the necessary organizing and unifying logic. It was a major factor in shaping the country's foreign relations. It is also the foundation for the state's special relationship with the Jewish Diaspora. This relationship was and still is a strategic asset that has helped Israel survive multiple crises. Jewish identity is therefore a cultural asset of importance for well-being in Israel as a nation state. However, this identity is not shared by all Israeli residents, in particular its Arab ones. The fact that Arab Israelis do not share the Jewish identity or the various other identities that exist in Israel makes it necessary to investigate the contribution of other identities to the well-being of Israeli residents. This is an issue that is always at the center of Israeli public debate.

In light of the above, this report recommends measuring collective Israeli identity, and mapping the distribution of the various secondary identities that exist in Israeli society.

**Israeli identity indicator:** Measures the extent to which Israeli residents regard themselves as Israelis.

**Secondary identities in Israeli society indicator:** Measures the prevalence and share of various secondary identities in Israeli society, by means of self-reporting. Respondents should be allowed to list their identities and rank their importance and role in their lives. This mapping could be supplemented by statistical investigation, e.g., factor analysis, to identify major identity clusters based on the various rankings.

## ■ Principal Challenges

### ■ Cultural Capital in a Multicultural Society

The cultural capital resources that are important for well-being are likely to differ from person to person, and all the more so in a multicultural society like that of Israel. The challenge is to sustain all of these cultural values and assets and enhance them within an environment where certain values and assets are contested. This raises the question of fair allocation of cultural resources between different groups in Israeli society – allocation that will accurately reflect the country's existing cultural mosaic and, more importantly, allow all Israelis to improve their well-being in line with their culture. Should some parts of that mosaic be neglected, they could, over the course of generations, become extinct.

### ■ The Fluidity of Culture

The particular substance of culture naturally varies: culture is an ongoing endeavor. Although this is part of what makes it compelling, and the source of ideas and new modes of expression, it also poses a challenge to those who wish to preserve, cultivate, and measure the nation's cultural capital resources. If culture varies, it is necessary to adjust the monitoring of the most important cultural aspects to the changes that they undergo. Resource allocation needs to change accordingly, and sometimes the measuring process as well. Because it is hard to predict the directions in which culture will move, or to define those directions in advance, the focus should be, as proposed in this chapter with regard to measurement, on expanding the opportunities for diverse cultural activity to the extent possible, and allowing spontaneous human effort to produce cultural content itself.

## ■ The Required Stock of Cultural Capital

To what level of cultural activity should we aspire, and how should we rank cultural values and assets? There are four sources for aspiration levels and priorities. The first is current volume of activity, which reflects the “wisdom of the ages.” Cultural activity remains very stable over time, and its present level represents past preferences and investments. Our first priority, therefore, is to maintain current activity levels and the hierarchy of existing cultural values and assets. This may be regarded as the base level, though the relative weight of the components is open to debate. It is necessary to be sensitive and open to the process of change. The cultural stock competes for resources with other spheres of well-being. The second source of aspiration is the participants in cultural activity – the entrepreneurs, the creators, the suppliers, and also the public. The composition of culture changes all the time, as do its usage patterns: people listen less to classical music and more to popular music, and the like. The role of both creators and audience is to inform society regarding the value of their cultural sector. The third source is international comparisons, but this must be sensitive to differences between societies, e.g., in countries’ public expenditure on culture in the narrow sense, in the content and output of the education system, and in the size of the religious sector and the scope of religious experience. This type of comparison also helps to formulate aspirations. For example, both Istanbul and Berlin have classical music education and symphony orchestras – reflecting universal cultural values. But there is a difference between the countries in per capita output, in public expenditure, and in quality. The fourth source of aspiration is the clash of identities. The multiplicity of identities in society leads to cultural, social, and political conflict among the various social groups over resources and cultural priorities. In Israeli society, there are clear and sharp lines of identity that sometimes project

mutual hostility. The lines are those of religion, ethnicity, and nationality. If there is distributional discrimination with regard to cultural capital or in other spheres of well-being, it is anchored to no small degree in the struggle between these identities.

Supplement A.

Supplementary Information on the Measurement of Cultural Capital, by Cultural Sector

Sector	Content		Abilities		Institutions
	Subsector	Usage measurement	Professionally skilled people	Training institutions	
Literary arts	<ul style="list-style-type: none"><li>• Poetry and drama</li><li>• Adult fiction</li><li>• Children’s and young adult fiction</li><li>• General reference</li><li>• Jewish or religious studies</li><li>• Academic literature in Hebrew (including articles)</li></ul>	<ul style="list-style-type: none"><li>• Books read</li><li>• Books sold</li><li>• Books loaned</li></ul>	<ul style="list-style-type: none"><li>• Writers and poets</li></ul>	<ul style="list-style-type: none"><li>• Departments in institutions of higher education</li></ul>	<ul style="list-style-type: none"><li>• Libraries</li><li>• Publishers</li></ul>
Performing arts	<ul style="list-style-type: none"><li>• Theater</li><li>• Dance</li><li>• Music</li></ul>	<ul style="list-style-type: none"><li>• Attendance at performances</li></ul>	<ul style="list-style-type: none"><li>• Actors</li><li>• Directors and producers</li><li>• Composers</li><li>• Singers</li><li>• Musicians</li></ul>	<ul style="list-style-type: none"><li>• Acting schools</li><li>• Music schools</li><li>• Departments in institutions of higher education</li></ul>	<ul style="list-style-type: none"><li>• Theaters</li><li>• Performance venues</li><li>• Orchestras, choirs, and bands</li><li>• Promoters and agencies</li></ul>
Plastic and visual arts	<ul style="list-style-type: none"><li>• Painting</li><li>• Sculpture</li><li>• Photography</li></ul>	<ul style="list-style-type: none"><li>• Exhibition, gallery, and museum visits</li></ul>	<ul style="list-style-type: none"><li>• Painters</li><li>• Sculptors</li><li>• Photographers</li></ul>	<ul style="list-style-type: none"><li>• Departments in institutions of higher education</li><li>• Art schools</li></ul>	<ul style="list-style-type: none"><li>• Museums</li><li>• Galleries</li></ul>
Screen arts	<ul style="list-style-type: none"><li>• Cinema</li><li>• Television programs</li></ul>	<ul style="list-style-type: none"><li>• Film and television series views</li><li>• Cinema visits</li></ul>	<ul style="list-style-type: none"><li>• Screenwriters</li><li>• Directors and producers (along with performing artists)</li><li>• Actors (along with performing artists)</li></ul>	<ul style="list-style-type: none"><li>• Film schools</li><li>• Departments in institutions of higher education</li></ul>	<ul style="list-style-type: none"><li>• Cinemas</li><li>• Foundations funding cinema and television productions</li></ul>
Heritage	<ul style="list-style-type: none"><li>• Sites, ruins, and archaeological findings</li><li>• Heritage sites</li><li>• Parks and national parks</li><li>• Sites and buildings for preservation</li></ul>	<ul style="list-style-type: none"><li>• Visits to heritage sites</li></ul>	<ul style="list-style-type: none"><li>• Archaeologists</li><li>• Preservation specialists</li></ul>	<ul style="list-style-type: none"><li>• Archaeological institutes</li><li>• Departments and programs in historical geography and architecture</li></ul>	<ul style="list-style-type: none"><li>• Relevant nonprofit organizations</li><li>• Museums</li></ul>
Religion		<ul style="list-style-type: none"><li>• Visits to houses of worship</li></ul>	<ul style="list-style-type: none"><li>• Rabbis and clerics of similar status in other religions</li></ul>	<ul style="list-style-type: none"><li>• Religious educational institutions</li><li>• Departments in institutions of higher education</li></ul>	<ul style="list-style-type: none"><li>• Houses of worship</li></ul>
Sports and physical activity		<ul style="list-style-type: none"><li>• In-person or televised viewing of professional sports games</li></ul>	<ul style="list-style-type: none"><li>• Professional athletes</li><li>• Coaches</li></ul>	<ul style="list-style-type: none"><li>• Sports colleges</li></ul>	<ul style="list-style-type: none"><li>• Professional sports venues</li><li>• Community centers</li><li>• Sports associations</li></ul>

Supplement B.

Cultural Sectors on Which the Israel Central Bureau of Statistics Collects Data

According to the Israel Central Bureau of Statistics, the classification of goods and services in the culture, entertainment, and sports sector by type of activity is based primarily on UNESCO recommendations. The classification includes (Central Bureau of Statistics, 2019b):

- Cultural heritage:** Museums, archives, preservation of antiquities and archaeological excavations.
- Literature and printed matter:** Libraries, books, newspapers and other periodicals (except textbooks and school libraries).
- Music and performing arts:** Theatre, dance, and concerts; nightclubs and other entertainment performances; purchase of instruments and equipment for playing and listening to music.
- Visual arts:** Galleries and painting, sculpture, and other arts.
- Cinema and photography:** Production and presentation of films; purchase of photographic and filming equipment.
- Radio and television:** Television and radio broadcasting; purchase of radio and television receivers.

- Socio-cultural activities:** Community centers and cultural activities in the community, including centers for culture, youth and sports.
- Sports and games:** Sports clubs, swimming pools, purchase of sports equipment, etc.; organization of games and sports competitions.
- Computers and the Internet:** Using the Internet, purchasing computers, and equipment for computers.
- Environmental protection:** Activities connected with nature and preservation of the environment.
- Gambling:** National Lottery and Sports Lottery.
- General administration and unclassified activities:** Administration of cultural, youth, and sports activities; non-profit institutions.



## Supplement C.

### Clarifications Regarding Funding for Culture

The Committee was guided by an approach of focusing on capital assets on which the sustainability of well-being can be based. Capital is estimated from current revenues by means of the discount rate or, in practice, the rate of interest. The higher the interest rate (or the profit that pays it), the smaller the amount of capital required in order to produce a given activity. Hence, business-generated cultural activity needs less capital investment than publicly funded cultural activity. For example, compare a musical show produced by a businessperson with one produced by a public body: the same show, the same personnel, the same expenses. The tickets for the public production are cheaper than those for the private production, and do not cover expenses. Let us assume that the profit from the private production is 6% after expenses. Based on this, the capital/output ratio for the public production is higher than that of the private production, that is, more capital is needed to achieve the same cultural output. Not-for-profit cultural activity is possible because public funding requires only a low interest rate or no interest at all. Thus, more capital resources are needed for publicly funded cultural activity than for business-generated cultural activity of the same volume. Another economic approach arrives at the same result from a different angle: culture is “public goods” that cannot be sustained at the desired level due to “market failure.” Public funding is needed to sustain public activity at the desired level, which should be beyond market considerations.

There are three main methods of estimating the capital value of current activity: net present value, internal rate of return, and payback period. These three methods are discussed in all project

appraisal textbooks. The first two are based on the principle of discounting, and are considered normative. In order to perform the calculations, one must know the initial investment, the desired profit rate, the anticipated revenues, and their timing – and all this information is usually not available with regard to current cultural expenditure. The third method is not standard, but is nevertheless widely used (Offer, 2019). The criterion is the amount of time needed to return the investment before profit and without discounting out-of-debt service. This method allows capital value to be calculated on the basis of current revenue and the interest rate. In the cultural sphere the assumption is that expenditure is what represents public benefit. When the interest rate and the current activity level are known, a capital estimate is obtained via the following formula:

$$K=e/r,$$

where  $K$  is capital in shekels,  $e$  is current activity in shekels, and  $r$  is the interest rate as a decimal.

The active variable is the interest rate. The lower the interest, the higher the capital rate needed for a given activity level. Let us assume that the interest rate for the public activity in question is the interest on government bonds. If a commercial interest rate (the minimum profit required for business activity) is 6%, and the public interest rate (government-guaranteed) is 2%, and the volume of current activity is 66 private and 33 public, then the required capital split is  $66/0.06=1,100$  for the private venture, and  $33/0.02=1,650$  for the public activity, that is, a capital ratio of 1.5/1 for the public activity even though its volume is only half that of the private activity.

# Appendices

## Members of the Committee

**Professor Menahem Yaari (Chair):** Former president of The Israel Academy of Sciences and Humanities, and former president of the Open University of Israel. Professor Emeritus in the Department of Economics at the Hebrew University of Jerusalem, and a founder of the Federmann Center for the Study of Rationality. Member of the American Academy of Arts and Sciences, the American Philosophical Society, and the Berlin-Brandenburg Academy of Sciences and Humanities. Israel Prize laureate in economics; recipient of the Rothschild Prize and the EMET Prize.

**Professor Eran Feitelson:** Professor in the Department of Geography at the Hebrew University of Jerusalem, and a founder of Hebrew University’s Advanced School for Environmental Studies. Former head of the Federmann School of Public Policy. Chair of the National Parks and Nature Reserves Council. Has served on numerous national committees and national planning teams for environmental issues. Expert on environmental policy, water policy, national and environmental planning, and transportation.

**Yoel Finkel:** Associate National Statistician in the Israel Central Bureau of Statistics (CBS) since 2003. Since joining the CBS staff in 1988, has served in a variety of capacities in the production of macroeconomic statistics on topics such as prices, consumption, income, employment, society, welfare, and well-being. Holds a bachelor’s degree in economics and business administration and a master’s degree in business administration, both from the Hebrew University of Jerusalem, as well as a master’s degree in public administration from Harvard University.

**Professor Ori Heffetz:** Professor in the Department of Economics at the Hebrew University of Jerusalem and in the Samuel Curtis Johnson Graduate School of Management at Cornell University. Member of the Federmann Center for the Study of Rationality at the Hebrew University of Jerusalem, and of the CBS’s Public Advisory Council for Statistics.

Investigates well-being indices, survey methodology, and the economic, psychological, and sociocultural behavior of individuals.

**Professor Elhanan Helpman:** Professor of Economics in the Department of Economics at Harvard University, and Professor Emeritus in the School of Economics at Tel Aviv University. Member of The Israel Academy of Sciences and Humanities, the American Academy of Arts and Sciences, and the British Academy. Former member of the Advisory Board of the Bank of Israel and of the National Council for Research and Development. Israel Prize laureate in economics; recipient of the Rothschild Prize, the EMET Prize, and a number of international awards. Specializes in international economics, economic growth, and political economy.

**Professor Eugene Kandel:** Professor in the Department of Economics and in the School of Business Administration at the Hebrew University of Jerusalem, and a member of the Federmann Center for the Study of Rationality. Former head of the National Economic Council. Former CEO of Start-Up Nation Central (SNC). Main areas of expertise include markets and financial institutions, corporate governance, innovation economics, and the Israeli economy.

**Professor Orit Kedar:** Professor in the Department of Political Science and a member of the Federmann Center for the Study of Rationality at the Hebrew University of Jerusalem. Former president of the European Political Science Association. Research interests include comparative politics and, in particular, comparative electoral politics, electoral systems, representation, voter behavior, and gender and politics.

**Professor Hadas Mandel:** Head of the Department of Sociology and Anthropology at Tel Aviv University. Studies aspects of gender inequality, with an emphasis on trends over time, the relationship between gender inequality and class inequality, and how welfare policy affects both. Since 2017 has headed a project that investigates the development of gender inequality over the past fifty years in postindustrial labor markets. The project is funded by the European Research Council (ERC Consolidator Grant).

**Professor Avner Offer:** Professor of Economic History and Emeritus Fellow of All Souls College, University of Oxford. Fellow of the British



Academy. In recent years has been engaged primarily with issues of well-being, social welfare, the history of the Nobel Prize in Economic Sciences, and the distribution of labor between the private and public sectors.

**Ariel Weiss:** Chief Executive of Yad Hanadiv (the Rothschild Foundation), member of several nonprofit boards, and head of the National Library Construction Company. Before immigrating to Israel in 1985, served for twelve years in various positions in the US House of Representatives.

**Professor Nathan Sussman:** Professor of International Economics and director of the Centre for Finance and Development at the Graduate Institute for International and Development Studies in Geneva, Switzerland. Formerly a professor in the Department of Economics at the Hebrew University of Jerusalem, and a founder of the University’s PEP Program in philosophy, economics, and political science. Former director of the Research Department at the Bank of Israel.

## Appendix B.

### Meeting and Workshop Participants

In addition to the Committee meeting and workshop participants, there were experts with whom the Committee consulted unofficially. The Committee thanks all those who assisted it in its work.

All of the honorific titles and institutional affiliations are accurate as of the date of the event attended. The participant list is in alphabetical order by surname.

#### ■ Committee Meeting Participants

##### ■ Special Guests

Professor Sir Partha Dasgupta, University of Cambridge

Professor David Heyd, the Hebrew University of Jerusalem

Dr. Leena Ilmola-Sheppard, International Institute for Applied Systems Analysis (IIASA)

##### ■ Observers

These observers participated in one or more of the Committee meetings, and assisted its work:

Dr. Shmuel Abramzon, National Economic Council

Dr. Roni Bar, National Economic Council

Ms. Andy Benica, Yad Hanadiv

Dr. Kobi Broida, Bank of Israel

Ms. Galit Cohen, Ministry of Environmental Protection

Yehonatan Hayoun, Central Bureau of Statistics

Dr. Assaf Kovo, National Economic Council  
Mr. Yuval Lester, Ministry of Environmental Protection  
Asaf Tzachor, Ministry of Environmental Protection  
Mr. Amit Yagur-Kroll, Central Bureau of Statistics

■ Committee Workshop Participants

■ Economic Capital Workshop

The workshop was held on December 15, 2019.

**Committee members:** Professor Elhanan Helpman, Professor Eugene Kandel, Professor Ori Heffetz

**Moderator:** Dr. Anat Itay-Sarig

**Participants:**

Dr. Shmuel Abramzon, Ministry of Finance  
Dr. Eyal Argov, Bank of Israel  
Professor Daniel Attas, The Hebrew University of Jerusalem  
Ms. Andy Benica, Yad Hanadiv  
Dr. Kobi Broida, Bank of Israel  
Professor Zvi Eckstein, The Interdisciplinary Center Herzliya  
Mr. Yehonatan Hayoun, Central Bureau of Statistics  
Dr. Eran Hoffman, The Hebrew University of Jerusalem  
Dr. Assaf Kovo, National Economic Council  
Dr. Assaf Patir, The Hebrew University of Jerusalem  
Dr. Michael Sarel  
Ms. Nitzan Shecter, Central Bureau of Statistics  
Professor Manuel Trajtenberg, Tel Aviv University  
Professor Joseph Zeira, The Hebrew University of Jerusalem

■ Natural Capital Workshop

The workshop was held on January 2, 2020.

**Committee member:** Professor Eran Feitelson

**Moderator:** Dr. Anat Itay-Sarig

**Participants:**

Dr. Erez Barkae, Ministry of Agriculture and Rural Development  
Ms. Galit Cohen, Ministry of Environmental Protection  
Professor Tamar Dayan, Tel Aviv University  
Professor Bella Galil, Tel Aviv University  
Mr. Yehonatan Hayoun, Central Bureau of Statistics  
Dr. Assaf Kovo, National Economic Council  
Mr. Yuval Lester, Ministry of Environmental Protection  
Dr. Ilan Levy, Ministry of Environmental Protection  
Professor Uriel Safriel, The Hebrew University of Jerusalem  
Professor Eytan Sheshinski, The Hebrew University of Jerusalem  
Dr. Asaf Tzachor, University of Cambridge  
Mr. Amit Yagur-Kroll, Central Bureau of Statistics  
Dr. Moshe Yanai, Central Bureau of Statistics

■ Human Capital Workshop

The workshop was held on March 5, 2020.

**Committee members:** Professor Menahem Yaari, Professor Hadas Mandel

**Moderator:** Dr. Anat Itay-Sarig

**Participants:**

Professor Liat Ayalon, Bar-Ilan University  
Ms. Andy Benica, Yad Hanadiv

Professor Ruth Birk, Ariel University

Ms. Rachel Brenner Shalem, Ministry of Health

Professor Ronit Calderon-Margalit, The Hebrew University of Jerusalem

Professor Dov Chernichovsky, Ben-Gurion University of the Negev and the Taub Center

Rabbi Bezalel Cohen

Professor Jiska Cohen-Mansfield, Tel Aviv University

Mr. Tsachi Fein, Ministry of Labor, Social Affairs and Social Services

Mr. Mark Feldman, Central Bureau of Statistics

Dr. Hagit Glickman, National Authority for Measurement and Evaluation in Education

Dr. Tammy Halamish Eisenmann, Yozma – Center for Knowledge and Research in Education

Mr. Yehonatan Hayoun, Central Bureau of Statistics

Mr. Roi Herzog, Ministry of Economy and Industry

Professor Ayal Kimhi, The Hebrew University of Jerusalem and Shores Institute for Socioeconomic Research

Dr. Assaf Kovo, National Economic Council

Dr. Gilad Malach, Israel Democracy Institute

Dr. Youssef Masharawi, Tel Aviv University

Professor Fadia Nasser-Abu Alhija, Tel Aviv University

Professor Yael Netz, The Academic College at Wingate

Mr. Haim Portnoy, Central Bureau of Statistics

Ms. Naama Rotem, Central Bureau of Statistics

Dr. Arkady Schneider, Central Bureau of Statistics

Mr. Shay Tsur, Bank of Israel

Mr. Amit Yagur-Kroll, Central Bureau of Statistics

■ **Social Capital Workshop**

The workshop was held on February 4, 2020.

**Committee members:** Professor Menahem Yaari, Professor Nathan Sussman, Professor Orit Kedar

**Moderator:** Dr. Anat Itay-Sarig

**Participants:**

Ms. Ofra Abramovich, Mamanet (The Newcomb Mom’s League)

Professor Kimmy Caplan, Bar-Ilan University

Ms. Nurit Dobrin, Central Bureau of Statistics

Mr. Yigal Eisenman, Central Bureau of Statistics

Professor Yuval Feldman, Bar-Ilan University

Ms. Lior Finkel-Perl, Israeli Civic Leadership Association

Professor Itzhak Galnoor, The Hebrew University of Jerusalem

Mr. Yinon Geva, The Hebrew University of Jerusalem

Professor Daniel Gottlieb, National Insurance Institute and The Hebrew University of Jerusalem

Dr. Itay Greenspan, The Hebrew University of Jerusalem

Mr. Yehonatan Hayoun, Central Bureau of Statistics

Dr. Hagai Katz, Ben-Gurion University of the Negev

Dr. Assaf Kovo, National Economic Council

Mr. Yuval Lester, Ministry of Environmental Protection

Dr. Shira Offer, Bar-Ilan University

Ms. Elisheva Sabato, Ministry of Social Equality

Professor Hillel Schmid, The Hebrew University of Jerusalem

Professor Yedidia Stern, Bar-Ilan University and Israel Democracy Institute

Mr. Amit Yagur-Kroll, Central Bureau of Statistics

Ms. Hodaya Yerushalmi, Ministry of Social Equality



■ **Cultural Capital Workshop**

The workshop was held on January 16, 2020.

**Committee members:** Professor Menahem Yaari, Professor Ori Heffetz, Professor Avner Offer, Professor Eran Feitelson

**Moderator:** Dr. Anat Itay–Sarig

**Participants:**

Dr. Sharon Aronson–Lehavi, Tel Aviv University

Ms. Sophie Artsev, Central Bureau of Statistics

Ms. Revital Cohen, Central Bureau of Statistics

Professor Margalit Finkelberg, Tel Aviv University

Ms. Maya Halevy, Bloomfield Science Museum, Jerusalem

Professor Oren Harman, Bar–Ilan University

Mr. Yehonatan Hayoun, Central Bureau of Statistics

Ms. Merav Katz, Central Bureau of Statistics

Professor Tally Katz–Gerro, University of Haifa

Ms. Nava Kessler, Association of Museums and ICOM Israel

Professor Nidaa Khoury, Ben–Gurion University of the Negev

Dr. Assaf Kovo, National Economic Council

Mr. Yuval Lester, Ministry of Environmental Protection

Professor Ronnie Lidor, The Academic College at Wingate

Professor Yael Netz, The Academic College at Wingate

Professor Haviva Pedaya, Ben–Gurion University of the Negev

Professor Motti Regev, the Open University of Israel

Professor Yigal Schwartz, Ben–Gurion University of the Negev

Ms. Lisa Shiloach–Uzrad, Israel Film Fund

Mr. Amit Yagur–Kroll, Central Bureau of Statistics

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1

Economic Capital



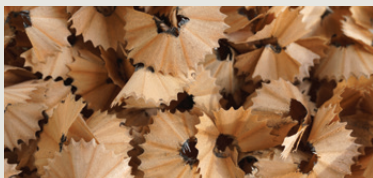
2

Natural Capital



3

Human Capital



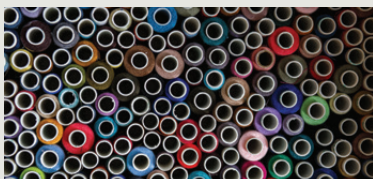
4

Social Capital



5

Cultural Capital



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