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Israel Ministry of Environmental Protection

Ministry of Economy and Industry
Environment & Sustainable Development Administration

SCP National Action Plan Process

SCP POLICIES: WORKSHOPS SUMMARY IN ISRAEL | 2015

UNEP

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SwitchMed Programme is implemented by the United Nations Industrial Development Organisation (UNIDO) and the United Nations Environment Programme (UNEP), through the Mediterranean Action Plan (MAP) and its Regional Activity Centre for Sustainable Consumption and Production (SCP/RAC) and the Division of Technology, Industry and Economics (DTIE).
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FOREWORD

It is said that a goal without a plan is just a wish. We might know how to formulate our goals quite well – to have sustainable consumption and production; to decouple our economic growth from environmental degradation; to have a more inclusive economic prosperity for all; to achieve the Agenda 2030's Sustainable Development Goals. However, without a clear roadmap to reach these goals they will be no more than a wish and will remain unattainable.

That is why the SwitchMed Programme is so vital for bringing sustainable consumption and production to Israel and the Mediterranean. As part of the SwitchMed Programme the Ministry of Environmental Protection, together with the Ministry of Economy have conducted a thorough process to study the best practices and policy tools to achieve sustainable consumption and production. These were adapted and compiled into a five-year roadmap that will help to turn our wishes into achievable goals. This document summarizes this process and its results.

I would like to thank the dedicated team that managed these efforts in the SwitchMed Programme and in the different ministries. May our work be another footstone in the long path to a sustainable world.

Avi Gabai

Minister of Environmental Protection

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About SwitchMed

The EU funded SwitchMed project is implemented jointly by the project countries (Algeria, Egypt, Israel, Jordan, Lebanon, Morocco, Palestine and Tunisia) and the institutional partners UNEP, UNIDO and SCP-RAC. SwitchMed is divided into 3 components addressing different parts of the transition process to Sustainable Consumption and Production (SCP) - SDG12:

(i) A policy component, built around the Barcelona convention (for the Protection of the Mediterranean Sea and Coastal Regions) and SCP national action plans;

(ii) Demonstration activities linked both to the policy component and the private sector;

(iii) Networking function to allow for exchange, joint learning and further scaling up;

UNEP-DTIE is coordinating the national policy component – Reinforcing circular economy in the Mediterranean governance framework and mainstreaming SCP in national policies. Under the national policy component the project countries will develop Sustainable Consumption and Production National Action Plans (SCP-NAP).

The implementation methodology used under the SwitchMed national policy component has been adapted to each countries' specific needs and requests. To assure coherence between ongoing and previous national work, the activities at country level build on already existing work and projects (Green Economy, SCP assessments, sustainable development assessment and strategies, SCP projects, etc). In this process UNEP works with national consultants in the project countries to allow a transfer of knowledge and reinforcement of national capacity. The SCP-NAP methodology assures that a large and diverse group of national stakeholders are involved in the national process (government, civil society, private sector, media, academia, bi- and multilateral partners, UNCTs, etc). Furthermore collaborations with UN institutions and other bi-lateral partners have been established at country level.

Main objectives:

- Leapfrogging to socially inclusive Sustainable Consumption and Production practices preserving the environment;
- Integrating the natural capital and the environment in the core business of Mediterranean companies
- Creating a critical mass of citizens for SCP;

The successful development of eight SCP-NAPs demonstrates that:

(i) in-country activities have to be nationally owned and nationally driven to be successful;

(ii) the involvement of a large and diverse group of national stakeholders from the beginning of the planning process is crucial;

(iii) linkages and synergies have to be established with already existing projects and initiatives and collaboration with other partners should be encouraged and fostered.

Each country has chosen to follow its own path to develop an SCP-NAP and this series of publications clearly shows the diversity of processes as well as outputs. In some countries the SCP-NAPs are based on SCP national assessments, while in other national partners decided to build upon already existing national SCP information and knowledge.

SCP policies in Israel: workshops summary

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Introduction

The challenge of achieving economic growth and development in the face of the limited carrying capacity of the environment has become increasingly apparent in recent years. This challenge is evidenced in the growth in population alongside the increase in standards of living, the ever growing demand for natural resources against the limited supply and the accelerated changes in the global climate which are caused by human activity.

All of these lead to economic instability and continuing environmental stress but at the same time they open a window of opportunity for spearheading a fundamental change in the strategy of development and growth. These changes give rise for the concept of Sustainable Consumption and Production (SCP).

Israel is especially sensitive to environmental and societal risks due to its dependence on the import of raw materials, fuels and food and its high density, fast rate of population growth and scarcity of fresh water. In addition, the raising awareness and demand for sustainable technologies and business models opens up an extensive market for the export of "green innovation". Therefore, the transition to a sustainable economy can advance innovative clean-tech industries, increase the efficiency of traditional industries and change general consumption patterns.

This document summarizes a series of workshops on various sustainable consumption and production strategies that were conducted in the past year as part of the SWITCH-Med Programme in Israel.

The SWITCH-Med sustainable consumption and production programme aims to promote a switch of the Mediterranean economies towards sustainable consumption and production patterns and green economy, including low emission development, through demonstration and dissemination of methods that improve resource and energy efficiency. It also seeks to minimize the environmental impacts associated to the life cycle of products and services, and, as opportune, to promote renewable energy.

The SWITCH-Med programme is divided into three components, each one of the components is addressing a different part of the transition process to Sustainable Consumption and Production:

1. a policy component, built around the Barcelona convention and national sustainable consumption and production (SCP) plans;
2. demonstration activities linked both to the policy component and the private sector;
3. Networking function to allow for exchange, joint learning and further scaling up.

The policy component works to further integrate sustainable consumption and production into the regional and national Mediterranean policy and governance framework.

Under the demonstration component, a set of regional or national demonstration projects promoting the adoption of more sustainable ways to design, produce, use and recycle products in the Mediterranean region will be selected and carried out. These will help to increase SMEs' use of environmentally-friendly technologies and practices, improve their overall resource efficiency and reduce their emissions of pollutants, and increase the production and consumption of 'green' and 'fair' products. At the same time, the project will empower civil society and actively promote green entrepreneurship, as key drivers of sustainable consumption and production, and ensure the implementation of specific priorities identified by the SCP national action plans.

Finally, the networking mechanism ensures linkages between the demonstration activities and the policy component, identifying best practices, lessons learned and replication potential.

As part of the SWITCH-Med Programme scoping review and the development of a SCP roadmap for Israel, 8 workshops were held in Israel between the end of 2013 and the beginning of 2015 with over 300 participants from all sectors: government, civil society, academia and the private sector. The linkages among all of these sectors are important for this process, as none can take sole responsibility for the transition to SCP.

The following table summarizes the different workshops held as part of the scoping review in Israel and the targeted stakeholders group that participated in each.

Table 1: List of workshops

Date	Subject	Target Groups
16-17 December 2013	**National Strategies for SCP**	Multi stakeholders
18 December 2013	**SD in Government Companies**	Government Companies
17-18 June 2014	**Policy Tools for Circular Economy**	Government
19 June 2014	**Mainstreaming Life Cycle Thinking**	Practitioners
24 June 2014	**Toward Sustainable infrastructure**	Government Companies
6 January 2015	**Environmental Funds Management**	Government
7 January 2015	**Environmental RIA**	Government
8 January 2015	**SCP Roadmap consultation meeting**[1]	Multi stakeholders

This summary document reviews all of these workshops including their detailed agenda, speakers and main conclusions.

[1] The final meeting on the 8th of January 2015 was a summary meeting that covered the various topics of the policy review process and presented the Sustainable Consumption and Production Roadmap for Israel to the various stakeholders group. This roadmap will be covered in separate publication under the same name.

Workshop 1: Strategies for Sustainable Consumption and Production (16-17.12.2013)

Workshop Agenda

Day 1 - 16/12/2013

9:30 Greetings and Introduction of the SWITCH-Med process / Galit Cohen, Deputy Director General, MoEP; Luc Reuter, SCP Branch, UNEP

10:00 Outline of the Israeli SCP Process / Dr. Ohad Carny, MoEP

10:15 OECD Work on Green Growth / Nathalie Girouard, Coordinator Green Growth and Sustainable Development, OECD

12:00 Roundtable on Israel's Green Growth Action Plan and Next steps

14:45 Overview of USG Sustainability Policy / Bicky Corman, Deputy General Counsel, EPA

16:15 Conclusions

Day 2 - 17/12/2013

9:00 Unlocking Investment in Support of Green Growth / Nathalie Girouard, Coordinator Green Growth and Sustainable Development, OECD

10:30 An In-Depth View of EPA's Sustainability Efforts/ Bicky Corman, Deputy General Counsel, EPA

12:00 UNEP's Green Economy Initiative/ Luc Reuter, SCP Branch, UNEP

12:45 Mainstreaming SCP into key economic sectors for the Mediterranean: food, manufacturing, housing and tourism / Magali Outters, Team Leader SWITCH-Med, SCP/RAC

14:30 Defining Next Steps/ Working Groups

16:00 Conclusions

Workshop Summary

This was the first workshop conducted under the SWITCH-Med framework in Israel. In it toke part over 40 representatives from the government, private sector, NGOs and academy supplemented by two international experts and the SWITCH-Med team. During the two days of the workshop the participants and guests discussed various SCP strategies, policy tools and case studies, including a presentation of Israel's Green Growth Action Plan as part of a multi-stakeholders roundtable - a gathering directed by the director-generals of the Israeli Ministry of Environmental Protection and the Ministry of Economy.

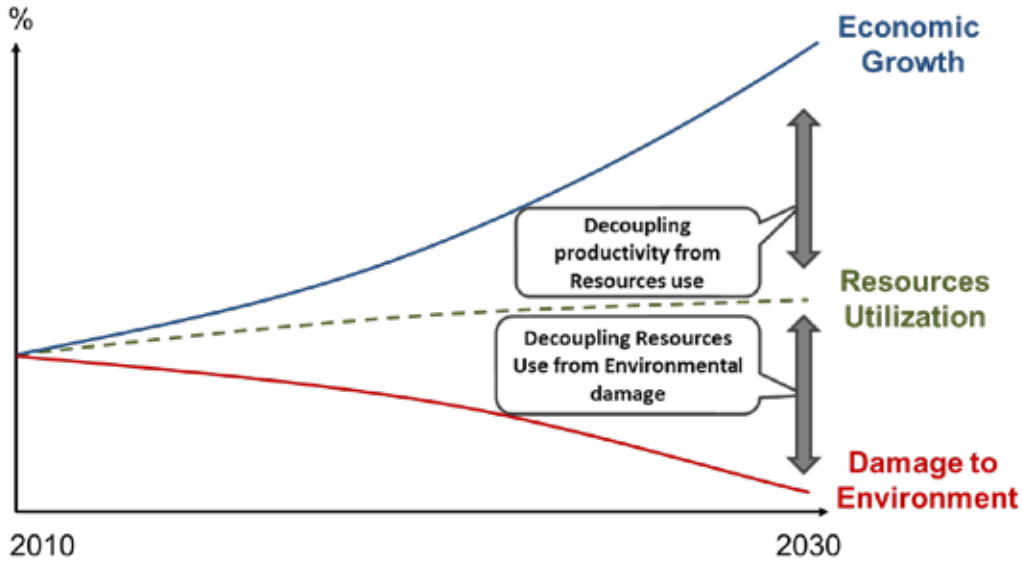
OECD's Green Growth Framework

According to OECD's definition "Green growth" means fostering economic growth and development while ensuring that natural assets continue to provide the resources and environmental services on which our well-being relies. To this end countries must achieve **decoupling** between economic growth and natural resource use. To do this it must catalyse investment and innovation which will underpin sustained growth and give rise to new economic opportunities.

Relative decoupling (emissions increase less than growth) commonly occurred in OECD countries including Israel. However **absolute decoupling** (emissions no longer linked to growth) is observed only in a few countries. From a green growth perspective we are

most interested in absolute decoupling because this involves a decreasing amount of resources consumed, or pollution generated, for each unit of economic output.

Figure 1: Decoupling of Economic Growth



Green Growth is a flexible and operational policy framework of achieving concrete and measurable progress that recognizes the value of natural capital and ensures that natural assets can deliver their full economic potential and spread social benefits on a sustainable basis to achieve **Sustainable Development**.

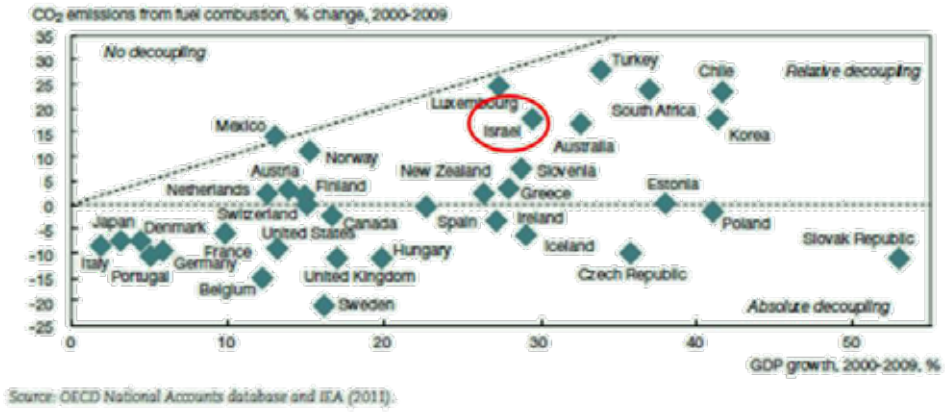
To support countries to develop indicators in support of their green growth strategies, OECD has developed a framework for green growth indicators that is organized under four headings:

- Environmental and resource productivity of the economy
- Maintaining the natural asset base
- Environmental quality of life, and
- Economic opportunities and policy responses to green growth.

Green growth policies can increase well-being by improving resource management, boosting productivity, encouraging economic activity in areas which are of best advantage to society on the long term and leading to innovation and greener skills.

A study using the OECD's ENV-Linkages model shows that a well-designed emissions trading system could sharply reduce GHG emissions while allowing GDP to keep growing (although at a slightly lower rate).

Figure 2: Decoupling between real GDP and CO2 Emissions from Fossil Fuels



These modeling results also indicate small net impacts on total employment. OECD modeling work demonstrated that the impact of GHG mitigation policy on GDP growth is small when the labour market adjusts smoothly to employment opportunities and losses, but that the costs rise significantly when workers in declining sectors become unemployable elsewhere due to an unwillingness to change and a lack of flexibility in labour markets.

An important take away here is the necessity to train and up-skill workers for new needs. Enhance curricula in school for students. Including SMEs specific support.

One way to combine environmental policy with measures to help workers take advantage of new opportunities would be to use revenues from environmental taxes to reduce taxes on labour income, as Nordic countries did in the past. This could generate a "double-dividend" by delivering both lower GHG emissions and higher employment.

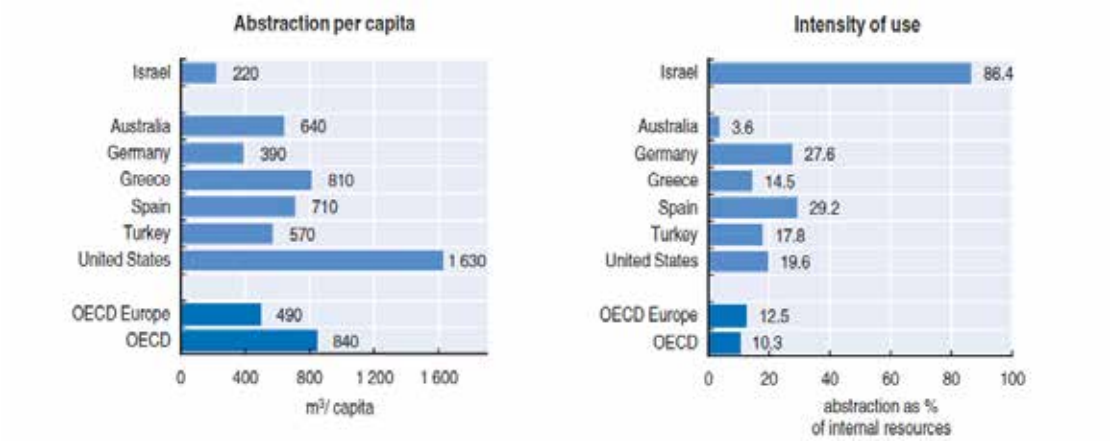
Economic-Environmental Decoupling in Israel

Israel has made good progress in lowering emissions of major air pollutants, in curbing the energy and carbon intensity of its economy, in reducing freshwater abstraction and in extending the number of protected areas.

Israel is advanced in its development of green taxes. However, more could be done to remove tax concessions that are potentially harmful to the environment. For example exemptions from excise tax for the commercial use of diesel; these exemptions favour the use of this fuel which is closely linked with local air pollutants. Similarly, the tax treatment of company cars and the current car allowance for employees in the banking and public sectors should be reviewed as they result in increased car use and the associated environmental impacts.

Water scarcity is another major concern in Israel, a country characterised by arid and semi-arid climatic conditions. The intensity of water use in Israel – the amount of water abstracted as a share of available resources – is very high compared to other OECD countries.

Figure 3: Freshwater Use, 2009



Source: OECD Environmental Performance Reviews: Israel 2011

At the same time, the amount of water abstracted per capita is among the lowest. So Israel is using a large share of the water that is available, but is not abstracting very much from existing sources. What connects and helps to explain these figures is the highly efficient use of water. In fact, Israel's use of water is among the most efficient in the world.

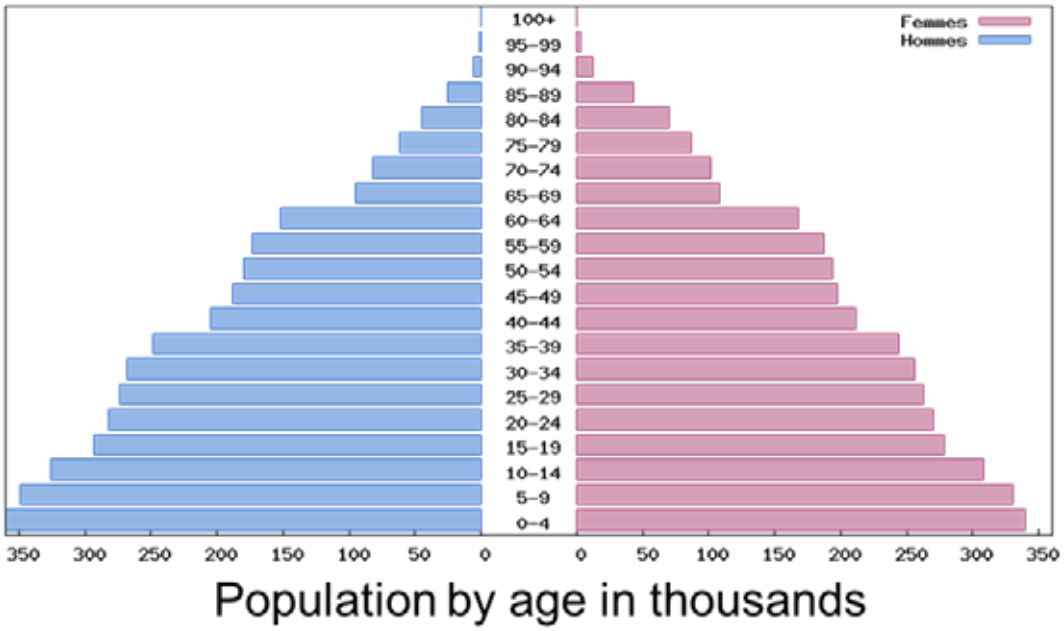
The overall quality of the water in Israel's rivers has improved, owing to the extension of wastewater treatment systems and river rehabilitation investment, but most rivers remain

seriously depleted and polluted. Groundwater quality has been deteriorating, with high salinity and concentrations of nitrates, micro-organisms and pesticides at some locations.

Promoting Green Growth in Israel (Roundtable Session)

The challenge of achieving economic growth in the face of the limited carrying capacity of the environment has become increasingly apparent in recent years. This challenge is evidenced in the growth in population alongside the increase in standards of living, the ever growing demand for natural resources against the limited supply and the accelerated changes in the global climate which are caused by human activity. All these lead to economic instability and continuing environmental stress but at the same time they open a window of opportunity for spearheading a fundamental change in the strategy of development and growth.

Figure 4: Pyramid of Ages in Israel, 2010

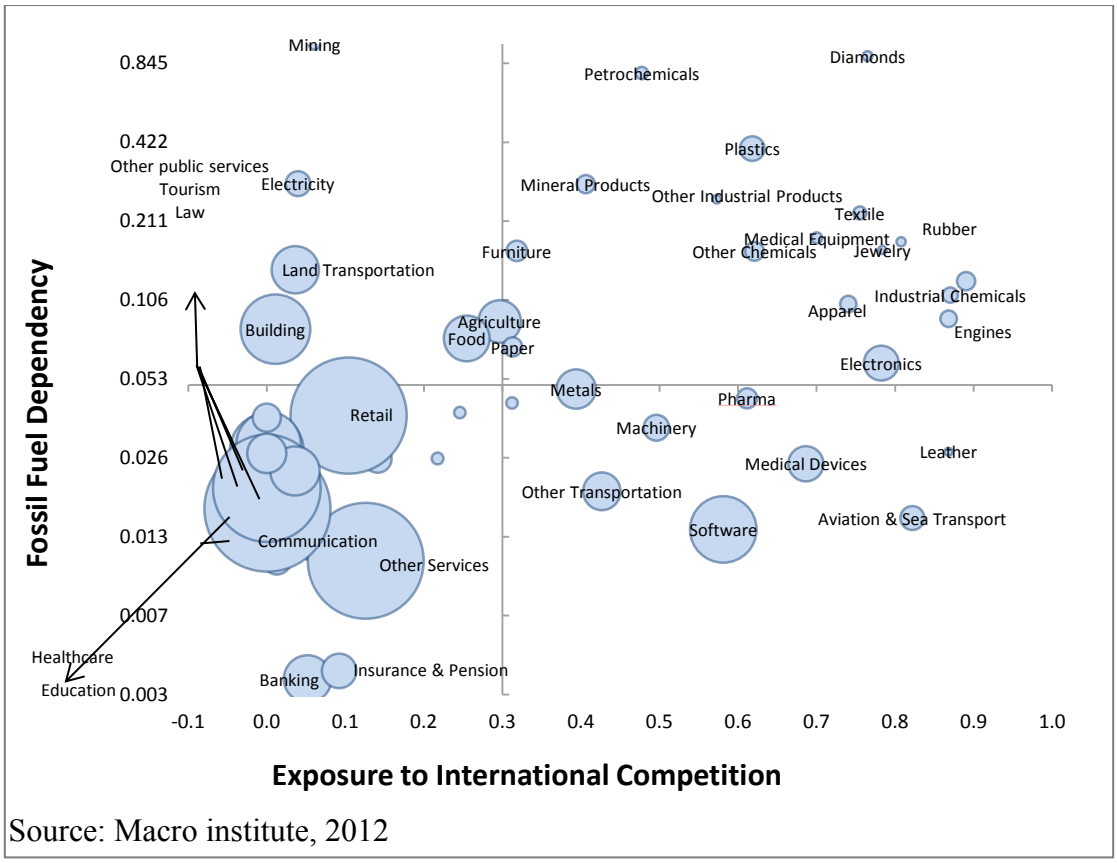


Israel is especially sensitive to these risks due to its dependence on the import of raw materials, fuels and food and its high density, fast rate of population growth and scarcity of fresh water. The fact that Israel is an "island economy" in the Middle East reinforces these problems and highlights the need for development which is sustainable. In addition, the entry of increasing numbers of countries to the green growth track opens up an extensive market for the export of green technologies. Therefore, the transition to a

sustainable economy can advance innovative "green" industries, increase the efficiency of traditional industries and adapt them to accepted standards in the world, and create new workplaces. Encouraging the development and implementation of these technologies in Israel can mark Israel as a world leader in these fields and can serve as an engine of green economic growth.

In recent years, many governments and international organizations have taken steps to advance policy on these subjects. The green growth strategy of the Organization for Economic Cooperation and Development (OECD) is especially prominent in this context. The central motif of the green growth strategy is the decoupling of economic production from the consumption of physical resources and environmental deterioration. Israel's global-scale innovations in such fields as agriculture, effluent utilization and desalination, which have facilitated significant reductions in environmental deterioration while increasing economic production, exemplify the possibility of implementing this strategy in practice.

Figure 5: Dependency of Economic Sectors in Israel on Fossil Fuels



Source: Macro institute, 2012

Within this context, a decision was taken by the Israel government to call on the Ministry of Environmental Protection and the Ministry of Economy to jointly formulate a national green growth plan (decision no. 2768). The plan was consolidated in a comprehensive consultative process with representatives of business and civil society based on the understanding that multi-sectorial consultation is a major facet in the formulation of a long-term strategy. Hereby are the main components of the action plan.

Integrating Environmental Permitting: In order to move toward improvements in environmental performance while at the same time increasing economic growth, the many different environmental licensing processes which exist today should be unified into a single coherent framework of integrated green licensing. The integrated licensing process will stimulate an integrated vision, source reduction and green innovation so as to gradually implement advanced environmental standards and techniques in industrial plants and businesses. The licenses and permits will provide businesses with a longer

planning horizon and stability by assuring them certainty concerning timetables and criteria. In addition, a hierarchy of treatment will be established between central and local government so that each facility will act vis à vis a single licensing entity. Transparency to the public will be assured throughout the environmental licensing procedures.

In order to support these processes, the possibility of establishing a system for the review of techniques and technologies developed in Israel but not included in the European Union's reference documents (BREFs) will be examined in order to recognize them as best available techniques (BAT) which can be implemented in industrial plants and businesses for the purpose of complying with the law.

Promoting Environmental Innovation: In order to encourage environmental innovation in Israel, obstacles to the establishment of beta sites should be removed by such means as enabling regulations for these facilities, the development of an approval system for local best available techniques (BATs) and the provision of economic incentives for implementation. In addition, a dedicated academic research center on resource and waste management should be established to advance the basic academic research in this field and to contribute to returning the brain drain and creating a scientific community in this area.

Green Growth Knowledge Center: To help industry and the private sector comply with the regulatory requirements and incorporate environmental efficiency and clean production processes, the numerous gaps in knowledge that exist in these fields must be bridged. Therefore, the establishment of a knowledge center on green growth is a central component of the national green growth plan. Such a center will serve the industrial plants and businesses which require environmental licensing or which are interested in promoting sustainable conduct, and will concentrate the existing knowledge on tools for environmental efficiency and green growth and auxiliary tools for implementation and will make such information accessible to plants and businesses. The center will also promote cooperative projects aimed at sustainable conduct and will stimulate plants and businesses to invest in innovative green techniques and technologies, to transition to environmental friendly production and to reduce expenses.

Anti-Greenwashing Regulations: The consumption of products and services has major environmental impact. This impact is a function of the scope and characteristics of the products we buy, the manner in which we use them and their post-use treatment. To spearhead a change in the consumption patterns of all consumers in the market in a way that reduces their negative impact on the environment, a variety of policy tools which will influence the purchasing decisions and the manner of use of products and services should be adopted: creation of the knowledge infrastructure necessary to analyze the life cycle of products and services, taxation of refrigerators which are energy inefficient, easements in purchase taxes on homes with a green label, and publication of clear advertising guidelines on environmental claims on products.

Green Procurement: As a complementary step to incentivizing green consumers, the government should serve as an example in integrating green public procurement in its agencies. By transforming the process of public procurement into a greener process, major improvements in the environmental-economic performance of central and local government can be achieved – leading to direct savings of up to a billion shekels to taxpayers. Such a change requires an assessment of the cost of a product throughout its life cycle (purchase, use, disposal), and not only at the time of purchase. To a significant degree, green procurement is economically worthwhile in the long range but requires financial incentives in the short term. Such assistance should be granted to government ministries and local authorities in order to incentivize the initial investment. At the same time, the government should take steps to increase awareness of the subject.

Green Employment and Jobs: The transition to a green economy will impact on many sectors and employees in the economy and will require new skills and qualifications. Therefore, the necessary new knowledge should be incorporated in both the academic and the professional training systems on the basis of forecasted future demands in the labor market. To do this, several actions are necessary: the creation of new study tracks in the required fields, adaptations of existing study and training tracks and a system of professional retraining and support for workers at risk due to the anticipated changes.

Unlocking Investment in Support of Green Growth

An economy-wide transition to Green Economy requires substantial investments across green infrastructure sectors. Current levels of green investment – as opposed to traditional investment – are not enough. An additional USD 1.2 trillion is required annually to meet global infrastructure needs in these sectors to 2030. This is the amount that is needed to support development and growth while maintaining current levels of infrastructure capacity and service relative to GDP, irrespective of environmental constraints. What happens to these figures if we "green" investment in infrastructure sectors such as transport, water and energy? The shift could require additional spending – an upper-end estimate puts this in the order of a further 11% or around USD 350 billion per year.

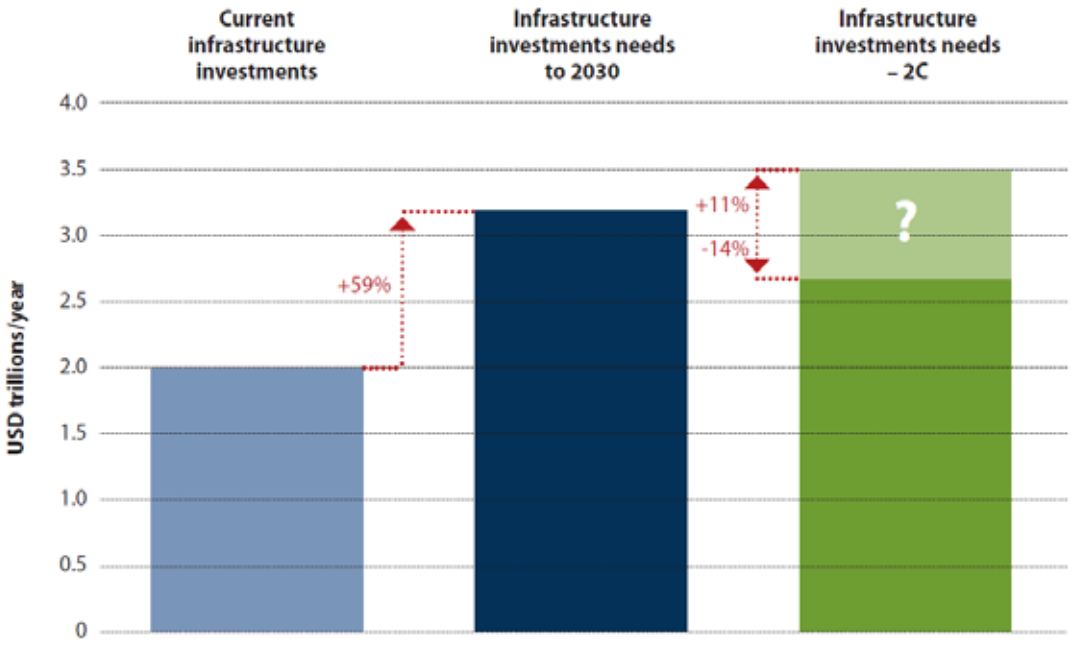
This raises the question if the greening of infrastructure – i.e. shifting away from fossil-fuel and pollution intensive systems – demand financing levels that are beyond the capacity of current capital markets?

It is, however, possible that greening infrastructure investment in these sectors result in net savings. Another study estimates annual savings of USD 450 billion, or around 14%. Such potential savings could stem from better utilization of electrical systems through full deployment of smart grids and a shift to increased use of rail and port infrastructure for passenger and goods transport, once capacity is freed up through decreased fossil fuel trade. Interestingly, these numbers do not include fuel savings. One study by IEA estimates that every additional dollar invested today in clean energy can generate 3 dollars in future fuel savings by 2050. Thus, the challenge may be less about unlocking enormous amounts of additional capital in the coming decades, but rather ensuring that the right policies are put in place today to shift infrastructure investment toward "smarter" choices, i.e. investments in the right kind of infrastructure.

Public financing alone will not be enough to meet these investment needs. The domestic public sector does and will still play the leading role in commissioning green infrastructure projects and to guide and "jump start" investment when needed. Public engagement should aim to address key market failures and externalities as well as delivery of public goods, *e.g.* investment in power grids to enable growth in new renewable energy sources. But achieving transformational change and low-carbon,

climate-resilient (LCR) development will require large-scale private sector engagement, in the face of growing infrastructure needs and fiscal constraints. Limited public financing should be used as a time-bound catalyst to leverage private investments wherever possible and to target cost-effective activities unlikely to attract sufficient private funding on their own (*e.g.* capacity building, education and training and technology research and development).

Figure 6: Infrastructure Investment Gap



Source: IEA, 2013

Work groups discussions

At the second day of the workshop the participants divided into three work groups in three topics:

1. Promoting Sustainable Consumption and Behavioural Change
2. Economic Tools for Green Growth
3. Mainstreaming Life Cycle Thinking

Each group discussed different aspect of SCP and identified key topics with potential to drive change.

Workgroup I: Promoting Sustainable Consumption and Behavioral Change

At the beginning of the discussion an overview of policy instruments in consumption in Israel was presented. E.g. MoEP's public awareness campaign "Thinking Green" on the environmental effects of household consumption and the potential for savings in environmentally friendly conduct; Government resolution on Green Public procurement; regulatory measures for preventing "green washing"; and the use of behavioral economics in the public sector.

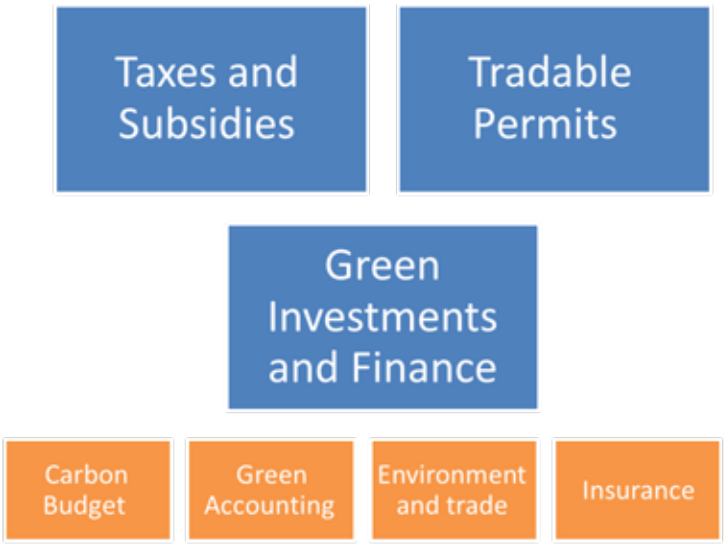
Key points raised in the discussion:

- In order to succeed and change behaviour patterns there is a need to use variety of policy tools simultaneously. For example, Israel managed to lead the public to reduce water consumption through a combination of economic incentives, the distribution of water saving devices, legislation, awareness raising campaign and development of new technologies.
- Strengthening and supporting environmentally friendly producers, products and services through green Government procurement.
- Development and incentivize new business models that promote SCP inherently, such as collaborative consumption or servicizing.
- The mass media plays a big role in changing public opinion. Therefore there is a need to give journalists and key opinion leaders the knowledge and tools on the subject.
- Direct contact with established local communities can help drive change, especially within minorities such as Jewish orthodox or Arab communities.
- Sectors for focus regarding sustainable consumption are transportation, food and housing. In these areas there are established tools and large potential for change.

Workgroup II: Economic Tools for Green Growth

There are three main areas were economic and financial policy tools could be used to promote SCP: Green Taxes and Incentives (e.g. Pigovian tax, Subsidies, Refund systems, accelerated depreciation); Tradable permits (e.g. USA 1990s sulphur dioxide permits, European emissions trading scheme, California and North East region, CDM); and Green Investments (e.g. Pension funds, FDI, Insurance).

Figure 7: Economic Tools - Conceptual Framework



There are some examples for such tools that were implemented in Israel:

- Grants approved for reduction of greenhouse gas emissions in the industry
- Feed-in tariffs for renewable energy
- Subsidies and Government investments in waste separation
- Introduction of the landfill levy
- 'Cash for Clunkers' program
- Replacement of old electricity appliances
- Taxation of Natural Resources (Sheshinski Committee for the taxation of oil and tax revenues - GT increased from 33% to 52%-62%)
- Green Taxes on Vehicles (Vehicle tax discount set according to average pollution level)

The group reached several key insights:

- The success of the "waste fund" shows that dedicated funds to increase loans for green investments, and consider a fund similar to small business funds have great potential.
- The government should consider using the national gas wealth fund investments to increase long-term productivity through green investments.
- It is recommended to explore economic tools to reduce wasteful consumption - Food, utilities, water; incentivize products with longer warranties (for example through lower taxes) and combine economic tools with behavioral approach

- Sectors for further focus are: agriculture, transportation and housing

Workgroup III: Mainstreaming of Life Cycle Thinking

Life cycle thinking is an approach for addressing environmental, economic and social issues and opportunities from a system or holistic perspective. In this way of thinking, a product or service is evaluated or designed with a goal of reducing potential environmental impacts, economic costs and negative social effects over its entire life cycle. The concept of life cycle thinking implies the linking of individual processes to the context of their entire value chain. Starting from a specific upstream function or source (preferably raw materials extraction) and ending in a downstream sink or process (such as landfill or recycling).

Life cycle thinking implies that everyone in the whole chain of a product's life cycle, from cradle to grave, has a responsibility and a role to play, taking into account all relevant external effects. From the extraction of the raw material through refining, manufacturing, use or consumption to its reuse, recycling or disposal, individuals must be aware of the impact that this product has and try to reduce it as much as possible. The impacts of all life cycle stages need to be considered when taking informed decisions on the production and consumption patterns, policies and management strategies.

Israel is lagging behind these developments. Although there are some early adopters of life cycle thinking, the lion's share of Israeli companies and public institutions are unaware of the potential benefits of these methodologies or even of their existence. This state of affairs hinders efforts to assimilate more sustainable conduct in the Israeli economy and might even threaten its future competitiveness vis-à-vis foreign markets. In order to promote these practices in Israel there is a need for awareness-raising, knowledge transfer, capacity-building and eventually the design of supporting incentives and policy tools.

Workshop 2: Sustainable Development in Government Companies (18.12.2013)

Workshop Agenda

9:00 Greetings and Introduction / MK Amir Peretz, Minster of environmental Protection; Uri Yogev, Director General of the Government Companies Authority.

10:00 Creating the Future We Want / Bicky Corman, Deputy General Counsel, EPA

10:30 Strategic Implementation of Sustainable Development Goals in Government Companies / Dr. Ohad Carny, MoEP

11:15 Panel on Sustainable Development in Government Companies / Lily Ayalon, Government Companies Authority; Dr. Adrian Biano, Israel Electricity Company; Yosef Ben Avrom, Mekorot; Galit Cphen, MoEP

12:15 Corporate Level Sustainable Development Processes / Momo Mahadav, Maala

13:00 Conclusions

Workshop Summary

In this workshop toke part over 100 representatives from the various government companies in Israel, which include some of the biggest infrastructure companies in the country such as Israel electricity company, Israel water company (Mekorot), the railway company, the national road company, the various ports and more. The workshop presented main strategies for the development and implementation of sustainable development and SCP strategies in the corporate level and a professional guide on the subject was distributed. The guide includes best practices for integrating sustainable development principles into the business strategy of a government company. They require government companies to appoint a senior management member to lead the sustainable development efforts, publish a strategic plan for sustainable development with clear targets and goals, and to report on an annual basis to the Government Companies Authority on their progress.

The Government Companies Authority carries out the role of the government as a shareholder in government companies. It is responsible for the activity of approximately 100 companies and government subsidiaries.

The meeting was opened by the Minister of environmental Protection, MK Amir Peretz, alongside with the Director General of the Government Companies Authority, Mr. Uri Yogev.

The workshop was intended to provide a common methodological framework to the government companies in the formulation of sustainable development strategies and their implementation. The speakers emphasized the managerial process of designing and implementing the strategy based on the mapping of the main impacts of the organization on the economy, environment and society. The purpose of the workshop was to help create a continuous improvement in the conduct of the Government Companies - reducing their negative impact on the environment, strengthening their ability to have a positive impact on the community and the society in which they operate and improving their performance, business stability and competitiveness.

The workshop presented local and global case studies for the implementation of such strategic plans in government companies, including examples for the creation of individual work plans, various monitoring and control mechanisms, and schemes for feedback and reexamination that allow the introduction of required adjustments in the process according to arising needs.

Workshop 3: Policy Tools for Circular Economy (17-18.6.2014)

Workshop Agenda

First Day - 17.6.2014

9:00 Greetings and Introduction - Galit Cohen, Deputy Director General, MoEP

9:10 UNEP: LCA and Eco-innovation - Luc Reuter, SCP Branch, UNEP

9:40 Introduction to Circular Economy and Policy Making – Vered Blass, The Leon Recanati Graduate School of Business Administration, Tel Aviv University

10:10 Resource Efficient Consumption and Production along Global Value Chains - Michael Kuhndt, Director, CCSCP

11:15 Managing the Use of Life Cycle Assessment within an Organization -Ivan Muñoz, 2.-0 LCA consultants and the International Life Cycle Academy

12:00 The Sustainability Consortium: Promoting Sustainability Activities in the US - Greg Thoma, University of Arkansas

14:30 Life Cycle Impact and Health Risk Modeling - Olivier Jolliet, School of Public Health, University of Michigan

15:30 Remanufacturing and Reuse - Nick Morley, Director of Sustainable Innovation at Oakdene Hollins

Second Day - 18.6

9:00 New roads to sustainable consumption: Enabling Sustainable Lifestyles - Michael Kuhndt

10:00 Waste Policy in Israel - Yoram Horowitz, Senior Deputy Director for Local Authorities, Ministry of Environmental Protection

10:30 Households Solid Waste Survey - Yohanan Burstyn, Senior Coordinator of Recycling, Ministry of Environmental Protection

11:30 Waste Management in the City Of Munich - Günther Langer, Director of the Executive Office, Waste Management Corporation, Munich

13:30 Panel – Roadmap to Circular Economy

14:30 Defining the next steps - Work Groups

Workshop Summary

The workshop took place in Jerusalem and was held over two days. Over those two days different policy tools to promote circular economy were presented. The first day's presentations focused on new ideas and innovation from around the world in various

aspects, whereas the second day's presentations were more focused on waste management tools.

Introduction to Circular Economy and Policy Making

Dr. Vered Blass was the first speaker. She explained the basics of circular economy and showed how linear consumption, as used today, is reaching its limit, and how circular economy, starting at the raw materials and designing stages can be the answer for increasing consumption rates. Dr. Blass presented different possible solutions, such as setting up global reverse networks for products and components, reorganize and streamline pure materials flows and embracing innovative business models on the demand side, such as Design for the Environment methods (DfE) and Servicizing models.

Dr. Blass reviewed different policy tools in the field of waste management (deposit fees, landfill ban, etc.) and examples for public-private partnerships to promote industrial symbiosis.

Resource Efficient Consumption and Production along Global Value Chains

Mr. Kuhndt presented his work at the Collaborating Centre on Sustainable Consumption and Production (CSCP), Germany. After introducing the work of the center, he explained

the need for introducing decoupling processes into businesses value chains. He showed several possibilities for improvements in the different stages of products' lifecycle. This transformation is enabled as both producers and consumers understand the full cycle of the product and the information gap between the two is removed. To this end, one of the key tools to help consumers make informed procurement decisions is green labeling, that can promote the consumption of eco-friendly products.

A possible measure for the sustainability of a product is an index which divides the societal value (positive "handprint") of a product with its environmental footprint, to assess the effect of that product and limit its value to a maximum of 1.

The manufacturing stage of a product is not enough to ensure green economy. Different business models, as well as partnerships along the value chain can encourage green economy as well. Partnerships can take place via a change in the business model, such as sharing or renting a product, instead of owning it.

Kuhndt sums his presentations by looking at a circular economy from the "life style" lens, and the need to promote both circular economy and sharing economy in innovating ways from a user-centric perspective.

Managing the Use of Life Cycle Assessment within an Organization

Dr. Ivan Muñoz gave a short review on how LCA works as a policy making tool and its application in businesses. He demonstrated that LCA is nowadays considered the best tool available for a holistic sustainability assessment of products and services, but can be a subjective tool that is not always suitable for all products or services.

There are many ways for using LCA in an organization, either as a single outsourced study or by incorporating the tool into the company as an in-house expertise. Usually, large companies with complex production lines or services will probably choose to imbed LCA within the company, despite the high costs, while SMEs will usually use LCA for solving specific problems and needs. There is also the question of timing, as Muñoz explained- whether to use LCA at an early stage of the design process, or later. It is important to consider that at early stages the product can be easily manipulated, but there might be less data available, which can be problematic for new products and innovations.

Many other technical aspects are under consideration when using LCA in the company- whether to use detailed LCA or just LCA screening, how and when to acquire LCA software and database, determining the system's boundaries and more.

The main problem with LCA, as Muñoz claims, is that rarely there is one product that is better in every category then the others. Also, conflicts between methods or results might occur, which also prevents us from having one single answer. It is important to understand the limits of this tool, as well as what influences it, and clearly define the goal of using LCA, so that open dialog can take place and the best result will be achieved.

The Sustainability Consortium: Promoting Sustainability Activities

Dr. Greg Thoma presented the Sustainability Consortium (TSC) - a body that aims to promote SCP in the private sector throughout the entire product life cycle by designing and implementing a credible, transparent and scalable evidence-based measures and reporting systems. TSC is working with manufacturers and academy, combining scientific research with member summit meetings and feedbacks, to produce the TSC Product Sustainability toolkits. Those toolkits enable suppliers and buyers to evaluate each other using specific Key Performance Indicators (KPI), which evaluate quality of input materials, and overall improvement in the product's footprint and cost efficiency. TSC is working in many sectors, building a wide range tools for different target groups.

TSC's toolkits are used not only by the industry. Many retailers, international companies and even humanitarian aid organizations are using these tools and databases. In this way TSC is bringing stakeholders together in a collaborative approach to develop sustainable solutions across different product groups and sectors.

Life Cycle Impact and Health Risk Modeling

Dr. Olivier Jolliet discussed the use of Life Cycle Analysis in regard to Public Health issues. He started by describing the magnitude of the environmental burden of disease on human health in Israel and worldwide. It is estimated that there are 2450 deaths per year in Israel due to particular matter (PM), and that the main sources for the pollution are industry and transportation.

By using LCA models one can track PM's emissions globally and identify “hot spots” and mitigation strategies.

Remanufacturing and Reuse

Nick Morley, a director at the Center for Remanufacture and Reuse (CRR) presented the work of the center and the benefits of reuse and remanufacturing compared to recycling (and garbage disposal). The key idea is to return the product to like- new or better performance, with warranty to match.

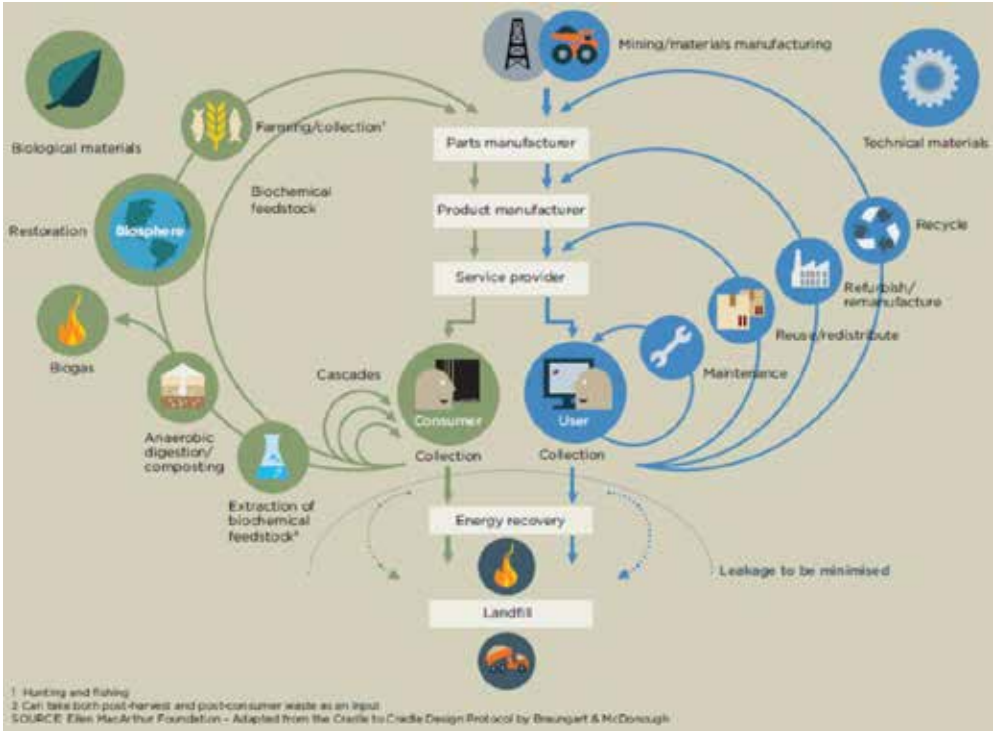
For the environment, the benefits of reuse and remanufacture are obvious: fewer materials are being used and less waste is being produced. But according to Morley both customers and businesses are benefited as well: for the customer - the product costs are lower and a warranty is guaranteed. For the businesses: there are closer relationship with the customers, improved profit margins and improved knowledge of the product's lifecycle. Policymakers also benefit as innovation in the field leads to the development of clean industry and green jobs, better materials security and improved resource efficiency.

Morley notes that there are 4 golden rules for remanufacturing:

- The potential for remanufacturing lies at the design of the product and is based on an optimal mix of rate of product evolution, value and re-constructability
- Marketing of remanufactured products is most successful when most hidden
- Successful remanufacturers reduce consumer risk at demand
- As for supply- recovery of “core” is key to growing the business

Many steps can be taken by policy makers to promote remanufacturing. Sales of remanufacturable and remanufactured products can be promoted by taxing, advertising and supplying information for both consumers and manufacturers.

Figure 8: Remanufacture and Reuse Schemes



New roads to sustainable consumption: Enabling Sustainable Lifestyles

Michael Kuhndt_was the first speaker of the second day. His presentation focused on promoting and maintaining sustainable lifestyles. Kuhndt's Collaborating Center on Sustainable Consumption and Production has created a “lifestyles observation lab”, which enables the researchers to examine different people and their lifestyles and to draw from that about the changes necessary for a more sustainable way of living.

The average middle class consumer in Europe has a large ecological footprint and needs about 4 planets to support his lifestyle. The goal is to change our way of living in a manner that will reduce our ecological footprint. To achieve that, many things will have to change:

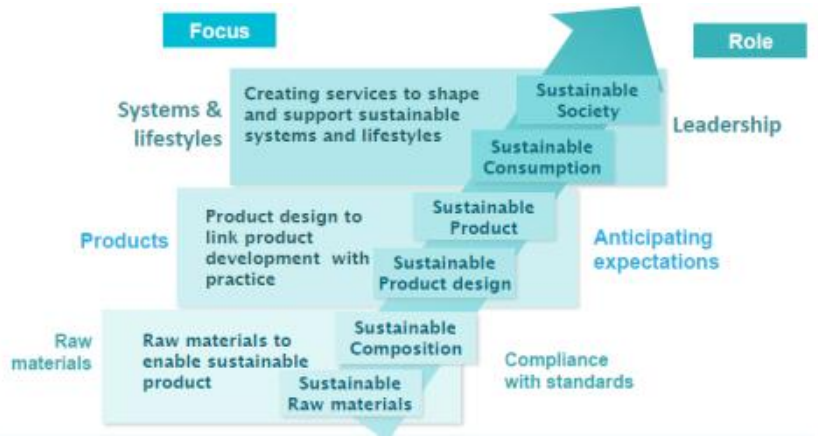
- Sustainable nutrition will be mostly vegetarian and local, grown more efficiently and recycled at the end.

SCP policies in Israel: workshops summary

- Sustainable household goods will be more efficient, repairable and easy to recycle. We will rely more on sharing and servicizing.
- Houses will be smaller (20 m^2 per person), built from sustainable construction material and net zero energy requirements. Co- housing will be more commonly used.
- Mobility will be reduced, no car ownership, convenient public transportation that runs on renewable energy.
- Cities will have to change as well, using mixed- used development, smart grids, zero-net buildings and social innovation.

To achieve the above changes, the lab conducts research and observations, as well as roundtables and experts meeting.

Figure 9: Moving Toward Sustainable Lifestyles



The lifestyles lab also works with local businesses, to understand their needs and challenges, and to examine how to push other businesses to become more sustainable. There is still much work to be done by government and local municipalities, as well as businesses to support these changes.

Waste Management in the City Of Munich

Gunther Langer presented as a case study the waste management system in the city of Munich, which is run by AWM, a public service company operating in the city. The company is managing the recycling yards, waste collection and disposal services and developing future waste management plans. AWM manages dry fermentation plants that

produce from organic waste over 2000 MWh/year, as well as heat that is being utilized for heating. The residues from the aerobic digestion process is then turned into compost and sold as a gardening product.

AWM is charging a waste fee. The fee is paid according to the size of the non- recyclable grey bin only. This system encourages the citizens to recycle and use smaller grey bins, in order to pay less. The fee is stable, operating under market regulation, which makes the system reliable for both citizen and AWM and prevents fluctuations of prices. Waste treatment is local, which requires less transport and promotes partnering with small and medium sized businesses in the region.

Work groups discussions

Group 1 – Promoting Life Cycle management and Servicizing Models

During the group discussion focus was given to Servicizing and remanufacturing models. Servicizing was defined as a transaction where value is provided through combination of products and services and where satisfaction of customer needs is achieved by selling the function the product provides rather than the product per se and/or by increasing the service component of the offer.

The main policy tool discussed was public procurement through adapting tenders to prefer lowering environmental impacts and costs from a life cycle and material flow perspective – with preference to reuse and remanufactured products and service bundles instead of direct ownership or classic leasing models.

Group 2 – Labeling, Branding and Behavioral Economics

During the group discussion the working group gave emphasis to the applications of eco-labeling, branding and behavioral economics tools. These tools are key instruments in the development of Sustainable Consumption strategies, and specifically, for the reduction of food waste.

The group highlighted the importance of experiments (i.e. the use of experimental economics) and ex-ante policy analysis when devising Sustainable Consumption policy instruments. The group also discussed "best-before" labels and their impact on consumers

behavior. Indeed, understanding behaviors among different target audiences, across different geographies, ages, gender, and ethnicities is imperative for a good, well-tailored, policy.

Workshop 4: Mainstreaming Life Cycle Thinking (19.6.2014)

Workshop Agenda

8:30 Opening Remarks

8:40 UNEP: LCA and Eco-innovation - Luc Reuter, SCP Branch, UNEP

9:00 Life Cycle Analysis and Public Health - Olivier Jolliet, School of Public Health, University of Michigan

9:45 Life Cycle Analysis of Retail Supply Chain: Dairy Products - Greg Thoma, Ralph E. Martin Department of Chemical Engineering, University of Arkansas

10:30 Life Cycle Assessment of Consumer Products - Ivan Muñoz, 2.0 LCA consultants and the International Life Cycle Academy

11:45 Expert Panel on Real Life Case Study: Pita Bread - Noa Stern, Vered Blass, Greg Thoma, Olivier Jolliet, Ivan Muñoz

14:00 Practitioners Forum: Presentations of Latest Projects and Research

Workshop Summary

The workshop took place in Tel- Aviv and was held together with the Manufacturers Association and Tel Aviv University. It was a mostly technical workshop and was targeted mainly to LCA practitioners, in industry, academy and consultancies. The workshop reviewed cutting-edge methodologies and topics in life cycle analysis, its usage and benefits. The panel analyzed Pita bread production as a case study, displaying a process of LCA in real time. Discussions on the challenges of life cycle management and analysis or conducted among the 40 participants.

Practitioners' Forum

As part of the practitioners' forum, a wide variety of Israeli professionals presented their work in the field:

Life Cycle Management in Nesher Israel Cement Enterprises

Israel Cement Enterprises uses different natural resources (such as limestone and clay) and fossil fuels (such as petcoke and coal) for its production process, and emits GHG. To reduce its carbon footprint Nesher has decided to take action and join the Cement Sustainability Initiative (CSI) and to maintain a Green Label Products (given by the Environmental Protection Ministry and the Israeli Standards Institute). This includes, among others, a reduction in GHG emission by using energy efficient processes, alternative fuels and alternative raw materials. Nesher also became a registered member at the Environmental Product Declaration system (EPD), which required the company to perform a cradle-to-gate life cycle analysis. The analysis starts at the first stage of the extraction of the raw material from the ground, and ends at the gate of the cement factory, where the cement is being distributed to the customers.

Environmental Impacts of 'Woosh' Compared to Alternatives

Alon Shepon talked about The Environmental Impacts of 'Woosh' Water Station, a device that is installed in streets and public spaces and provides filtered and cold drinking water into refillable bottles only. The growing consumption of bottled water has generated concerns regarding its adverse environmental impacts. Current policies, which usually encourage consumption of tap water instead of bottled water, seldom take into consideration behavioral barriers such as perceived quality, temperature, and most of all availability in the public sphere. A system of well-maintained water stations where consumers can wash and refile reusable bottles on the go is one alternative for overcoming such barriers while reducing waste. Thus it was important to methodically evaluate its full life cycle environmental impacts and determine whether it is indeed preferable compared to bottled water.

A study analyzed the environmental burdens of a Woosh water station in terms of cumulative energy demand and Greenhouse Gas (GHG) emissions, and compared it to that of previous results reported for bottled water. Hybrid Life Cycle Assessment methodology was used to evaluate energy demand and GHG resulting from consumption of 1L of water from the water station. To account for a range of options, six use phase scenarios of water consumption were constructed. These scenarios represent three daily water consumption patterns (40L, 75L and 150L) and two water temperature options (cooled and non-cooled).

Results show that per liter energy demand and GHG emissions of the water station range between 0.26 -1.47 MJ/L and 0.01- 0.07 KgCO2eq depending on scenario, with the highest value attributed to the low volume consumption (40L/day) and cooling option. Use phase electricity is the most dominant factor throughout, responsible for ≈ 55%-80% of energy and GHG emissions per liter.

In comparison, various academic and industry studies report that bottled water's per liter energy demand and GHG emissions range between 3-10MJ/L and 0.1- 0.5 KgCO2eq/L with the higher values representing scenarios which include refrigeration, high energy-intensive treatment, or/and long distance transport. Plastic production (PET) and bottle

transportation are the most dominant factors responsible for energy requirements and GHG emissions.

Environmental Impact of Alternative Energy Sources for Private Transportation in Israel in 2020

Rona Ben Zion started her presentation by noting that the Israeli transport sector in general is responsible for about 44% of Israel's energy consumption, which is based to large extent on imported fossil energy sources, such as oil and refined petroleum products. For strategic, economic and environmental reasons, the state of Israel has decided to diversify its sources of energy for transportation.

The new gas and oil shale discoveries in Israel, along with the technological development worldwide, allow switching transportation to alternative energy sources such as electricity and gas which become viable options. While there is a vast knowledge around the world on the environmental impact of energy production and consumption for transportation, policy makers in Israel face luck of information in the Israeli context. In this research adaptation of published literature worldwide in this field was made to the Israeli case study.

The research examined different environmental impacts of various energy alternative sources for private transportation in Israel. Using 'Life Cycle Assessment' methodology a comparison was made between Electric, GTL and Methanol85 fuel cycles versus traditional petrol and diesel engines. The study examined the full life cycle from the primary energy source along the life cycle of fuel and vehicle value chain, also known as 'Well to Wheel' approach. This analysis addressed a number of elements such as energy efficiency, use of water resources, land use, waste generated, GHG emissions and other air emissions. These quantitative values are further translated into economic values by 'Life Cycle Cost' model.

The results help to formulate and implement policy proposals concerning transport infrastructure, energy and environmental protection, hence minimizing environmental damage in the long term.

Usage of Environmental Impacts Assessments in Agricultural Production

Prof. Nava Haruvy presented an economic evaluation of environmental impacts in agricultural production. An increased awareness of the environmental impact of agricultural production has led to an increased public demand for organic produce, which is perceived as more environmentally friendly because it does not use certain pesticides and inorganic fertilizers. Similar perceptions exist for locally-grown produce, which is also perceived that way because it reduces the impact of transporting the food from another country.

However, in practice organic produce might have a higher impact than conventional produce because it has a lower yield per hectare, requiring it to use more land and other production inputs to fill the same demand. And locally-grown produce might have a higher impact than imported produce, especially in Israel, where scarce water resources may increase the need for energy-intensive water treatment for irrigation.

The study used life cycle impact assessment method to compare the environmental impacts of alternative crop production methods. To measure the impact of consuming the produce, the environmental impacts were compared based on a weight unit of a ton of produce, rather than an area of production unit. The comparison of organic vs. conventional crops addressed two questions: First, is organic agriculture more environmentally friendly than conventional agriculture? And second, what are the differences in the factors of production that exert the greatest influence on the environment in each production method?

The study found that the total environmental impact of a ton of organic fruit is greater than the environmental impact of a ton of conventional fruit. A large part of the differences in impacts could be attributed to the compost production processes (used as fertilizer in organic orchards); the use of fertilizers had a higher environmental impact than the use of pesticides. The impact of pesticides in the organic crop was higher than their impact in the conventional crop; the use of more environmentally friendly pesticides, in greater quantities, caused more damage to the global environmental than the use of less environmentally friendly pesticides in smaller quantities.

The comparison of local vs. imported crops addressed the question in which crops does the local production reduce the environmental impacts caused by the use of fuel and transportation for food imports? The study found that for almonds and potatoes, the environmental damage from local production was higher than the damage from imports; while for apples, pears, and onions, the opposite was true, meaning that the latter three crops should be grown locally.

Workshop 5: Toward Sustainable infrastructure (24.6.2014)

Workshop Agenda

8:30 Opening Remarks

9:00 Waste Policy in Israel - Yoram Horowitz, Senior Deputy Director for Local Authorities, Ministry of Environmental Protection

9:30 Reducing Construction waste - Uri Tal, Construction waste supervisor, Ministry of Environmental Protection

10:30 Recycled Construction Waste Standards - Shimon Nesichi, Israeli Roads Company

11:00 Technological Developments in usage of Recycled Construction Waste - Tzvika David, Benny & Tzvika ltd.

11:30 Reduction of Light Pollution in Infrastructure Projects- Noam Leader, Chief Ecologist, National Parks Authority

12:30 Conclusions

Workshop Summary

Reducing Construction Waste

Uri Tal, as a representative of the Ministry of Environmental Protection, presented a short review of the construction waste market in Israel, and recommendations and policies to promote and develop the market. In the past decade Israel enacted many laws and regulations that require recycling and reuse of construction waste and the use of the

recycled aggregates in new construction projects. Even so, shortage in aggregates is expected in Israel, and the use of the recycled materials is not yet as extensive as it can and should be. One of the main reasons for that is the lack of willingness to recycle when the recycling site is over 10 KM away from the construction area. Also, recycling can be more expensive then landfilling the waste and many people are still not familiar enough with the materials and are uncomfortable of using them instead of quarried aggregates.

The steps to promote the use of recycled aggregates are therefore:

On the demand side:

- Creating demands - mainly through demanding the use of recycled aggregates in governmental infrastructure projects.
- Removal of market barriers – Giving an economic advantage for the use recycled materials.
- Adequate regulation and standards for the use recycled materials.
- Increasing awareness among stakeholders of the use of recycled materials

On the supply side:

- Raising the price for landfill, so that recycling will be the cheaper option.
- Enforcement of the laws against illegal disposal of waste will increase the supply of recyclable waste.
- Raising royalties on natural aggregates.

It is very important to internalize the principles of sustainable development in government companies in this aspect: First, government ownership of companies require them to meet the highest standards of corporate responsibility, which also means using recycled aggregates. Second, due to the scale of government companies and their involvement in national infrastructure projects, they are market leaders and have an important role to play in mainstreaming recycled aggregates use.

Recycled Construction Waste Standards

The use of recycled construction materials in Israel is expanding slowly, as well as the use of new technologies that allow the recycled material to be at the same quality as of

quarried aggregates. Infrastructure companies are now can enjoy new standards for recycled materials.

The knowledge and technology that exist today, allows us to recycle over 90% of demolition waste (while only 20%-30% is used today). The recycled materials can be reused in new construction and infrastructure projects, as they are at the same quality level as certain quarried aggregates. The quality of the recycled material depends on the specific aggregate that was used, the machinery and the technology at use.

Using specific tools and equipment, the sorting of the demolition waste can be done either at designated sorting location, or at the demolition site. The later can save transportation time and money for the producer and the consumer but only possible in large-scale projects.

Workshop 6: Environmental Funds Management (6.1.2015)

Workshop Agenda

9:00 Greetings and Introduction / Galit Cohen, Ministry of Environment Protection; Luc Reuter, SCP Branch, UNEP

9:30 OECD guidelines: Environmental Funds Project Management and Appraisal / Ohad Carny, Ministry of Environmental Protection

10:00 Experience from EcoFund / Jan Raczka, The Regulatory Assistance Project

11:15 British Aggregate Levi Sustainability Fund / Edward Lockhart Mummery, DEFRA

12:30 Social Impact Bonds as a Results Oriented Tool in Environmental Funds / Yaron Neuddorfer, Social Finance Israel

13:30 Discussion and Conclusions

Workshop Summary

The workshop was held together with an audience of 25 governmental environmental fund managers and presented best practices for the management of environmental funds.

SCP policies in Israel: workshops summary

There are several environmental funds operating in Israel to this date, which manage hundreds of millions of dollars every year. These funds include the landfill fund, the marine environment fund, the quarries rehabilitation fund, the fund for the preservation of undeveloped areas, the Dead Sea fund and more. These funds are usually based on income from specific environmental levies which are designed to incorporate the "Polluter-Pays" principle that provides the policy framework for financing pollution prevention and control expenditures. During the workshop two case studies for the management of environmental funds were presented – the EcoFund in Poland and the Sustainability Aggregates Levy Fund (ALSF) in the UK. In addition, advance financial tools for environmental projects management were presented, including the use of Social Impact Bonds designed for environmental goals.

The OECD has published guidelines for the management and appraisal of environmental funds. These guidelines are considering that public environmental expenditure programmes should be designed to achieve specific environmental objectives, follow sound principles of public expenditure management, and use financial and human resources as efficiently as possible. Environmental funds, based on the "Polluter-Pays" principle provides exceptional public financial support for the purpose of pollution prevention and control, provided that it is well targeted, limited in size and duration, and does not introduce significant distortions in international trade and investment.

In establishing and managing public environmental funds and expenditure programmes, countries should take the following steps:

- Define priority environmental objectives using evaluation methods, such as risk assessment, cost benefit analysis and cost effectiveness analysis, as well as participatory political processes.
- Demonstrate that public expenditures are necessary to achieve these objectives.
- Define the sources of funds, the size of the budget, and the terms and conditions of the expenditure programme.
- Authorise an appropriate institution to manage the expenditure programme.

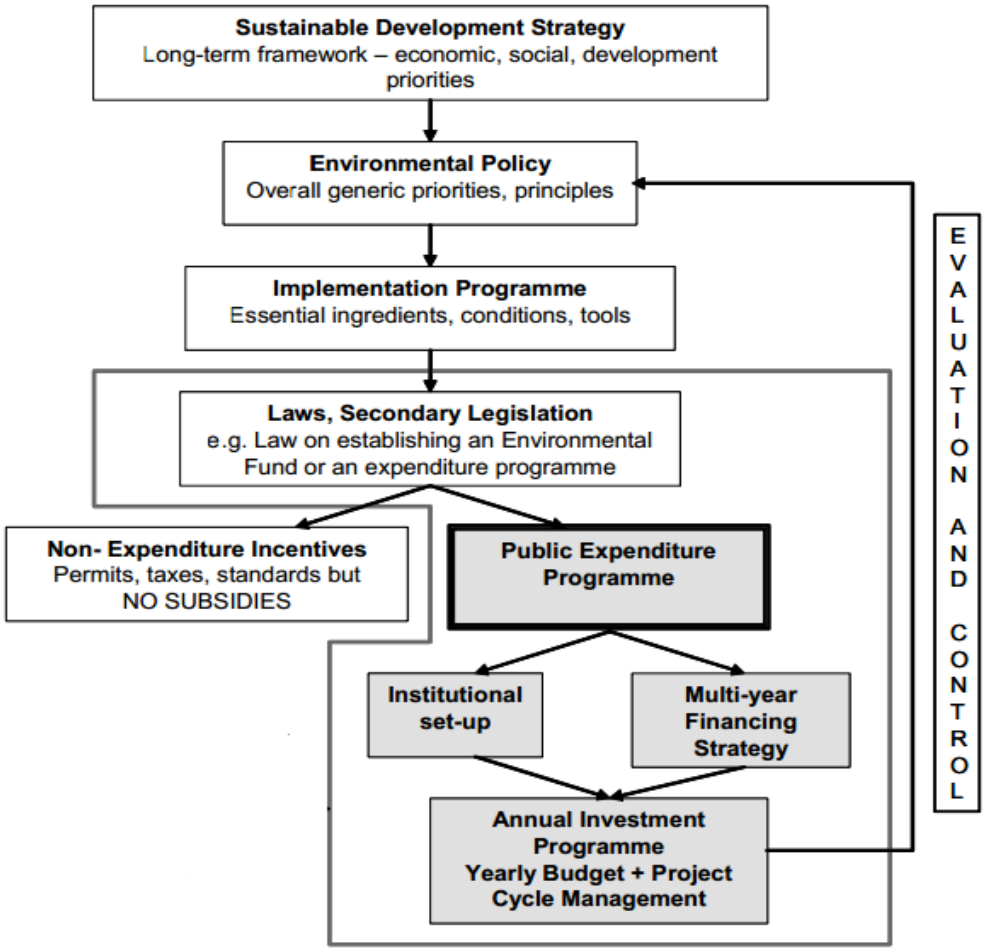
- Continue, modify or terminate the expenditure programme in light of periodic reviews of the programme's performance to assess whether its objectives have been achieved and its continuation is necessary.

Public environmental expenditure programmes stem from national strategies and policies. Environmental policy is established to be consistent with a country's sustainable development strategy and includes the elaboration of environmental priorities and basic principles that guide implementation of policies, related to compliance responsibilities and the roles of implementing agencies.

The implementation programme for environmental policy defines priority environmental objectives and actions designed to meet those objectives. These objectives can be achieved with or without subsidies. The implementation programme can be subdivided into non-expenditure and expenditure actions. Where no subsidies are necessary, non-expenditure actions include the typical mechanisms of environmental policy – standards, taxes, fees, permits, and other regulatory tools. If objectives cannot be achieved without subsidies, public expenditure programmes need to be set up to provide financial assistance to support facilities and other regulated entities in carrying out investment projects.

On the basis of agreed objectives for the expenditure programme, a government will need to identify the best institutional set-up to manage the programme's resources. A multi-year financing strategy will need to be developed. The financing strategy should identify the main sources of financing, the main rules and procedures (including eligibility, appraisal and selection criteria) for selecting the most cost-effective projects to be supported with public resources. The financing strategy should not, however, identify specific solutions; this is the task of the project cycle. In short, the financing strategy is the key document that describes the main elements of the expenditure programme. The financing strategy should provide the basis for developing annual investment programmes and related annual budgets. An environmental investment programme is the implementation component of an overall financing strategy designed to promote sustainable development objectives.

Figure 10: Links between strategy, policy development and the environmental investment programme



Source: OECD, 2007

Environmental funds therefore need to follow 3 key principles to sustain best performance:

1. **Performance in Terms of Environmental Effectiveness** – Have additionality and consistency with other environmental policy instruments; well- defined programming framework; Clear identification of environmental outcomes; Maximise environmental effect from available funds; And leverage additional finance.
2. **Performance in Terms of Budgetary Good Practice** – Maintain Fiscal integrity of revenues; Avoid constraints to efficiency; Maintain high standards of fiscal

discipline; Accountability and transparency; Collection of revenues and public procurement separated from expenditure management.

3. **Performance in Terms of Management Efficiency** – Define a sound governance system with clear, explicit rules; Employ professional executive management; Projects cycle should be subject to intelligible, transparent and written procedures; Maintain fair and unbiased relations with external stakeholders; Uphold an effective management of financial products and related risks.

Workshop 7: Integrating Environmental Aspects in Regulatory Impact Assessment (7.1.2015)

Workshop Agenda

9:00 Greetings and Introduction / Galit Cohen, Ministry of Environment Protection; Ehud Praver, Prime Minister's office; Luc Reuter, SCP Branch, UNEP

9:20 Introduction to RIA / Amichai Fisher, Prime Minister's office

9:40 "Smarter Environmental Regulation" as part of the UK regulation reform / Edward Lockhart-Mummery, UK Department for Environment, Food and Rural Affairs

10:10 The Consideration of Environmental aspects in regulatory impact assessment of the EU and the UK / Stephen White, EU DG Environment, Unit for Resource Efficiency and Economic Analysis.

11:15 The Consideration of Environmental aspects in regulatory impact assessment of Selected OECD Countries / Yuval Laster, Ministry of Environmental Protection

11:35 Case study from EU experience / Stephen White, EU DG Environment

12:45 Discussion: How do better consider environmental aspects in the Israeli regulatory impact assessment process

Workshop Summary

RIA and the Integration of Environmental Considerations

Regulatory Impact Analysis (RIA) is a systemic approach to critically assessing the positive and negative effects of proposed and existing regulations and non-regulatory alternatives. As employed in many countries it encompasses a range of methods. It is an important element of an evidence-based approach to policy making. OECD analysis shows that conducting RIA within an appropriate systematic framework can underpin the capacity of governments to ensure that regulations are efficient and effective in a changing and complex world. Some form of RIA has now been adopted by nearly all OECD members including Israel. Environmental RIA gives emphasis to the environmental impacts and benefits of regulations.

RIA is a potentially powerful tool in ensuring policy coherence and the integration of environmental concerns in different policy areas. Some countries have introduced requirements in their RIA systems for an assessment of environmental impacts or, in a broader perspective, of impacts on sustainability. A number of countries have recently introduced methods for a focused assessment of the impacts of regulation on the emission of carbon. There are different approaches in assessing the impacts of carbon emissions. While some countries have procedures for monetising the changes in emissions, others appear to prefer a more qualitative approach.

The introduction of carbon impact assessments within RIA has the potential to increase the importance and effectiveness of RIA as a policy tool. Including environmental aspects in the evaluation of regulatory impacts increases the legitimacy and acceptability of RIA. Furthermore, linking regulatory policy to one of the most important priorities of government increases the likelihood that institutional innovations in methodology, transparency, and quality control of RIA receive the necessary support within the hierarchy of governments. Likewise, a narrow focus of RIA on monetary costs for business only, while separating the analysis of climate impacts, reduces the relevance and usefulness of RIA.

"Smarter Environmental Regulation" as part of the UK regulation reform

Currently in the UK as part of the "Red Tape Challenge" environment theme Defra agreed to review the environmental regulation framework to evaluate scope for improvement – Smarter Environmental Regulation Review, including several components:

1. Guidance: Redesigning all Defra and its agencies guidance around user needs by March 2015. Reform plans for 60% of guidance have already been developed. Expect to be able to reduce the volume of reading material by at least 80%.
2. Data: Measures agreed to simplify business reporting so we only collect what's needed and simplify the way we collect it. Time savings of around 20% by March 2016.
3. Legislation: Develop a new long-term direction and framework for environmental legislation and candidate reform measures for legislation for the next 5-10 years.
4. Inspections: Now starting, beginning with farming.

Before the reforms there were 8,000 environmental regulation documents, 5 documents were published every working day. In total there were 120,000 pages spread over multiple sites with no common format or style and with significant overlaps. Therefore the target of the initiative is to reduce the volume of regulations by 80%, based of four principles:

1. Design it for the user
2. Meet GOV.UK content standards
3. One version of the truth
4. Do what only government can do

Impact Assessment - Experience from the European Commission

The Commission Impact Assessment system is designed to ensure that political decisions are based on analysis and solid data integrated approach which includes economic, social and environmental impacts.

This system is wide in scope. All initiatives with significant impacts, from policy defining proposals to implementing measures are included under it. The process in

managed by an independent quality control body (Impact Assessment Board) and includes a comprehensive stakeholder consultation. This process has significant impacts on policy making. It has changed around two-thirds of proposals and was adopted by other institutions.

Impact Assessment Board launched in 2006 as an independent body to ensure quality of Commission Impact Assessments. Its main tasks are to assess the IA reports before the Commission adopts proposals they accompany; Give quality support for horizontal and methodological aspects; and advise if a Commission proposal should be accompanied by an impact assessment. In practice it blocks 40% of proposals until IA is redone.

Main Speakers

Vered Blass

Dr. Blass is a faculty member of the Faculty of Management at Tel Aviv University since October 2010, and is involved in research with various groups from universities in the US, Europe and Brazil. Her research is in the interface of industrial ecology and management science, and focuses on the decision making process and measurement of economic and environmental performance of companies, products, and systems using a variety of tools and methods of analysis.

Dr. Blass coordinates the international working group on measurement of carbon footprints in supply chains hosted by the UCLA Anderson School of Management and she is currently involved in collaboration research with scholars from multiple universities in the U.S. She also serves as the research mentor of the environmental research group at the Koret-Milken Institute Fellows Program, working in collaboration with various Government offices in Israel.

Dr. Vered Blass holds a PhD in environmental science and management from the University of California at Santa Barbara (UCSB). And a BSc in Industrial Engineering and Management in 2000 from the Technion, Israel Institute of Technology.

Ohad Carny

Ohad Carny is a senior Director of Business Sustainability at the Ministry of Environmental Protection. Dr. Carny is in charge of the formulation and realization of advanced policy measures for the promotion of sustainable practices in the Israeli private sector.

Dr. Carny holds PhD in Life Sciences, Master's degree in Business Administration and Bachelor degree in Chemistry and Biology from Tel

Aviv University.

Previously Dr. Carny worked as a management consultant at Shaldor Strategies ltd. He is a board member of the Social Economic Academy and the former chairman of the Junior Academic Staff Association in Tel Aviv University.

Tzruya Chebach

Mrs. Chebach is a consultant in the field of strategic and environmental policies. She has an international experience in working with government agencies in different countries, organizations such as the UN, the OSCE and the OECD and international companies. She advises public and private sectors in Israel and the US on Environmental interfaces, industry and business. She was in charge on developing guidelines to promote sustainable industry in Israel for the Ministry of Environmental Protection and also coordinated the report of the first environmental performance evaluation of the State of Israel by the OECD published in November 2011.

From 2001 to 2005 she was one of the founders of the establishment of a nonprofit organization in northern Portugal and worked to raise money to build programs for children from poor families in collaboration with local authorities and philanthropists organizations.

Mrs. Chebach holds an MA in International Relations with a major in economics, resource management and environmental policy of Johns Hopkins University in the US, and a BA in biology from the University of Tel Aviv.

Galit Cohen

Galit Cohen is a senior deputy director general of planning and policy in the Environmental Protection Ministry. She began working at the ministry 14 years ago. Previously she worked in physical planning

and then later moved over to strategic planning, with a focus on implementing sustainability principles in the government and in Israel's various sectors, and also in Israel's international work in environmental policy and sustainable development.
Cohen has done much to promote sustainability and long-term, system-wide environmental policy; from working for sustainable development at the national level, to developing the concepts of "green government" and "green economy", to focused changes for the coastal cliffs and at the Dead Sea.

Amichi Fisher

Mr. Fisher is in charge of society and government issues at the Policy Planning Division at the Prime Minister's office. He joined the office after working as a teacher and in various organizations in the third sector.

Mr. Fisher holds a MA in philosophy from Tel Aviv University.

Nathalie Girouard

Nathalie Girouard is the Coordinator for OECD work on green growth and sustainable development. She runs the OECD Green Growth and Sustainable Development Forum, a multi-disciplinary international dialogue. She was responsible for the delivery of the Green Growth Strategy's Synthesis Report to the May 2011 OECD Ministerial Council Meeting. Nathalie was advisor to the OECD Secretary-General between 2007 and 2009. Nathalie's career in the OECD spans over thirteen years in the Economics Department. She holds an MSc in Economics from Montréal University.

Noam Gressel

Noam established Assif-Strategies and is the manager of the company. He is also on the environmental advisory panel of Yad Hanadiv/Rothchild

Foundation and several nonprofit boards.

Over the years, he has served as entrepreneur, investor, advisor and board member to numerous early-stage energy, food-tech & green businesses.

He is currently Past non-profit positions include Executive Director of the Arava Institute for Environmental Studies, Director of Science at the Israel Union for Environmental Defense and Chair of the Audit Committee of the Israel Broadcasting Authority.

Noam has a Ph.D. at the Department of Environmental Science, Policy & Management, University of California at Berkeley and a B.Sc. Cum Laude in Soil & Water Sciences from the Hebrew University of Jerusalem.

Yoram Horowitz

Yoarm Horowitz is the Senior Deputy Director for Local Authorities at the Ministry of Environmental Protection.

Olivier Jolliet

Dr. Jolliet is a professor and an expert in the field of environmental risks and impacts of chemicals and of innovative technologies. He teaches at the Impact and Risk Modeling at the School of Public Health of the University of Michigan.

He is editor and reviewer for several scientific journals, is leading the Exposure Science Expert Sub-Team - International Life Sciences Institute (ILSI) Risk Assessment in the 21st Century (2010-present), Program Manager for Life Cycle Impact Assessment of the UNEP/SETAC Life Cycle Initiative until 2008, managing the efforts of 80 scientists worldwide, co-chair of USEtox task force since 2006 for the modeling of comparative toxicity (2005-present), member of the Executive Committee of the Graham Environmental Sustainability Institute (2007-2010) and of the External Advisory Board of the Harvard Superfund Program and Tar

Creek Project (2006-2008), and he is faculty affiliate at the CIRAIG, Ecole Polytechnique of Montreal (2005-present).

Bicky Corman

Bicky Corman was the Deputy Associate Administrator for the Office of Policy of the US EPA. Bicky has handled environmental and policy issues at the local and federal levels and previously served at the EPA, the Department of Justice, the U.S. Senate and the District of Columbia Department of the Environment. Previously Ms. Corman joins worked in the District of Columbia's Department of the Environment, where she served as the General Counsel.

Bicky began her career at EPA as the Assistant Regional Counsel for Region 2 and as a staff attorney for the Office of Enforcement and Compliance Assurance. Bicky graduated from Suffolk University Law School in Boston and completed her undergraduate education at the Sophie Newcomb College of Tulane University.

Michael Kuhndt

Michael Kuhndt is the Director of the Collaborating Centre on Sustainable Consumption and Production. He coordinates the Centre’s contribution towards the 10 Year Framework of Programmes (10 YFP) on Sustainable Consumption and He has successfully directed a number of projects in the fields of Sustainable Consumption and Production (SCP) and climate change, policy assessment, sustainable business models, SCP indicators, technology assessment, triple bottom line innovation management, sustainable and strategic consumption, lifestyle patterns as well as scenario-building for sustainable living in the future.

Mr. Kuhndt has been Co-Chairman of the Task Force on Sustainable Consumption and Green Development at the China Council for International Cooperation on Environment and Development

(CCICED) and a member of various international advisory boards as well as expert groups and has been lecturing at several universities.

Michael Kuhndt studied chemical engineering and environmental management and policy in Germany, Sweden and the USA.

After gaining professional experience in the development and application of environmental and social information for management decisions at a German bank and some corporations, including Saturn and General Motors (USA), he worked for the European Commission on linking environmental information demand and supply in industry and science. He was a senior consultant of the "Sustainable Production and Consumption Department" at the Wuppertal Institute and a senior advisor at the United Nations Environment Programme. He was the founding director of triple innova, one of Germany's leading innovation research centers.

Günther Langer

Head of the executive office of Abfallwirschaftsbetrieb München, Member of the CEMR Focus Group on Waste (Council of European Municipalities and Regions)

Yuval Laster

Yuval Heads the environmental policy division at the Israeli Ministry of Environment, where he is responsible and actively promotes national and ministerial strategic & yearly planning, the creation of environmental outlooks and the formulation of various sustainable consumption and production policy tools.

Since joining the Ministry in 2011 Yuval initiated and led a number of national endeavors, in several fields, including the development of Israel's "well-being and sustainability indicators" and the use of behavioral economics in the public sector.

Prior to joining the Ministry Yuval provided private environmental and legal consulting services, headed the Environmental Law Clinic at the Hebrew University and served as a senior analyst at a leading economic consulting and investment firm specializing in the energy, environmental and infrastructure sectors.

Yuval is a member at the Israeli Bar Association; holds a Masters in Environmental Policy, from the London School of Economics; an LL.B degree in Law from the Hebrew University where he has previously taught.

Amit Marmur

Amit is the Environmental Affairs Manager of Nesher Israel Cement Enterprises LTD. He is a consultant, and used to manage ENVIRON's air-quality projects and activities in Israel, for leading clients in the private sector.

Before that, Amit a researcher at the Georgia Environmental Protection Division, an lead numerous studies to understand Georgia's air-quality issues relating to ozone and PM2.5 using state of the science modeling tools (e.g., EPA's CMAQ photochemical model and PMF receptor model), and assisted in translating the results of these studies into policy, in the framework of State Implementation Plans (SIP).

He also consulted for Enosh Environmental Systems.

Amit has a Ph.D from the Georgia Institute of Technology.

Nick Morley

Nicholas Morley is a founder of Oakdene Hollins and is its Director of Sustainable Innovation. His main consulting and research interests are in raw material risk, sustainable textiles and remanufacturing and reuse. He has been involved in several European and UK studies on raw material supply chain risks and their management. Oakdene Hollins also runs the

Centre for Remanufacturing and Reuse, a focus for European research in this area, which carries out certification, environmental impact research and strategic industry studies.

Mr. Morley has seven years of experience as a director of a tungsten powder metallurgical business, formerly working in the waste management, specialty chemical and polymer industries.

He has an MBA from Manchester Business School, an MPhil in polymer chemistry from the University of Bradford and an MA in chemistry from the University of Cambridge.

Edward Lockhart Mummery

An economist currently advises the UK Department for Environment, Food and Rural Affairs (DEFRA) on regulatory reform. Over the past 10 years, he has managed a number of economic assessments and other projects for Defra and other public sector organizations, including impact assessment and cost- benefit analyses of other programmes, research strategies, and analytical guidance documents.

Edward was the analyst assigned to the Aggregate Levy Sustainability Fund (ALSF) between 2002 and 2007 and then responsible for managing it until its closure in 2011.

The Environmental Liability Directive has been one of Mr. Lockhart-Mummery's specialist areas, advising Defra on the EU negotiations from 2002-04, transposition into UK law from 2004-09, and implementing from 2009 onwards, including undertaking all the impact assessments and developing the technical guidance. He also undertook the first environmental damage assessment under the Environmental Liability Directive and has led expert mission on environmental liability to five new or candidate EU Member State.

He holds an MSc in Environmental Economics from University College

London.

Ivan Muñoz

Ivan Muñoz started working in life cycle assessment (LCA) in 1998. In his PhD on environmental science (UAB, 2006) he focused his research on the suitability of LCA as a tool for Green Chemistry. He has been research fellow in several universities: ESCI-Universitat Pompeu Fabra (Barcelona, Spain), Centro de Investigaciones de la Energia Solar-University of Almeria (Spain) and Centre for Environmental Strategy-University From 2009 to 2013 he worked in the UK for the consumer goods company Unilever. Ivan has worked on LCA for ecodesign, solid waste management, water and wastewater treatment, agriculture, and food production, applying not only LCA but other related tools like environmental risk assessment, life cycle costing and water footprinting.

He is currently the subject editor for Green Chemistry in the International Journal of Life Cycle Assessment and a member of the Editorial Board of Ecoinvent.

Yaron Neuddorfer

Mr. Neudorfer oversaw the establishment of Social Finance Israel. He previously served for seven years as CFO of The Jewish Agency, the largest not-for-profit organization in the country, overseeing a budget of more than $400million and responsible for all fiscal, financial and budgetary considerations of the organization and its subsidiary companies (some are for-profit).

Prior to joining The Jewish Agency, Mr. Neudorfer served for 12 years in various positions in the Israeli Ministry of Finance, overseeing projects within social areas such as healthcare and education. In his final position at the Ministry of Finance, he was stationed in New York City, representing the Israeli government vis-à-vis credit rating agencies and

implementing the borrowing program of the State of Israel in the Western hemisphere, through various vehicles including retail bonds (Israel Bonds organization), sovereign credit and loan guarantees.

He holds a BA in accounting and economics from the Hebrew University in Jerusalem and an MPA from the Harvard Kennedy School of Government.

Magali Outters

Team Leader SWITCH-Med Regional Activity Centre for Sustainable Consumption and Production (SCP/RAC) United Nations Environment Programme Mediterranean Action Plan.

Jan Raczka

A senior advisor to RAP's Europe team, co-founded Lynx Pattern Ltd., a consulting firm advising utilities and other companies on issues surrounding the energy-environment nexus.

From 2008 to 2012, he served as CEO of the National Fund for Environmental Protection and Water Management in Warsaw, which is responsible for managing European Union and domestic funds for the environment.

He was also previously a banker at the European Bank for Reconstruction and Development, and an assistant professor at the Faculty of Economic Sciences at the University of Warsaw.

Dr. Rączka holds a doctorate in economics from Warsaw University, and is a member of the Sustainable Development Panel for Électricité de France.

Luc Reuter

Luc Reuter is a Program Officer at the United Nations Environment Program (UNEP) in its Division for Technology, Industry and Economics (DTIE) in Paris (France). For the last 6 years he has been providing advisory services to countries in developing Sustainable Consumption and Production National Action Plans (SCP-NAPs). Currently he is co-coordinator of the SWITCH-Med program, a sub-regional program on mainstreaming SCP in regional and national strategies. Before joining UNEP he was working with UNDP, European Commission and European Parliament as project manager and policy advisor, as well as an independent consultant. Luc has over 15 years of work experience in the field of International Cooperation and Sustainable Development in more than 30 countries in Africa, Asia, the Caribbean and the Middle East.

Greg Thoma

Greg Thoma served as director for research and is currently senior advisor to The Sustainability Consortium. He has represented the Sustainability Consortium on the United Nations Environment Program/Society of Environmental Toxicology and Chemistry Lifecycle Initiative board of directors assisting in coordination of international efforts to mainstream life cycle management in the consumer goods sector.

He has been on the faculty at the University of Arkansas since receiving his Ph.D. in Chemical Engineering in 1994 from Louisiana State University, and is a Registered Professional Engineer in the state of Arkansas. He has held the Ray C. Adam Chair in Chemical Engineering and is currently the Bates Teaching Professor in Chemical Engineering.

Dr. Thoma's research focuses on the application of chemical engineering principles to find solutions to environmental problems. He is currently lead investigator for a number of life cycle initiatives in the food and

agriculture sector including studies on fluid milk, cheese and milk delivery systems.

Stephen White

Mr. White is an economist at the EU DG Environment, Unit for Resource Efficiency and Economic Analysis. He first started as a private consultant and moved on to working for the British Department for Environment, Food and Rural Affairs (DEFRA). For the last 15 years he is working in the EU and leads the work on environmental impact assessment.

Appendix: List of Figures

The SwitchMed sustainable consumption and production programme aims to promote a switch of the Mediterranean economies towards sustainable consumption and production patterns and green economy. As part of the SwitchMed Programme Israel, as one of the nine participating countries, began to formulate its own national SCP roadmap. This was done under the guidance of an advisory team from the Israeli Ministries of Environmental Protection and Economy and based on a year-long scoping review process which included over 300 participants from all sectors in 8 different workshops. This document summaries these meetings and their main results.

Date	Subject	Target Groups
16-17 December 2013	**National Strategies for SCP**	Multi stakeholders
18 December 2013	**SD in Government Companies**	Government Companies
17-18 June 2014	**Policy Tools for Circular Economy**	Government
19 June 2014	**Mainstreaming Life Cycle Thinking**	Practitioners
24 June 2014	**Toward Sustainable infrastructure**	Government Companies
6 January 2015	**Environmental Funds Management**	Government
7 January 2015	**Environmental RIA**	Government
8 January 2015	**SCP Roadmap consultation meeting**	Multi stakeholders

UNEP-DTIE, Coordinator of the national SCP policy component of the EU-funded SwitchMed program, provided advisory services and technical assistance to the national process in Israel.

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