

Procurement, Innovation and Green Growth: The story so far...



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Partnership for Procurement and Green Growth

3CGF
Global Green Growth Forum

Procurement, Innovation and Green Growth: The story so far...

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Head Office

161 Portage Avenue East, 6th Floor, Winnipeg, Manitoba, Canada R3B 0Y4
Tel: +1 (204) 958-7700 | Fax: +1 (204) 958-7710 | Website: www.iisd.org



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Introduction

The world is increasingly faced with the challenges stemming from the need to sustain an expanding global population while simultaneously addressing the environmental pressures that could threaten our ability to accomplish this. Green growth has emerged as a strategy to balance the historically divergent priorities of achieving economic growth and social development without putting at risk the environmental systems and natural capital we rely so heavily upon. This approach emphasizes the environmental and economic gains achieved by reducing inefficiencies in the management of resources and the stimulation of new sources of activity through innovation and green market growth.

Within the green growth framework, public procurement serves as a key policy tool for governments to drive the agenda forward and achieve shifts in market practices by leveraging its significant purchasing power and regulatory influence. A key to achieving value-added green growth will come from boosting innovation so as to overcome inefficient patterns of the past and create new markets for the future. Government procurement must be considered an essential demand-side strategy for incentivizing and incubating innovation for green growth.

The content of this paper is taken from a larger study that is being undertaken at the level of a Partnership for Procurement and Green Growth, coordinated by the International Institute for Sustainable Development and supported by the Global Green Growth Forum. What follows is a brief discussion on the role of procurement within the green growth paradigm, where an introduction to key concepts is followed by feature case studies that present the varying experiences of industry and the public sector in applying procurement to achieve green growth aims. Finally, the paper concludes by offering observations on possible implications for policy and areas where further investigation is required.

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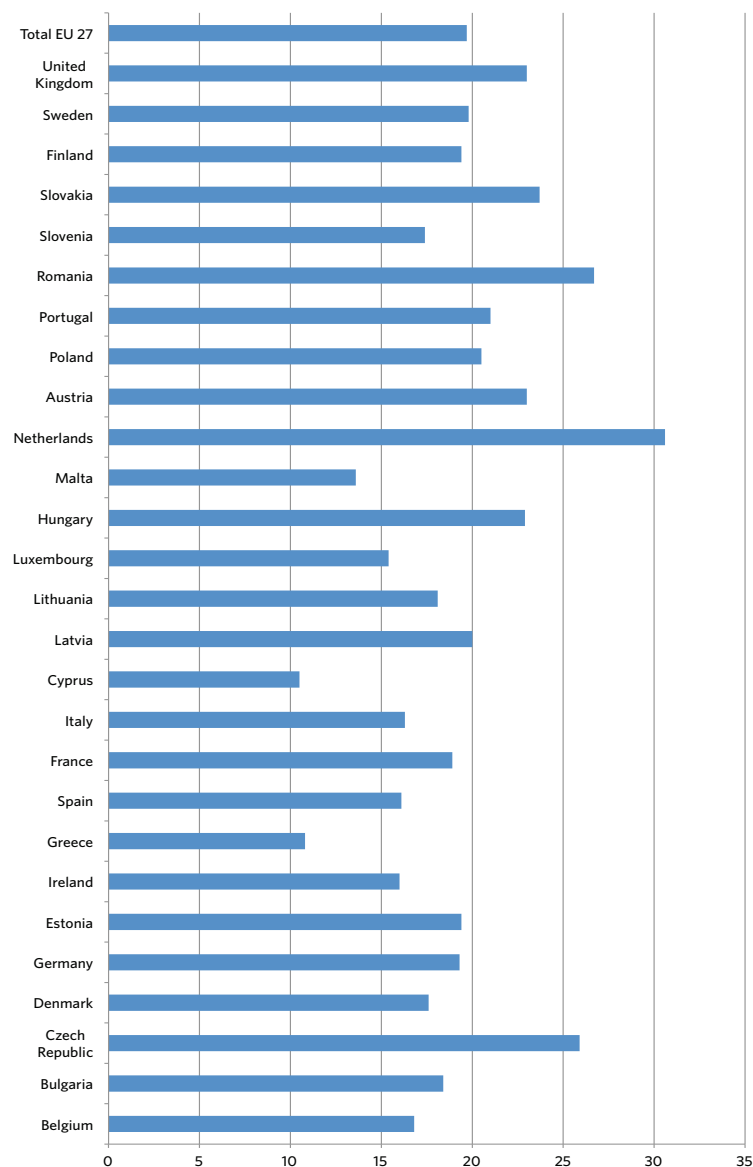
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Section 1: Procurement, Innovation and Green Growth

Procurement as a Green Growth Strategy

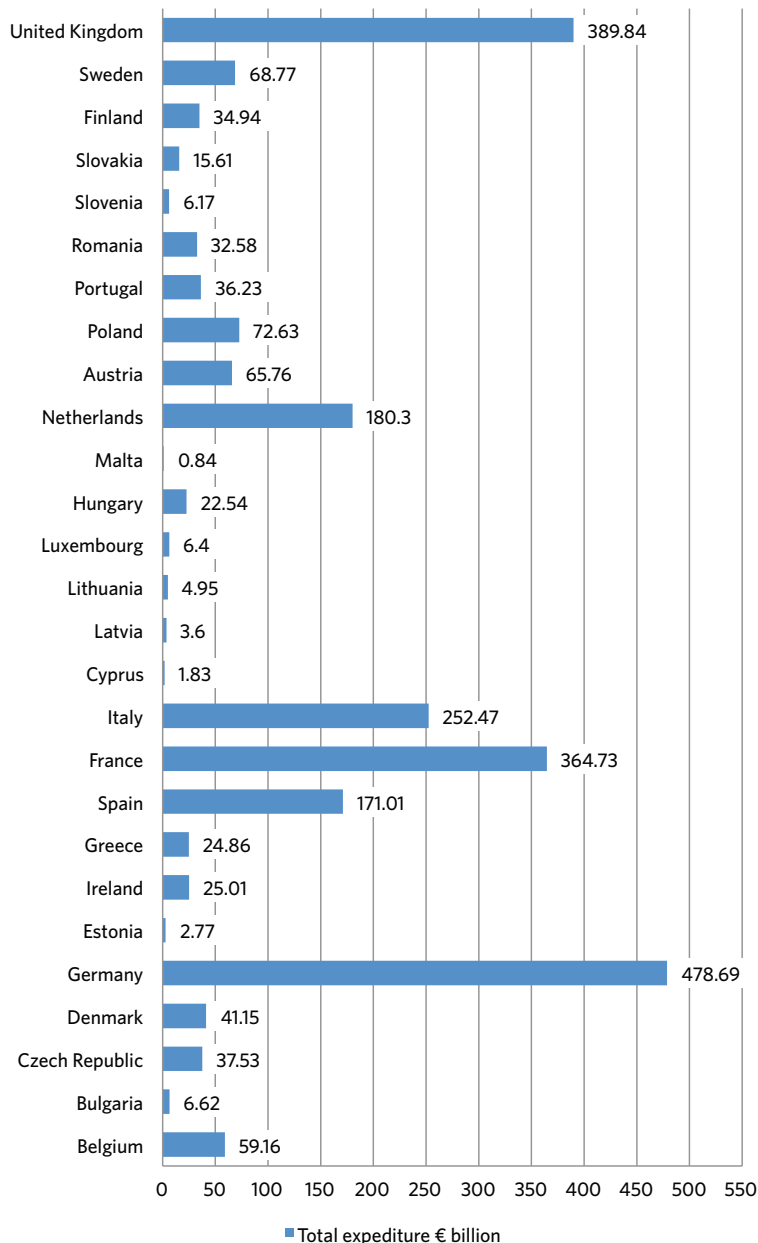
In order for government to fulfil its mandate to society, it must undertake large spending initiatives that simultaneously supply its own operation but also provide infrastructure and services for the community at large. Consequently, governments have large and diverse spending strategies on procurement ranging from routine items like stationary, computers, or furniture, to complex spending areas such as utility networks, schools, hospitals or homes. All this equates to substantial investment that can rise to as much as 45 per cent of government budgets, which is around 13 to 20 per cent of gross domestic product (GDP) in industrialized countries, and more elsewhere—35 per cent in South Africa; 43 per cent in India, 47 per cent in Brazil, 52 per cent in Ghana, 49 per cent in Mauritius and 46 per cent in Cost Rica. As such, public sector procurement is a major contributor to industry growth and stability across a wide range of sectors, providing finances and contracts that drive markets for goods and services.

TOTAL EXPENDITURE ON WORKS, GOODS AND SERVICES AS A PERCENTAGE OF GDP - 2010



Source: European Commission Public Procurement Indicators 2010 (2011)

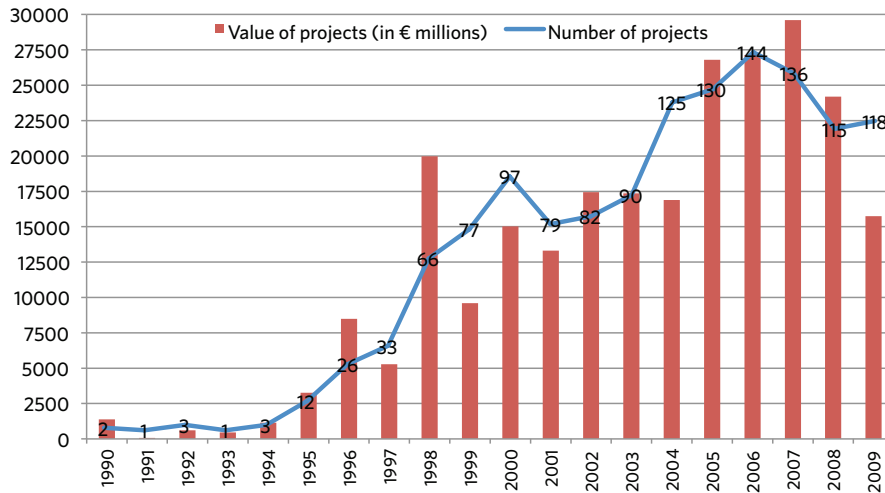
TOTAL EXPENDITURE ON WORKS, GOODS AND SERVICES BY VALUE - 2010



Source: European Commission Public Procurement Indicators 2010 (2011)

In the procurement of infrastructure and works, governments are adding private investment to their spending through public-private partnerships/private finance initiatives (PPP/PFI). This means that, in addition to the large financial flows from government procurement budgets, private sector investment is also in part being directed by government policy and priorities. In the case of the procurement of works, in the 20 years between 1990 and 2009 there have been more than 1,300 PPP contracts worth more than €5 million signed within the EU, with a combined capital value in excess of EUR250 billion. PPPs ability to provide investment in adverse climates is also demonstrated through the fact that, since 2007, some 350 new projects representing almost €70 billion have reached financial closure within the EU (Kappeler & Nemoz, 2010, p.7). Moreover, currently accounting for only 4 per cent of total public investment worldwide, figures suggest that PPP has room to grow and the potential to play an even greater role in future public infrastructure investment (EU Commission, 2009, p. 3).

EVOLUTION OF EUROPEAN PPPS PER ANNUM



Source: Kappeler & Nemoz (2010)

The Business Case for GPP/SPP

The case for a sustainable approach to government procurement is the desire to harness the massive purchasing power of public sectors to transform industry growth into green industry growth. Not only is it possible to 'green' existing industries through sustainable procurement policies, but purchasing power is large enough to also catalyse green growth, as industry and enterprises within the green sector will be willing to invest, innovate and scale up when demand is secure and well directed.

GPP's ability to stimulate industry growth can be best demonstrated through the elevation of previously niche or restricted green markets into mainstream consciousness. In North America, the domestic market for green electronics, including computers and mobile telephones, was born when the Federal Government began buying green in the early 1990s. Similarly in Europe, public procurement served as the impetus to launch markets for organic food and drink, fuel-efficient vehicles and sustainable timber products.

The influence of GPP is far reaching, as prioritizing sustainability considerations in government purchasing create positive externalities across both the domestic economy and international supplier chains: Through GPP, government can:

- Support the implementation of environmental policies on water and energy efficiency, waste management, renewable energy supply, resource efficient and cleaner production, lower greenhouse gas emissions and more.
- By ensuring scaled up and long term demand, provide an incentive for investment and innovation on sustainable products, services and works
- Improve transparency and efficiency in procurement processes
- Realise cost savings in the construction and operation of public assets and services
- Support the introduction of new and improved sustainable goods, services and works into the market

Innovation for Green Growth

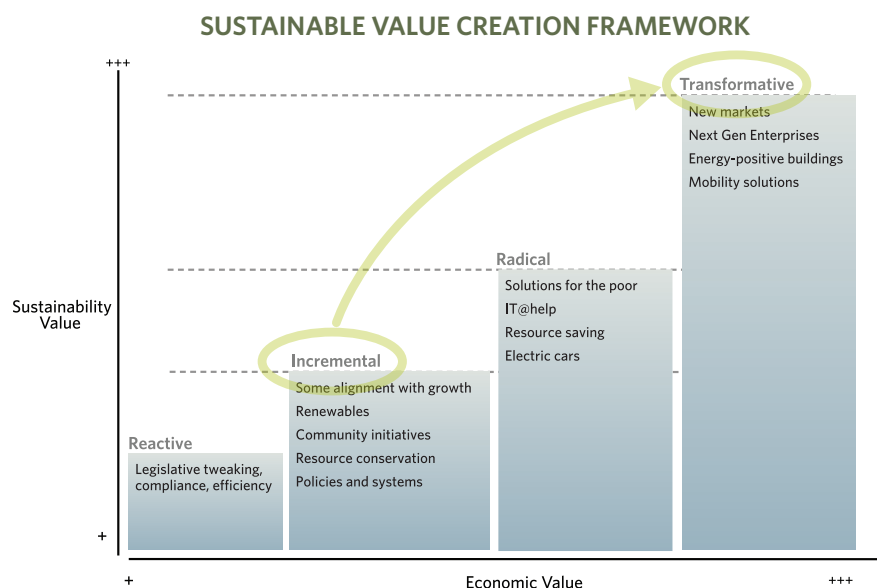
Sachin Joshi

CII-ITC Centre of Excellence for Sustainable Development

Green growth is often touted as the next solution to keep the global economy growing. It has probably found more meaning amidst a global economic crisis that shows little sign of receding. However, there are more long-term ecological and social challenges that need just as much attention if economies and societies are to be sustainable. Whatever the driver for green growth, various strategies have been promoted by governments and business. Nevertheless, there is little doubt that innovation is critical to green growth.

But what does innovation for green growth mean? Within the priorities of green growth, how does one identify and prioritise different innovations? How do governments develop innovation eco-systems? Which are the different players in the eco-systems? What resources and expertise will be required? How should business decide on the kind of innovations to invest in? What value will be created? How will the markets grow or redefine? Will they create more jobs? Should one only measure financial return on investment, or should one look at innovation in the context of creating sustainability value because it is for public good?

The Sustainable Value Creation framework helps governments and business navigate some of these important questions and develop an approach to innovation for green growth. The framework is based on the premise that innovation for green growth should create economic (or business) value and sustainability value at the same time. Sustainable value creation framework (see figure) helps governments and business develop a long-term strategic approach to transit to green economy.



The framework suggests four approaches to transitioning to a green economy: *reactive*, *incremental*, *radical* and *transformative*. Ideally, these are not either/or approaches, but should all be considered part of the solution. Governments and business can be found using more than one approach at the same time. However, it is typically the tendency of governments and business to follow a *reactive* or *incremental* approach to green transition.

The reactive approach is probably the most common and easiest approach. These are usually minor changes in legislation, improvement in compliance, and emphasis on resource-use efficiency. Due to upgrading legislation, changing consumer preferences, buyer demands, competitor moves, media attention and other factors, governments and businesses find themselves under pressure to change. This approach is important to ensure that resource efficiency and environmental performance are constantly improving, and human development indicators

show positive reductions, but there is little innovation that occurs here. If government and business are first-timers or catching up, then this approach can demand significant investments, create new markets, and add jobs. But for others this is a business-as-usual approach that fails to create new jobs, and creates little value.

The incremental approach includes pollution prevention, improvement in public transport infrastructure and product stewardship. Incremental steps, beyond compliance actions—addressing current issues of cost, risk and footprint reduction—are important to create a better understanding of what sustainability means. These have succeeded in reducing waste, emissions and impacts, while simultaneously reducing cost risk and stakeholder resistance. Most governments and business use this approach as incremental changes to available solutions are the most cost-effective improvements. Gestation periods are also short which means improvements become commercial quickly and value is created in short time. Quick improvements over short cycles are most often seen in technology-based solutions.

However, the incremental gains are generally inadequate to fundamentally change the course of transition. Demonstrating significant progress on reducing waste and emissions is crucial, yet high economic growth rates far outweigh any substantial environmental benefits. This approach may offer short-term benefits, but it quickly assumes the “business-as-usual” scenario for itself.

Something fundamental must change if a global population of nine billion is to live a decent lifestyle within the limitations of planet resources. Looking at the overall trend and the need to bring 50 per cent of the global population out of poverty, it is obvious that the incremental approach is not enough. Transport and energy systems, together with urban development, today make buildings and energy part of the problem rather than part of the solution. Recent reports suggest that the rise in global temperatures will not be limited to 2° C. Not only will natural calamities become more common, but the cost of tackling climate change will substantially increase. It is clear that access to food and water will be the next big challenge influencing geopolitics.

Incremental solutions are not enough to tackle these inevitable challenges. Incremental solutions only prepare the world for carbon and water efficiency. Moving beyond incremental improvements toward a radical and transformative solution is the only strategy to create the value necessary for truly green growth.

The radical approach is necessary to produce a growth trajectory that will propel economies into creating sustainable value and provide governments and businesses with the ability to make a significant positive difference in the society. It is at this stage that governments and business should ask questions like:

- How are we going to build institutions and frameworks and shift our way of thinking about social and environmental issues?
- How are we going to reach people who want and need to improve their quality of life and standard of living?
- How are we going to regenerate lost natural capital in a manner that increases economic capital as well?

Driven by the accelerating rate of technological change, radical solutions are vital in any transition to sustainable business and green economy.

Radical solutions include addressing poverty, while leveraging information and communications technology (ICT) to improve the accessibility, availability and affordability of goods and services. It creates better alternatives within existing industries without fundamentally changing them. For instance, the electric car may be a good alternate to fossil fuel-powered automobiles. Yet charging car batteries with electricity produced using fossil fuels limits the net environmental benefit. Further, it does not resolve the problems of traffic congestion, and it drains public resources to create more parking spaces and larger road networks, not to mention the impacts on social health.

When governments and companies begin to look into the future, the shift in focus is **transformational**. A few countries, such as South Korea, Denmark, China, India, and industries such as packaging, renewable energy, and information and communication technology are reinventing themselves. The next four decades will witness more governments and business embracing this approach. It will involve a focus on the combination of bio-mimicry, natural material regeneration, and creating new markets with next-generation solutions.

Regarding transportation, the transformative solution is to think mobility instead of cars. This change in thought process creates solutions that are transformative. For instance, a car is an energy guzzler because it is viewed as a mobility tool. It could become an energy producer if it captures solar energy, runs on it, and can be available to power other gadgets when idling.

Over a billion people in the world do not have toilets. Another billion people do not have proper flush and drainage systems. For these people, developing access to toilets with flush and drainage facilities is an absolute necessity to create healthy societies. However, it would also mean more water and energy use. This is the business-as-usual scenario and is not suitable for a sustainable world. Making use of disruptive technology, such as advanced waterless “bio-toilets,” technology to make the toilets affordable and easy to install, will solve health problems, substantially reduce water and energy requirements, and also be economical to governments. Moreover, it will create new business opportunities: economies of scale will drive down the prices of these toilets, which will then replace conventional toilets globally, further reducing water and energy needs at an aggregate level.

NASA has been using complete water recycling shower cubicles in its space shuttles. Every drop of water is potentially recycled for showers. The technology is well proven, but it may be expensive for commercial use. However, improving the technology to make easy-to-install shower cubicles in bathrooms can have substantial water savings globally. Again, disruption of the traditional development curve through innovative technological advances could lead to scaled-up production that will push prices downwards to make it a household product. The scenario in 2050: nine billion people across the world take a shower everyday without wasting a single drop of water.

Some of these ideas may be premature. But it is the disruptive potential of military and space technology that has shrunk the world into a huge interconnected village. Transformational change of this nature is real. It helps decouple growth from natural capital depletion and contributes to economic growth and job creation. Business is the driver of innovation, but governments need to provide clear and stable market signals. Governments and business will need to operate in a public-private partnership mode to make this happen. Technologies are expensive, and their owners need to be compensated. Governments can make that available. Business will need to innovate to create products and improved business models for mass uptake.

Some of the necessary changes that will enable sustainable value creation through transformational change are:

- Investing in interdisciplinary innovation is critical. Only a few of the key innovations that are aimed at addressing environmental and social challenges actually come from related areas such as energy or process improvements. Innovations in fields such as biochemistry, material sciences, engineering, and business models are much more critical sources of transformative solutions.
- Green technologies need to become affordable and accessible. The success of information and communication technologies needs to be replicated in green technologies. Prices and adoption rates will improve only when green technologies are disrupted. ICT across the world has become one of the largest job creators and drivers of economic growth. Green technology has even greater potential.
- Green taxes are not enough to stimulate green innovation. Putting a price on ecological impact is very important for incremental improvements to green technology, but it is not sufficient to lead to transformative innovations. Public and private investment in interdisciplinary innovations is also needed to create long-term sustainable value.
- Radical policy change is required. Removing regulatory barriers to the growth of new markets will spur entrepreneurship and generate new business models that challenge incumbent firms. The shakeout will increase efficiency and create alternative markets leading to new jobs and competitiveness.

Conclusion

Governments and business need to be focussed on a few “mega sustainability” trends that will shape the markets of the future: the drive for renewable energy and materials, the demand for greater safety and security, and the need for increased food production. Also vital is how some of the unmet needs could be met by rethinking delivery processes and methods.

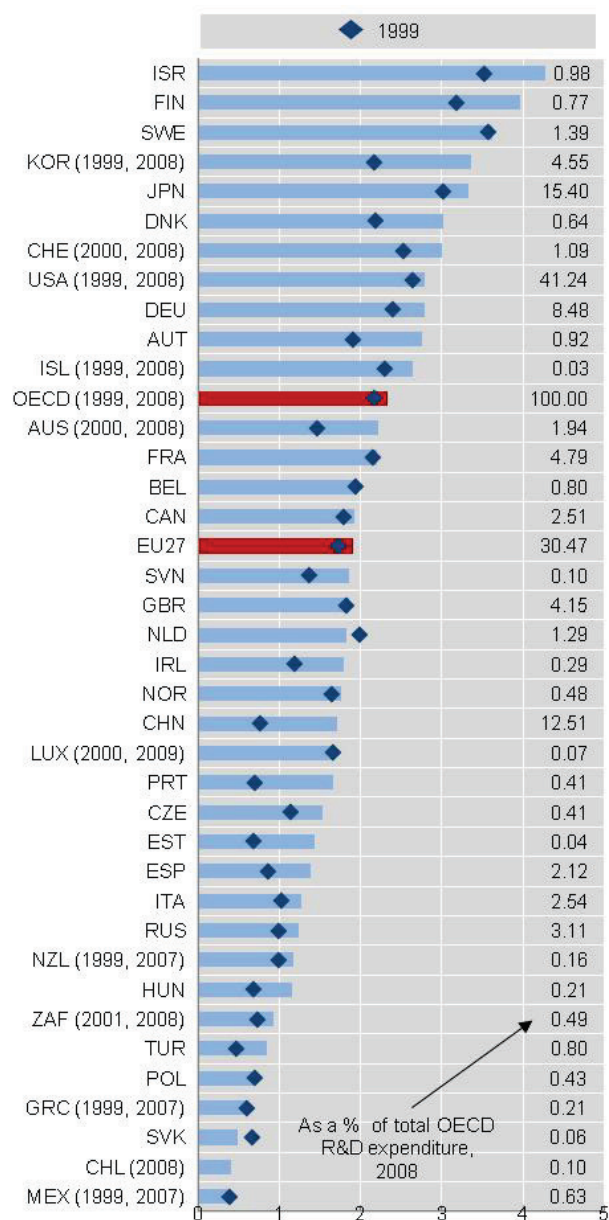
Sustainable value creation is supplemented by the “priorities” to be defined and demonstrated by governments and business. It’s not about passing the buck: it is about sharing responsibility and working together.

Incremental change will not get us to a high-growth, green economy. That can be achieved only through transformative change, starting now. To play its role, business will still need to do what business does best: innovate, adapt, collaborate, execute. These activities will change along with the partnerships that are formed with other businesses, governments, academia and non-governmental organizations in order to get it right for all. And we must get it right.

Measuring Innovation

Unsurprisingly, the ability to achieve transformative innovation will be dependent on achieving the right framework conditions that includes effective policy, trade, investment, education and financial systems. While some data is available to help track the influence of framework conditions on technical innovation growth, softer changes in business models, management practices, or planning approaches are not so easily seen. The technical growth of innovation is most widely measured through expenditure on research and development (R&D), where more specifically the intensity of R&D spending as a percentage of GDP within a given economy can point towards the relative importance of generating new knowledge within that jurisdiction. As such it is more a measure of intent rather than an outcome of green growth. See figure below for a comparison of the gross domestic expenditure on R&D between 1999 and 2009 in OECD nations.

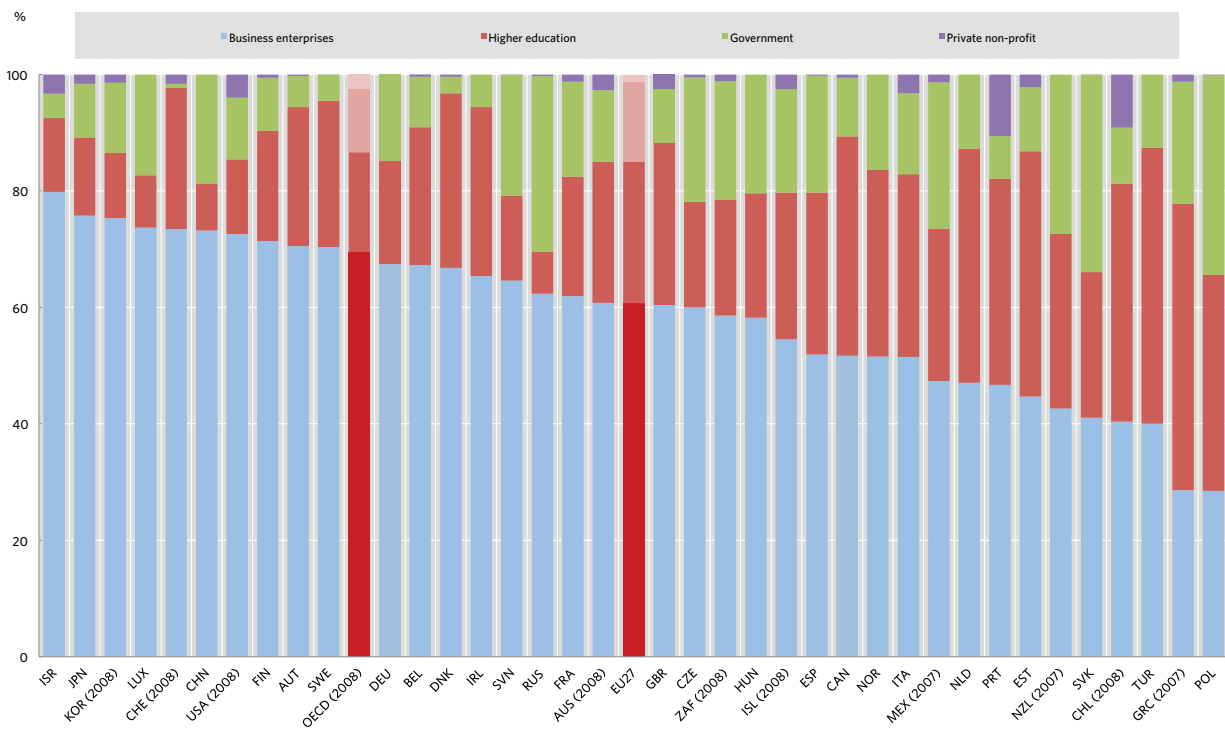
OECD GROSS DOMESTIC EXPENDITURE ON R&D: 1999 AND 2009



Source: OECD, Main Science and Technology Indicators Database

Business and industry are key to taking good ideas and emerging technology and bringing them to market, completing their transformation into economic and social worth. This participation comes across the development cycle, from generating new idea and solutions to designing and manufacturing new technologies, and distributing products into the wider market. Consequently it is the private sector that is the biggest investor in R&D across most economies, accounting for nearly 70 per cent of R&D expenditure within the OECD (see figure). If innovation is to be a catalyst for reaching green growth targets, and business is the main performer when it comes to investing in R&D for innovation, then it becomes essential for governments to support business innovation. Public procurement forms one part of a holistic strategy for stimulating and supporting innovation, where, in association with design-side policies on regulation, standards, investments or incentives, the government can feed into the business sector as a way of stimulating innovation.

OECD R&D EXPENDITURE BY PERFORMING SECTORS, 2009



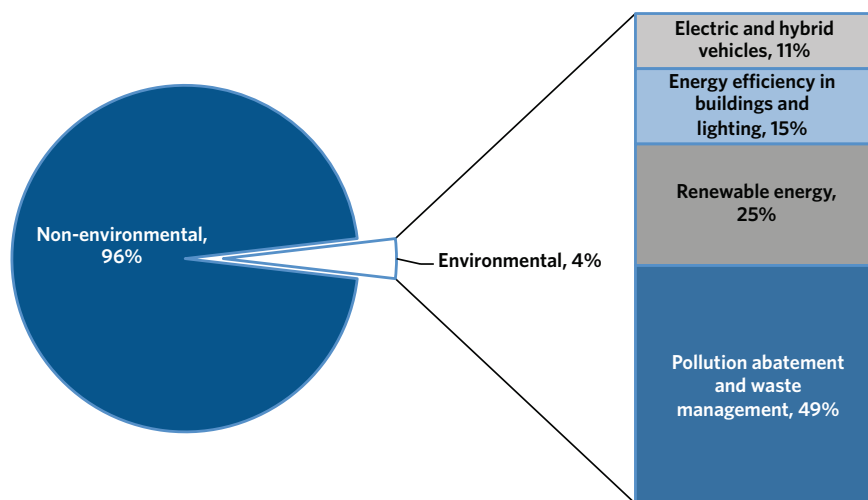
Source: OECD, Main Science and Technology Indicators Database

Knowing where to target the public spend and policies to best support the growth of green innovation is a question of context and priorities. But what is also clear is that different approaches are necessary over the different stages of the innovation cycle. During the development stage research and demonstration platforms are pivotal, while as technologies become technologically proven there is greater need for creating market support in the form of incentives or regulation/standards. As technology nears market competitiveness ongoing government purchasing helps to sustain growth and development and send important signals to the public on green priorities and encourage wider product adoption. Whatever the application, policies for innovation should in general focus on encouraging experimentation and ongoing development that generates new options for strengthening environmental performance at the lowest cost (OECD, 2010, p. 58).

Markets for green innovation often face additional barriers, and targeted support will, in many cases, be necessary for specific technology fields. Within Denmark this was the case for renewable energy, where feed-in tariffs were used to stimulate the wind power industry over the 1980s-1990s. High internal rates of return guaranteed by the government provided a strong incentive for investment in wind technology, and by 1990 the installed onshore wind power in Denmark amounted to 76 per cent of the total capacity in Western Europe. Thanks to a strong and stable domestic market, the Danish wind industry was able to reach technical maturity at home and then launch into the global market (Lewis & Wiser, 2007, pp. 1844-1857).

As a method of assessing the relative effect of innovation policies, tracking the structure of patent applications can provide insights into the distribution and growth of green technology and intelligence. The figure below demonstrates that environmental patents are dominated by the renewable energy sector and pollution control. The growth of environmental patents in certain fields can point to policy outcomes, where in the OECD between 1990 and 2008 the number of patented inventions in renewable energy (+24 per cent), electric and hybrid vehicles (+20 per cent), and energy efficiency in building and lighting (+11 per cent) increased more rapidly than total patents (+6 per cent) (OECD, 2010, p.52). Nevertheless, it is clear that much more can be done to spur green innovation, as the number of environmental patents is insignificant when compared to the total number of patents registered. It is worth noting that not all green innovation is a result of direct investment or R&D in environmental fields. It will often be the case that spillover from other sectors can contribute to transformative innovation within the green sector and does not necessarily suggest that investment should be concentrated on energy or the environment.

**STRUCTURE OF OECD PATENTS 2006-2008:
AS A % OF APPLICATIONS FOR TOTAL PATENTS UNDER THE PATENT COOPERATION TREATY**



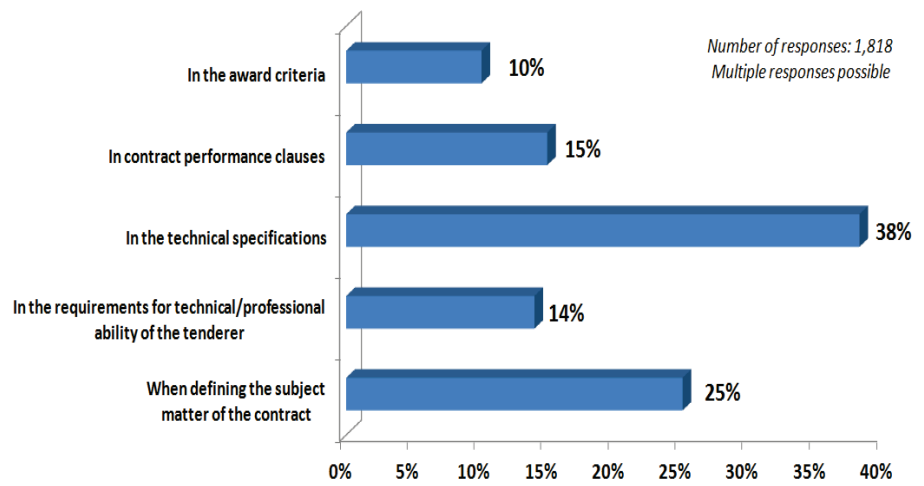
Source: OECD Patents Database (2011)

Introducing “Green” Into Procurement Activities

The method and place at which green is introduced into the procurement process will have a direct influence on its success. For procurers, it becomes important to understand their market and know which criteria are best applied, how to measure and weight environmental claims and if any performance clauses are needed to achieve desired outcomes. Green can be embedded within all stages of the procurement procedure, right from the contract’s subject matter and title through technical specifications, eligibility standards and award criteria.

Defining green through the contract’s subject matter and technical specifications targets the environmental impacts of the goods and services being procured by examining their impact over the full life cycle. Selection eligibility criteria for the private sector based on environmental technical capacity or past performance can raise the environmental quality of services being procured. Designing award criteria to reward high environmental achievers will encourage tenderers to deliver higher levels of performance, where contract performance clauses can continue to incentivize the maintenance of high achievement. The ability and ease of introducing green into various stages of the process will depend on market context and the capacity of procurers. A recent study on GPP within the EU found that procurers most frequently introduced green criteria into the technical specifications (38 per cent) and when defining the contracts subject matter (25 per cent).

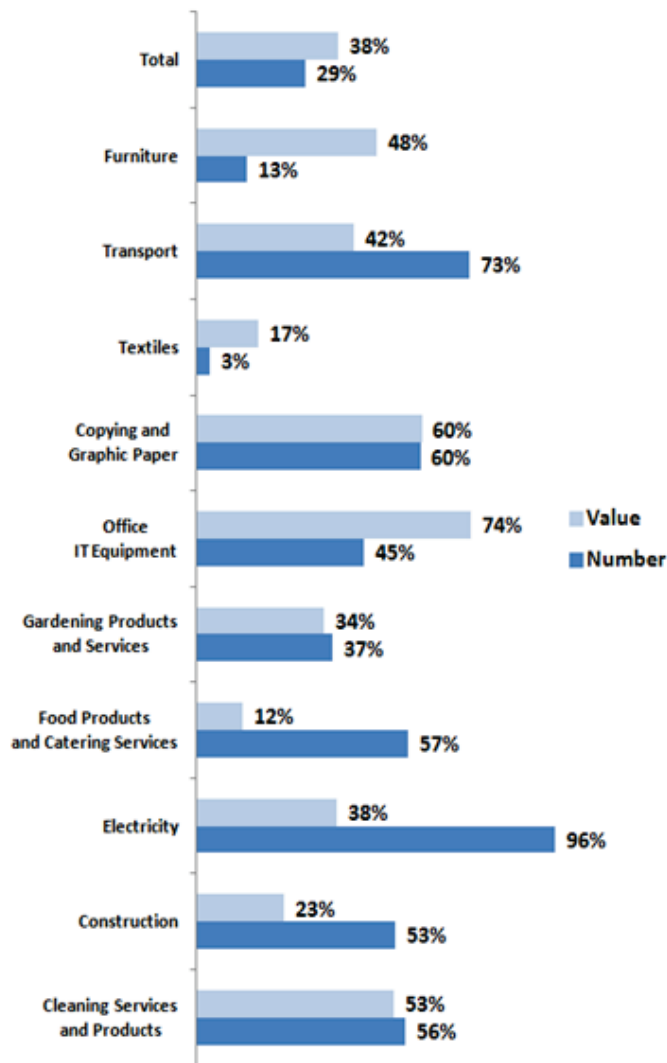
STAGE OF INCLUSION OF GREEN CRITERIA DURING PROCUREMENT PROCESS FOR ALL PRODUCT GROUPS IN THE EU 2009-2010



Source: Centre for European Policy Studies (2012)

The same study also used the inclusion of green criteria to identify the level of green procurement within specific product groups. The figure below represents three levels of green, a subjective assessment of whether procurers thought a contract was green, the inclusion of at least one EU core criteria for GPP, and, finally, where a contract has included all 10 core criteria. What can be seen is a vast difference between product categories that have historically received much of the focus, such as transport (55 per cent all core criteria) and office/IT equipment (48 per cent), with those less well known such as textiles (14 per cent) and food products (12 per cent). This difference may be attributed both to a disproportionate level of focus on certain product groups and the comparative ease with which green criteria may be introduced into some product sectors.

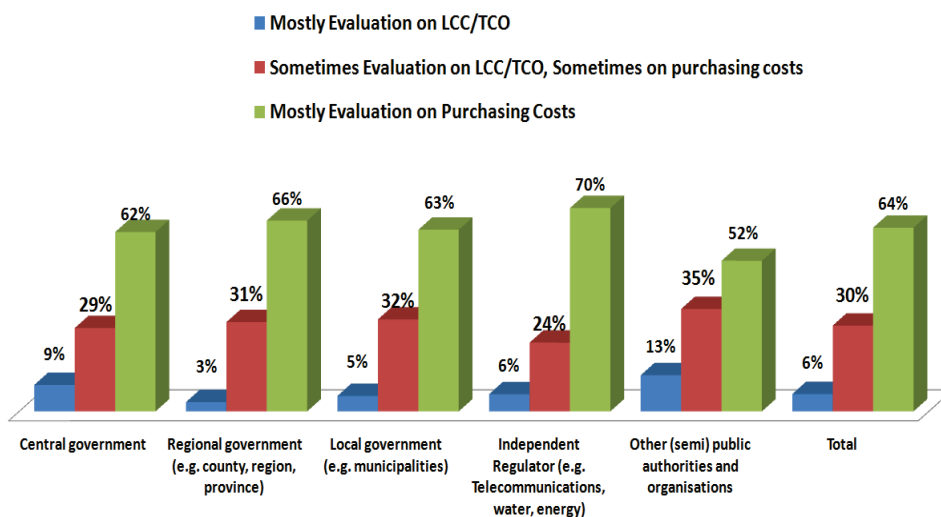
**INCLUSION OF GREEN PROCUREMENT PER PRODUCT GROUP
(BY NUMBER OF CONTRACTS) IN THE EU 2009-2010**



Source: Centre for European Policy Studies (2012)

A further measure of the extent to which green procurement policies have made their way into practice is through looking at the application of life cycle costing (LCC). Cost is often the most influential factor at work within the award stage of the procurement procedure, where traditionally the lowest economic purchase cost has held sway. Purchase price is, however, just one of the costs involved when buying a product or service, and LCC involves evaluating the operating and end-of-life costs, often also factoring in the “hidden costs” of environmental externalities such as greenhouse gas emissions. This advanced method of price evaluation is appropriate for environmental products and services where cost and energy savings that will appear later in the contract period are not effectively represented in traditional purchase price comparison. Consequently, the use of LCC within tender evaluation can represent the commitment of purchasers to ensuring green procurement is carried out and also the level of capacity within procurement teams to understand and apply the more complicated evaluation method. The figure below demonstrates quite clearly that, despite the growing emphasis on green procurement in the last few years, purchasing price remains the dominate factor upon which tenders are evaluated. The picture does not change based on the level of government, where the use of LCC as the main evaluation tool remains low at the central, regional and local levels. Although marginally higher at the central level, the data does not tend to suggest a knowledge bottleneck, but that a lack of willingness or capacity to utilise LCC exists across the spectrum of public procurers.

USE OF LIFE CYCLE COSTING (LCC), TOTAL COST OF OWNERSHIP (TCO) AND PURCHASING COST, EU 2009-2010



Source: Centre for European Policy Studies (2012)

Section 2: Case Studies

An integral part of the investigation into procurement for green growth has been documenting and collecting case studies of procurement in practice. Collected from within industry, academia and the public sector, these case studies represent a large cross-section of the actors involved in the fields of procurement and the environment, and, as such, present a valuable opportunity for demonstrating and understanding the dynamics at play within procurement for green growth. The articles featured below are a selection of those included in the full report, each chosen for its unique perspective of the procurement/green growth paradigm.

Facilitating Local Participation Through Green Standards: Experience from the EPEAT green electronics rating system

Sarah O'Brien

EPEAT

Government Role: Supporting consensus, creating a “tipping point” market incentive

Development of the EPEAT environmental rating system for electronics was spurred by the U.S. government’s need for a succinct, agreed-upon definition of “greener” products that could be trusted to reduce overall lifecycle impact. The government had instituted a voluntary program—the Federal Electronics Challenge (FEC)—to encourage all agencies and facilities to exercise responsible environmental stewardship of electronics through purchasing, use of phase management and end-of-life strategies. However, despite the existence of a few certification programs for IT and electronics, there was no purchasing specification that fully addressed the product life cycle and met the government’s preference for consensus-based public standards.

The U.S. EPA was tasked with spurring development of such a specification, which it did by issuing a cooperative agreement (contract) for facilitation of a stakeholder consensus process to result in an “Electronic Product

Environmental Assessment Tool,” or EPEAT. A Portland, Oregon-based NGO—the Zero Waste Alliance (ZWA)—convened a broad stakeholder group, which worked over three years to develop life cycle criteria, a system for assessing products against the criteria and verifying claims, and a public standard (through the Institute of Electrical and Electronic Engineers—IEEE).

Perhaps most importantly, the federal government communicated its desire to use the standard developed if it met its needs. With a purchase volume estimated at 7 per cent of global market share for electronics at that time (2003), the government realized that it could be instrumental in providing a market incentive to design to the agreed upon “greener” specification. Once the EPEAT/IEEE 1680 standard was finalized and the product registry was operational, President Bush issued an Executive Order (13,423) requiring all federal agencies to purchase only EPEAT-registered products for all categories where an EPEAT standard existed. This Executive Order has since been superseded by a requirement built into the Federal Acquisition Regulations or FAR, and an additional, Obama-era, Executive Order (13,514, 2009).

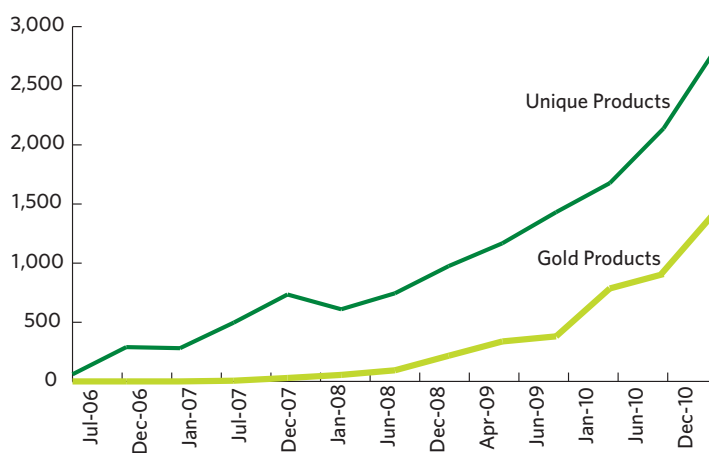
Prior to enactment of any U.S. Federal purchasing requirements, the president’s Office of Management and Budget (OMB) must provide analysis of environmental purchasing initiatives’ potential impact on purchasing costs and supplier competition, as well as life cycle costing benefits (or impacts) of the alternative. This advance review ensures that environmental purchase requirements are financially sound, do not restrict competition and have a positive or neutral impact on life cycle cost for the product category.

The expert analysis reassures purchasers that embrace of a particular standard is “safe.” As an OMB staff member explained, “When products are spelt out in the Executive Orders and Federal Acquisition Regulations, we are essentially telling the market that they are cost-effective across the product life cycle and that they are environmentally preferable. Federal procurers can then design tenders that include these details. Their task to buy green goods and services then becomes easier” (quoted in Perera, Morton, & Perfrement, 2009, p. 13). Purchasers outside the federal government are similarly reassured that the product or service specification in question is environmentally and economically sound.

Though federal agencies struggled to enforce the purchasing requirement at first—as of 2008, 13 of 22 agencies had reached the 95 per cent mark, with most others hovering around 70-80 per cent compliance—the federal market incentive, coupled with adoption by dozens of environmentally minded U.S. states and municipalities, spurred broad manufacturer participation in EPEAT. The system’s fee structure—with a single annual fee enabling as many product registrations as a manufacturer wished to make—reduced per-product cost and also encouraged rapid growth in product registrations.

EPEAT began in July 2006 with three manufacturers and 60 products registered. By December 31, 2006, the

EPEAT GROWTH OF PRODUCT REGISTRATIONS



system had nine participating manufacturers registering 281 products. In 2007 that grew to 23 active manufacturers registering over 700 products, spurred on by a diversified market of hundreds of government, education, enterprise and health care purchasers. In 2012, nearly 50 manufacturers of all sizes and many nationalities participate in EPEAT, registering more than 2,800 unique products in 42 countries around the globe.

EPEAT has come to be the definitive global environmental rating for electronics over a very short time. The resulting environmental benefit and supply chain impacts occur around the globe and throughout the lifecycle of the covered products (EPEAT, 2010).

The lesson is that an explicit government commitment to a green purchasing specification can create sufficient market demand to incentivize the investment required to redesign products and services. Government purchase volumes can create an economy of scale which reduces the cost per unit of such changes. And government analysis of the environmental specification from a financial and environmental viewpoint can provide purchasers certainty about benefits that enables rapid, widespread adoption and results in market rewards to producers. This beneficial cycle results in redesigned products becoming available to a broad array of purchasers and creating environmental benefit for all.

Industry Impact: Competition spurs global innovation, creates new demand for suppliers

EPEAT is uniquely based on a combination of required criteria (23 to meet the baseline Bronze level for computer/display registration) and 28 optional criteria, which form the basis for the higher Silver or Gold ratings. From the outset, the availability of a searchable online database of all EPEAT-registered product declarations created intense competition among listing companies to be the first to meet specific optional criteria or to meet sufficient criteria to reach higher rating levels (R. St. Denis, Hewlett-Packard, personal communication, 2007).

A year after EPEAT's launch, Hewlett Packard and Dell vied for the claim of first Gold-rated product—registering a Gold laptop and Gold desktop within days of each other in June 2007. A number of manufacturers also issued announcements during 2007 about being the first to meet specific optional criteria—like the 10 per cent post-consumer recycled plastic criterion. In other words, EPEAT provided a framework within which the original equipment manufacturers (OEMs) could compete head to head on environmental grounds, just as they competed elsewhere on performance and design attributes.

As the EPEAT system became increasingly influential, its incentives began to affect the supply chain. Recycled plastic content provides one example of the system's growing impact. In 2003, the Federal Electronics Challenge Plastics Task Force identified 5 per cent of post-consumer recycled resin content (of total resin content by weight) as a challenging "stretch" goal for electronics manufacturers. Given the limited supply of clean postconsumer material available in the global market, they acknowledged that 1–2 per cent was probably as much as any manufacturer could include at the time their recommendations were issued (2003). However, in 2007–8, as they looked for additional criteria to meet to lift their products into the Gold ratings range and differentiate their EPEAT profile, OEMs began to source increasing amounts of post-consumer recycled resins.

In an interview with Green Biz, a senior engineer for Global Environmental Affairs at Lenovo said that by 2009 EPEAT had a significant impact on their manufacturing and design practices. Since the launch of EPEAT, she pointed out, the company had moved to locate sources of post-consumer plastics and had already used over 4 million net pounds of post-consumer recycled content to meet the PCR resin criteria in the standard. In 2012, 18 manufacturers of all sizes now register almost 300 products that meet the 10 per cent or higher post-consumer recycled resin content criterion, indicating a significant uptick in OEM demand, and suppliers provisioning, of PCR plastics. A senior official at MBA Polymers, one of the world's leading PCR resin suppliers, has indicated that printer manufacturers are now contacting him, in advance of the finalization of EPEAT's Imaging Equipment standard, to inquire about PCR resin supplies as they ramp up to meet the upcoming standard's requirements.

We can take away several lessons from this history:

1. Ratings tiers—and resulting competition to excel—may be crucially important to procurement standards' ability to spur ongoing environmental improvement.
2. Public visibility—the availability of head-to-head comparison—is crucial to creating competitive pressure on “green” grounds.
3. Establishing recognition for criteria that require innovation and capacity development can motivate changes with significant impact on supply chain and design.

Global Standard, Local Application: providing opportunity globally

Global Uptake

As noted above, EPEAT was originally developed for use primarily by the U.S. government and other U.S. and Canadian purchasers, with no specific prediction or planning for expanded use beyond North America. The non-profit organization selected to manage the EPEAT registry, the Green Electronics Council (GEC), promoted use of EPEAT through direct contacts, web materials and conference presentations to North American procurement professionals. But very soon after launch of EPEAT's website and searchable online registry, GEC began to field questions from private and public purchasers, manufacturers and resellers around the world interested in using EPEAT to “green” their electronics purchasing, products or sales offerings.

At first, EPEAT met global demand through a uniform registration that applied everywhere a product was sold. EPEAT's Product Verification Committee (an independent group of experts who provide judgment on conformity assessment decisions and clarifications of the system requirements) delivered a clarification early on that the IEEE 1680 standard did not specify geography, and therefore every product registered in the system must meet its declaration everywhere it was sold.

Because the IEEE 1680 criteria on which EPEAT is based include service and support attributes, however, global conformity was not a reality. Most manufacturers did not, for example, provide product takeback and responsible recycling—a required criterion—worldwide, and many could meet specific optional criteria only in limited markets. Given the varying levels of infrastructure and service development worldwide stakeholders recognized that such global conformity was almost impossible, and that purchasers' reliance on the single registry for product declaration and rating could therefore be misleading. Agreeing that a single declaration would not be sufficient to ensure conformity in all markets was the easy part—developing a system to accurately address products by geography took a long, complex and at times heated discussion among the system's stakeholder advisors.

In 2008, the decision was reached to apply EPEAT on a country-by-country basis, and to limit initial application to 40 countries. This system ensured that 1) purchasers in a given country could be sure that all declared criteria for a product were supported for their geography, 2) that EPEAT verification investigations would look at compliance on a country-specific basis, and 3) manufacturers could declare products in those areas where they could meet all required criteria, and where they felt there was a business case for applying EPEAT, and not in other areas. As of 2012, EPEAT covers 42 countries. The EPEAT website (<http://www.epeat.net/learn-more/country-specific-registration>) contains a list of covered countries and more specifics on country-by-country registration.

EPEAT COVERED COUNTRIES, MAY 2012

Australia	Estonia	Latvia	Portugal
Austria	France	Lithuania	Romania
Belgium	Finland	Liechtenstein	Singapore
Brazil	Germany	Luxembourg	Slovakia
Bulgaria	Greece	Malta	Slovenia
Canada	Hungary	Mexico	Spain
China	Iceland	Netherlands	Sweden
Costa Rica	Ireland	New Zealand	Switzerland
Cyprus	Italy	Norway	Taiwan Region of PRC
Czech Republic	Japan	Poland	United Kingdom
Denmark			United States
Bold = some or all national government agencies use EPEAT as a purchase requirement			

Brazil

Early in 2007, EPEAT received several queries from manufacturers in Brazil about how they could qualify their products in the EPEAT system. GEC staff worked with the companies to become EPEAT Subscribers, to understand the 1680.1 criteria environmental requirements and to register conforming products in the system. Upon inquiring, staff realized that the initial interest and activity appeared to be motivated by the state government of Minas Gerais inserting an EPEAT registration requirement into their IT purchasing contracts.

Over the five years since the first Brazilian manufacturer joined the system, seven others have become EPEAT Subscribers. A number of Brazilian national government agencies now require EPEAT registration in their contracts, consistent with a legislative directive to integrate environmental criteria into government IT purchasing (A. H. F. Silveira, MPS, CIO, Ministério da Previdência Social (Ministry of Social Security), personal communication, December 7, 2011). The University of Sao Paulo uses EPEAT in its procurement, and many other purchasers are using EPEAT to identify environmentally preferable products. And when EPEAT offered conformity assessment training in Brazil in 2011, a number of independent consultants attended, to develop the skills needed to assist purchasers and manufacturers to effectively use EPEAT. One of these consultants notes that EPEAT has become “one of the key requirements of major government biddings in Brazil.” (NovusTI website, n.d.).

Because the EPEAT standard requirements are the same for every country, and because the subscriber (manufacturer) fee is assessed on an annual, sliding scale basis, rather than per product, local manufacturers are able to enter the system on an equal footing with global OEMs. While it is true that ensuring compliance with EPEAT requirements—testing, establishing contract specifications with suppliers for conformant materials and components, developing service contracts for battery and product recycling—does incur costs, the actual fee basis is minimal, enabling companies with qualified products to respond to bids without incurring elevated certification costs. And conversely, global manufacturers must provide place-based local services in each country where they register—including end-of-life takeback and recycling of batteries and products and extended warranty service. The benefits of EPEAT registration thus accrue to service providers in the country of registration.

This combination of global and local criteria, necessary to address the impacts of electronic products, points the way to an effective hybrid for environmental procurement. EPEAT’s geographic reach and country-specific declaration offer electronics purchasers the opportunity to use a single standard worldwide, and the assurance that product claims will be verified locally—supporting global scope but ensuring that the “seal of approval” of EPEAT registration is grounded in local compliance and support services, and vetted country by country. The standard’s multi-attribute lifecycle approach supports improvements in use and end-of-life management of products where they are sold, in addition to reducing environmental impacts of production that may occur far from a country of registration.

Procurement and Green Growth: Notes on the experience of Sao Paulo, Brazil

Martin Dietrich Brauch

International Institute for Sustainable Development

Introduction

The State Government of Sao Paulo, Brazil, has realized the potential of its purchasing power to influence economic and social development and has been promoting green growth by means of its procurement policies. A combination of factors puts the government in a privileged position to do so:

1. The land area of the State of Sao Paulo compares to that of the United Kingdom; its population, to that of Argentina; its GDP, to that of Poland. Sao Paulo represents roughly one-third of the GDP and of the exports of Brazil, the 6th largest economy by nominal GDP. There is clearly a lot for the State Government to influence.
2. The State Government of Sao Paulo has an annual procurement budget of about US\$12 billion for the purchase of goods, services, and construction works. This suggests that it has significant purchasing power to exert its influence.
3. Since the mid-1990s, the Government has improved procurement efficiency and has implemented procurement mechanisms aimed at promoting sustainability by means of its Sustainable Public Procurement (SPP) Program. Thus, it certainly has tools to exert its influence.

Green growth is taking place in the State of Sao Paulo. The State's Environment Secretariat studied the evolution of the number of green jobs in the State using the methodology developed by the International Labour Organization. Green jobs are defined as "decent work in economic activities that contribute significantly to reducing carbon emissions or to improve or conserve environmental quality" (Muçouçah's *Empregos Verdes no Brasil: Quantos São, Onde Estão e Como Evoluirão nos Próximos Anos*, 2009, as cited in Figueiredo, 2011, p. 38).

In Sao Paulo, between 2006 and 2010, the number of green jobs increased by 27 per cent, from 690,854 to 878,837 jobs. The Green Jobs Index—which measures the proportion of green jobs over the total number of jobs—has remained stable around 7 per cent during that period, but it is expected to reach 10 per cent by 2020 (Figueiredo, 2011, pp. 38–39).

While the data available may be insufficient to carry out econometric studies that establish a link between these results and public policy (including procurement), this piece provides an overview of the SPP Program of the State of Sao Paulo, highlighting and exemplifying its merits, and focusing on how they can trigger green growth. Finally, it briefly looks at the shortcomings and possible enhancements of the Program.

1.0 Socio-Environmental Label: Sustainability criteria in the procurement of goods and services

The Socio-Environmental Label is granted by the Sao Paulo SPP Program to signal goods, services, programs, and activities that incentivize social policies, enhance transparency in management, save water and energy, minimize waste generation, rationalize the use of raw materials, reduce pollutant emissions, adopt technologies with less environmental impact, use low toxicity products, and adopt technologies with lower greenhouse gas emissions (*Decree No. 50170*). The creation of the Label and its underlying socio-environmental criteria particularly affected the descriptions of goods and the technical specifications of services procured.

1.1 Sustainability Criteria in the Descriptions of Goods

Of the 150,000 goods in Sao Paulo State's procurement catalog, about 7,500 are "Class A": frequently purchased goods, amounting to 20 per cent of the government's total consumption. The Environment Secretariat analyzed these strategic items and granted the Label to 652 descriptions of goods that fulfill the sustainability criteria mentioned above. The Label thus indicates a differential of socio-environmental quality of certain specifications, highlighting their advantages in comparison with other catalog items, making it easier for procurers to choose green goods and services, and signalling the SPP policy to the market (D'Amico, 2010).

The government labels a specific product based mainly on an evaluation of information supplied by the producer, not on a complete technical life cycle analysis, in contrast to a significant number of SPP programs worldwide (D. Cavalcanti, Environment Secretariat, Sao Paulo State Government, personal communication, May 30, 2011). Not adopting a life cycle analysis of the goods was a deliberate while debatable decision, aimed at simplifying the Sao Paulo SPP Program (V. D'Amico, Sanitation and Water Resources Secretariat, Sao Paulo State Government, personal communication, Aug. 3, 2011). The Environment Secretariat grants the Label to the greenest goods available in the market once the Treasury Secretariat has confirmed the market's ability to supply the government's demand for those goods while ensuring competition (V. D'Amico, Sanitation and Water Resources Secretariat, Sao Paulo State Government, personal communications, May 31, 2011 & August 3, 2011).

Examples of labelled goods.

A state decree mandates that certain types of vehicles purchased by the government be ethanol-fueled, and establishes a legal preference for state entities to rent ethanol-fueled vehicles (*Decree No. 42836*). Accordingly, most vehicles fueled only by gasoline did not receive the Label, as opposed to most bi-fuel vehicles (fueled by ethanol or gasoline). This reflects the government's preference for vehicles fueled by less polluting fuels, incentivizing their purchase and giving sustainability signals to the market. In 2011, the State Government spent approximately US\$ 125 million in purchases of new vehicles (*Relatório da Execução Orçamentária: Materiais e Serviços, n.d.*). This gives an idea of the magnitude of the government's incentive for the green vehicle industry.

In another example, the Label was granted to 41 items of sulfite paper goods requiring certification by the Forest Stewardship Council (FSC), the Brazilian Forest Certification Program (Cerflor), or the Brazilian Metrology Institute (Inmetro) (*Catálogo Socioambiental, n.d.*). Tenders for these goods have never been challenged (S. H. N. Nascimento, Office of the State Attorney-General and Environment Secretariat, Sao Paulo State Government, personal communication, May 30, 2011). To the contrary, in at least 20 instances, firms appealed against the qualification of their competitors whose products allegedly did not have the required certification. As it was verified that the goods did not have the required certifications, the appeals were upheld, and the competitors were disqualified (*Bolsa Eletrônica de Compras website, n.d.*). This example shows that the Label supports green products and firms and improves competition among suppliers.

Increase in the purchase of labelled items.

The first annual report of the Sao Paulo SPP Program, covering procurement in various organs and entities within the State in the period 2008-09, shows a significant increase in the number of purchases of items with the Label (Secretaria do Meio Ambiente do Estado de São Paulo, 2010, pp. 5, 10, 40):

- The percentage of the transactions involving labelled items over the total number of state government purchases increased from 16.03 per cent in 2008 to 24.15 per cent in 2009, considering only the 14 groups of goods evaluated for purposes of awarding the Label.
- Taking into account the total number of goods in the government catalog, the relative importance of the labelled items is much smaller: green procurement increased from 2.13 per cent in 2008 to 3.33 per cent in 2009.

The small number of labelled goods (652 now, but fewer than 400 at the time of the report) explains why the latter figures are lower. Nonetheless, the relative increases in one year indicate that the various state government agencies and entities are taking their SPP policy seriously, and instigating the market to respond with an increased supply of greener products.

1.2 Sustainability Criteria in the Technical Specifications of Services

The socio-environmental criteria associated with the Label were also included in the standard technical specifications and contractual obligations of independent contractors for the procurement of the services most relevant and most frequently contracted by the government.

- Environmental sustainability criteria: Independent contractors are required to reduce water consumption, to provide energy efficiency certification, to employ vehicles that use less polluting fuels, to present appropriate waste management plans, to reduce the use of chemicals, and to identify greenhouse gas mitigation opportunities (D'Amico & Agune, 2007).
- Social sustainability criteria: independent contractors are required to provide goods, meal vouchers, and uniforms to their employees; to present proof of compliance with legal and Ministry of Labor requirements; and to insure their employees against work accidents (Cadterc Studies, n.d.; D'Amico & Agune, 2007, note 15, at 16).

These standards are contained in the 17 volumes of technical studies on different types of service, ranging from building conservation to nutrition of prisoners to fuel supply management. The latter type of service offers a valuable example of how the inclusion of sustainability criteria in the technical studies on services can spur the growth of green growth.

Fuel supply management.

Ecofrotas is a Brazilian company that developed GoodCard, a magnetic card used to pay for fuel in accredited filling stations. GoodCard is connected to a fuel supply management system, which includes a registry of drivers, vehicles, and company policies (for example, the type of fuel to be used). Based on the data entered at each filling, the system generates managerial reports.

Shifting towards sustainability, Ecofrotas started to sell services of management consulting and intelligence in sustainability, through "Fleet Intelligence Reports" that include inventories of greenhouse gas emissions. These reports present emissions data (greenhouse gas emissions per kilometre), detailed by driver, vehicle, type of vehicle, filling station, and transaction. Since the company manages 320,000 vehicles, it can benchmark the performance of any given vehicle against the average performance.

Ecofrotas benefited from the technical study on fuel supply management and its socio-environmental criteria. In Sao Paulo, the company has contracts with the Military Police, the Basic Sanitation Company, the Penitentiary Administration Secretariat, the Treasury Secretariat, the Environment Secretariat, the University of Sao Paulo, among other government entities, with several positive experiences (A. Kardosh & D. Levendoschi, Ecofrotas, personal communication, May 31, 2011). Ecofrotas leads its market segment in Brazil, and expects to grow 12.5 per cent in 2012 (Ecofrotas, 2012). The scaling up of the company's operations in the country generally and in Sao Paulo in particular may be associated with the increased public spending on sustainable fuel and fleet management systems.

2.0 Timber Registry and Legal Timber Label: Sustainability criteria in the procurement of construction works

It would be difficult to apply the Socio-Environmental Label to aspects of construction works and engineering services, because there are many types of such works and services, each one of them with particular technical specifications. Thus, the Sao Paulo Government focused on adopting sustainability criteria for the consumption of timber in public construction works.

The government maintains the Timber Registry (Cadmadeira), a public registry of entities dealing in native forest products in the state, to control and promote the legal use of forest products. Accreditation in the registry is generally voluntary, but mandatory in the procurement of forest products directly and of construction works using them. The Environment Secretariat also grants the Legal Timber Label to suppliers that trade in forest products responsibly (Decree No. 53047).

Government purchases are estimated to account for about one-fourth of the timber negotiated in Sao Paulo (Carvalho, 2008). By conditioning the access of companies to this market to their accreditation in the Timber Registry, the government advances the greening of companies dealing in forest products. In turn, the Legal Timber Label is a government recognition that tends to stimulate public and private sector demand for the products of the labelled companies.

3.0 The Experience of Sabesp: Pre-qualification of suppliers

The Basic Sanitation Company of Sao Paulo State (Sabesp) is a private company controlled by the State Government. To ensure the quality of its purchases, Sabesp only purchases from pre-qualified suppliers. In the pre-qualification procedure, Sabesp technically assesses whether, throughout the production process, a potential supplier complies with international, domestic, and company standards, including socio-environmental criteria.

Sabesp is Brazil's largest basic sanitation company. Its contracts amounted to BRL3 billion in 2010, most of which in construction works and engineering services. Furthermore, other basic sanitation companies in Brazil often require Sabesp-issued certificates of technical compliance in their own tenders. Thus, pre-qualification by Sabesp can positively influence the greening of the basic sanitation segment in Sao Paulo and throughout Brazil.

Final Remarks

The Sao Paulo SPP Program already offers tools that can trigger green growth—but there is room for improvement and expansion:

1. Both the Environment Secretariat and the Water Resources Secretariat enacted rules on the preferential purchase of goods with the Socio-Environmental Label over nonlabelled goods capable of meeting the same need. This rule could be adopted by the State Government as a whole (V. D'Amico, Sanitation and Water Resources Secretariat, Sao Paulo State Government, personal communication, May 30–31, 2011).
2. The number of labelled items could be expanded, preferably employing life cycle analysis.
3. There should be better control of the socio-environmental responsibility of suppliers and independent contractors during contract performance, a current shortcoming of the Program. To that end, Sabesp's pre-qualification could be scaled to all State Government entities (F. L. Mota, Coordination of Decentralized Entities and Electronic Contracting, Treasury Secretariat, Sao Paulo State Government, personal communication, May 31, 2011; M. de F. A. Ferreira, Coordination of Decentralized Entities and Electronic Contracting, Treasury Secretariat, Sao Paulo State Government, personal communication, May 31, 2011).
4. The Program could be better integrated with and supported by other government policies. The Sao Paulo Development Agency offers a line of financing at reduced rates to support projects of small and medium enterprises (SMEs) to reduce greenhouse gas emissions and adjust to the State Policy on Climate Change (Linha Economia Verde, n.d.). In one year, more than BRL 4 million in loans were disbursed, but companies could benefit from receiving government support in developing appropriate business plans to allow them to access to the funds more easily (Teixeira, 2011).

This article is based upon and draws on an in-depth IISD case study prepared by the author on Sustainable Public Procurement in the Government of the State of Sao Paulo, Brazil (forthcoming).

Product Lists: The GPP pathway in China

Samuel Colverson

International Institute for Sustainable Development

Background

Public procurement continues to play an important role in the ongoing development of China's public policy and market development. Although still immense, the declining dominance of state-owned enterprises and the continued strengthening of a genuine private sector within ongoing market liberalization requires a more nuanced approach to market regulation. When considering environmental issues, Green Public Procurement (GPP) is a mechanism through which the market can be guided towards stated policy objectives, not only driving environmentally conscious business practices but also raising public awareness more generally.

The Chinese GPP approach has developed over the last 10-year period and is integrated into an already well established and functioning public procurement apparatus that can be described as hierarchical in nature, with a centralized multi-level system that is characterized by its top-down structure.

The general procurement framework operates from a national level starting point, where the National Development and Reform Commission, the Ministry of Commerce, and the Ministry of Finance are responsible for the formulation of the policy framework, including directives, laws and guidelines. From there, it is the sub-central government's role to customize the regulations and specifications according to local context, administer budget allocations for public procurement, along with training of procurement officers. Depending on the size of the locality, these functions may be broken up into two separate offices, where a procurement bureau will develop local regulations and represent local interests at the administrative level between government bodies, while public procurement centres are tasked with implementing the actual procurement process.

GPP Approach

To administer GPP, the Chinese government employs a hybrid-framework approach (thus identified and named by Phillips (forthcoming)) that matches their specific bureaucratic characteristics, combining a certain degree of control through top-down methodology in coordination with freedoms to local bureaucrats at subsystem levels.

The main foundation for GPP in China comes from Article 9 of the Government Procurement Law (2002), which stipulates that procurement should be conducted in such a manner as to achieve State goals for economic and social development "... including but not limited to environmental protection, assistance to underdeveloped or ethnic minority areas, and promotion of the growth of small and medium sized enterprises" (People's Republic of China, 2002). In this sense, Article 9's (and the remainder of procurement legal frameworks) primary function is to provide a basis for GPP upon which the sub-government level structure must define and administer its GPP activities.

The national government has set in place two main policy tools to support Article 9 and assist sub-central bureaucrats by specifying environmentally and energy efficient products through two centrally controlled lists. The Energy Saving Products list was first released in 2004 and is updated biannually, now covering over 30,000 products in 28 categories manufactured by 600 enterprises. Only 8 of the 28 categories are compulsory for procurement agents: the remaining are voluntary. Similarly, the Environmental Labelling Products list is completely voluntary; first issued in 2006, it now covers 24 product categories.

As largely voluntary directives, the implementation of these product lists depends heavily on local structures and institutional conditions, the political and economical environment and staff capacity within procurement centres. The result is an unpredictable and highly contextual application of GPP across jurisdictions (Phillips, Espert & Eichhorst, 2011). Nevertheless, the targeted assistance at local-level GPP provided by the product lists is a good starting point for introducing and implementing GPP in China, and with increased capacity at the local level, the system can be improved in terms of broader coverage, flexibility and inclusiveness (in particular concerning small-

and medium-enterprises). A national dialogue, backed up with a national questionnaire on this issue is ongoing. All in all, tapping into local potential is a promising way forward, as figures show that local governments are the key public spenders, in 2008 spending over 90 per cent of the total government expenditure on procurement (World Trade Organization, 2010, p. 40).

Following the pattern of implementation, the outcomes of GPP in China are variable and difficult to quantify. In the case of a government's resource and carbon footprint, some limited direct effects can be identified. Unfortunately, more important indirect effects in terms of market stimulation and increased consumer awareness are difficult to assess. For the case of the EU-funded SuPP-Urb project on GPP in China, direct savings within PPCs in the three project cities amounted to reductions of 105,749 tonnes of CO₂. This is the equivalent of the annual CO₂ emissions of 17,335 Chinese people in 2009, when the annual per capita emissions were 6.1 tonnes (Philipps, Marsille, Schröder, & Haberland, 2011, p. 17). Indirect effects within this project could only be estimated qualitatively via interviews with suppliers and stakeholders, where, at least for the most advanced city of Tianjin, relative impact can be assumed (Philipps, forthcoming).

Review

The use of product lists allows the central government to both guide the direction of the GPP process while also bridging the capacity and implementation gaps at regional level. Local procurers designing tender specifications do not have the burden of research and evaluation in a rapidly changing market, where new products are appearing every day and where energy efficiency or environmental advantages are not as easy to identify as purchase price criterion. In this way, the lists deal with both the lack of ability to evaluate green products, as well as the capacity constraints on time and personnel to conduct the necessary product evaluations at the local level.

Central lists have the ability to provide a degree of consistency and security within the market, as companies working across regions can be sure that the same minimum product specifications are in force, although the degree to which environmental criteria are incorporated and weighted within tender evaluation still remains variable. In this way, the central government can also direct the national market, enforcing a policy on energy consumption or recycling practices and signalling a market shift through the choice of products and categories, or the minimum requirements for entry onto lists.

One concern is that centrally controlled lists can infer a loss of flexibility and contextual relevance at the local level, as the decision-making process is removed from the on-the-ground practitioners and lists may not reflect local market maturity. Central authorities are also faced with a high workload in accurately evaluating products and maintaining comprehensive lists, with the risk that the most recent product or technology advancements are slow to enter the wider market as a result of evaluation backlogs. Similarly, small- and medium-enterprises that are innovating new products may struggle to get to market through the inability to fulfil and maintain the administrative requirements for inclusion in the lists. The same could be said for many potentially advantageous foreign products. Consequently, lists do not always reflect the true nature and potential of markets for environmental products, which has a flow on effect into the projects and services commissioned by procurers at the local level.

GPP seeks to implement policy through influencing the supply and demand side of certain product markets. Within this equation, product lists can only be partially successful because they tend to target procurers rather than the market. While they provide a ready-made recipe for procurers wishing to learn GPP and bridge capacity gaps, they do little to drive private sector innovation. Companies are not incentivized to design and innovate past the minimum requirements for inclusion in the lists, and, once on the list, there is little to encourage a product's further development. Stimulating technological and product development therefore relies heavily on the continued updating of list minimum requirements, an administrative burden that suggests in reality that updates occur less frequently than is necessary.

Concluding Thoughts

Product lists can be seen as a potential stepping stone for governments seeking to transition to GPP, offering the ability to overcome the capacity and knowledge gaps within the public sector to enable practical GPP implementation, whilst also educating and guiding the market on the design of environmentally sensitive products. To be successful however, lists and the entry requirements must be regularly and comprehensively updated to ensure correct market representation and to support innovation in product technology and design. As a stepping stone, it is important that more developed GPP practices are integrated into the list approach, including a move towards more robust price evaluation mechanisms such as life cycle costing, and capacity building across the bureaucratic levels in order to spread administrative burdens and encourage GPP take up at local levels.

This case study was written with the support of Sebastian Philipps of the UNEP/Wuppertal Institute Collaborating Centre on Sustainable Consumption and Production, and is based on three detailed papers produced by the Centre on GPP in China.

Clusters as Catalysts for Developing “Smart Cities” Through Intelligent Public Demand

Marianna Lubanski & Michael Johansen
Copenhagen Cleantech Cluster

Background

With the ambition to become carbon neutral in 2025, the City of Copenhagen has embarked on a journey to become a “smart city,” where, among others, energy is used intelligently, transportation flows smoothly, and waste is utilized as a resource in order to increase the quality of life for its citizens. A broad variety of initiatives need to be developed and implemented to realize this goal, and the City Hall plays an important role, not only as a policy developer, but also as a procurer of new infrastructure, technologies and services. However, cities and other public procurers do not always know what is possible and what is not when it comes to the procurement of new and complex technological solutions. The outcome is often less innovative solutions.

As a result, Copenhagen Cleantech Cluster and the City of Copenhagen have entered a strategic partnership to explore new methods in using public procurement as a driver for innovation that supports Copenhagen’s green transition in becoming a “smart city.”

An innovation platform has been established facilitated by Copenhagen Cleantech Cluster as a new method to engage experts and entrepreneurs across sectors in a creative process to generate ideas on how to develop a digital infrastructure for the smart city. The method and the obtained lessons until now hold great potential for using public procurement to drive innovation.

The Smart City

“Smart cities” has emerged as a global megatrend in response to the challenge of increasing living standards and quality of life while tackling booming urbanization and escalating greenhouse gas emissions, congestion and pollution. The concept of the smart city comprises many technologies such as smart waste, smart water, smart transportation, smart grid and smart buildings. Most of the required technologies already exist, but it turns out that realization of a smart city is not just a technological fix that can be solved through public procurement.

City administrations have the city planning authority and act as procurer, but development of innovative ideas and solutions require stakeholder involvement and citizen engagement. Current EU legislation limits the city authorities’ ability to interact with the private and the civil sector to ensure transparent procurement processes and free and open competition in the bidding process. As a result, cities have to look for new ways to ensure innovation as a pre-process to the actual procurement process.

Clusters and Triple Helix Cooperation

Clusters as geographic centres of interconnected economic and innovative activities are increasingly seen as drivers of growth, and the cluster concept is being adopted by industries and policy makers, who want to support and even create “Silicon Valleys” of their own. As a consequence, cluster organizations are emerging all over the world as a new type of cross-sector platform to facilitate interaction between public authorities, private sector and research institutions in the so-called triple helix model.

Traditionally, these three institutional spheres have operated within their own logical systems. The realization that capitalizing on knowledge and innovation capacity at a regional level requires strong relations and collaboration across sectors has, however, led to the establishment of many hybrid units. Examples are tech transfer offices at universities, government research labs and lobby departments in larger companies. This way, institutional spheres are increasingly overlapping, and the formation of cluster organizations takes this overlap to the next level.

Copenhagen Cleantech Cluster

Copenhagen Cleantech Cluster is one of the world’s leading cluster organizations, sponsored by two regional authorities (Capital Region of Denmark and Region Zealand) and the European Union with a total budget of €20 million. The cluster initiative has a partner base representing the entire value chain of Danish Cleantech, and 11 organizations drive activities on behalf of the cluster in a decentralized organizational setup.

The initiative is now halfway through the five-year project period, and can document concrete results on job creation, inward investments, gap funding, international cooperation projects etc. More importantly, the formation of a coherent cluster organisation with buy-in from all relevant Cleantech stakeholders in the region, paves the way for even more innovation.

To develop the cluster even further and establish a sustainable cluster organization, Copenhagen Cleantech Cluster has been established as a non-profit association that launches new initiatives to foster innovation and green growth.

The Cluster Organization as Driver for Green Procurement

Over the last year, the cluster organization in Copenhagen has become a strong alliance partner for the city authorities in testing out new ways of driving green growth and the “smart city” agenda. The administration logic, focus and practices of the City do not include open innovation and the facilitation of complex stakeholder relations to find new ways of doing things, and here the alliance with the cluster organization comes in handy. The City benefits from the operational and hands-on approach of the cluster, and the cluster benefits from a visionary City Hall and a City that is ready to implement (and procure) new solutions as well as play host to test and demonstration projects.

Innovation Platform

The City of Copenhagen and Copenhagen Cleantech Cluster have established an innovation platform to involve stakeholders in the development of the smart city. The innovation platform method is based on experiences with public-private innovation from the U.S., the Netherlands and Finland, where intelligent public demand has been tested as a tool to solving some of modern society’s grand challenges that call for radical innovation and very active participation from the public sector.

The process can be divided into four phases:

Identifying and prioritizing challenges

The process starts with the identification and prioritization of important challenges by the public authorities. In this phase, it is crucial that the public authority is committed to invest time and resources in developing the solutions to the challenge.

In this case, Copenhagen’s ambition to become a smart city was set out as the grand challenge.

From grand challenge to specific problems

The next step is to collect knowledge about the challenge and ideas about how the challenge can be solved. Concrete solutions are not explored in this phase, which instead addresses in which strategic direction the solution could be found. It is important to be open to many ideas and explore alternatives.

In the case of the “smart city” platform, experts, entrepreneurs and other stakeholders were invited to help understand the grand challenge in more detail, and break it down into more specific problem areas. The first finding was that citizen engagement and data availability are the most important issues, and, based on this finding, the focus of the platform became more specific: *to identify how existing and new data can be made available through a digital infrastructure.*

This challenge was discussed at a series of meetings between the city and the cluster, where city representatives presented obstacles and opportunities for a solution. Based on these discussions, it became clear that it would be of great benefit to explore further how a digital infrastructure could be established, and it was decided to move to the next phase.

Innovation teams

Partners and stakeholders with the competencies to contribute to solving this more specific challenge are identified, and possible solutions and barriers are explored in more detail. It is important that the public sector is actively engaged throughout the process, since they are ultimately procuring a solution.

In this case, the more specific challenge of establishing a digital infrastructure was explored in more than 20 meetings, six workshops and a digital workshop with more than 200 experts involved. Topics addressed included data availability, open vs. closed standards, business models for establishing a digital infrastructure, waste management, water management, transportation, energy consumption etc. Over a period of six months, these interactive elements provided substantial knowledge and input for how to establish a digital infrastructure for a smart city.

An important conclusion was that a central issue is to find a proper business model, where private sector players can build the digital infrastructure on market terms, and at the same time have open standards and secure the sharing and availability of both public and private data. Establishing the right business model for the digital infrastructure will be a focal point going forward.

Procurement and Implementation

Based on knowledge and input, the next step is to put out a tender for a new solution. The identity of the procurer is not given; it might be a public authority, but it could also be an association with public sector backing.

In the Copenhagen case, a test case has been developed in the area of traffic. The City wishes to reduce CO₂ emissions from traffic looking for available parking spots. The Copenhagen Cleantech Cluster has facilitated a three-month process to develop different scenarios to solve this challenge. The scenarios will be handed over to the City of Copenhagen, which can use them for inspiration to develop the final procurement material/criteria.

This way, the City will be a very qualified buyer, which has received the best possible input from leading researchers, companies, entrepreneurs and citizens before defining what they wish to buy.

Lessons Learned

In this case, the City authorities are not only policymaker, city planner and procurer, but an active participant in the innovation process as well as upgrading the internal knowledge about possible solutions to the city’s challenges. City authorities can benefit from using the cluster organization as a neutral meeting place and a competent facilitator that drives this process.

The cluster plays the role of arms-length innovation agent and is a driver of innovation and concrete action in close collaboration with the City. The cluster’s role is not to be compared with a consultancy, as the cluster is a non-profit member-based organization. The cluster has the necessary partnerships with stakeholders across the triple helix to ensure the cluster remains a driver of innovation, providing business opportunities to cluster companies.

Procuring for Innovation: Lessons from GPP in Denmark

Samuel Colverson

International Institute for Sustainable Development

The European Commission indicators for public procurement show that, in 2010, Denmark had an estimated total expenditure on works, goods and services to the value of more than €41 billion, having risen steadily over the previous five years from an estimated €33.6 billion in 2006 (European Commission [EC], 2010). The purchasing power of public procurement within Denmark to both promote and support the production and sale of green products has been well established over the past 15 years, where a green procurement agenda has shaped both procurement frameworks and private sector behaviour.

The result is that Denmark ranks highly within the European Union in terms of green procurement practices, where at least one of the EU green core criteria was featured in 73 per cent of contracts by Danish authorities, and 44 per cent of the contracts featured all the relevant green core criteria. Similarly, 87 per cent of the Danish authorities involved in the same study, prepared by the Centre for European Policy Studies, reported that their organization includes an environmental component within its procurement policy. In this and the other key analysis criteria, Denmark was consistently above the EU average, and, when assessing the monetary value of contracts including all core criteria, is ranked third in the EU27 with 79 per cent (Centre for European Policy Studies, 2012, pp. 90-92).

An emerging priority for GPP in Denmark moving forward is the desire to drive innovation within its industry and markets. While the data demonstrate that it has been relatively successful at implementing GPP in a number of areas, the link to innovation is less well established. For this reason, GPP in Denmark serves as a good case study to explore the causal effect, if any, traditional GPP approaches have on innovation, and to identify what specific policies or frameworks would better serve a goal to trigger innovation through GPP.

Part 1: Description of Key Tools and Approaches

The following section builds a foundation for understanding GPP in Denmark by taking several of the key features and briefly describing their purpose.

Government

For the Environmental Protection Agency (EPA) within the Ministry of Environment, the approach is to develop a complete procurement tool kit in conjunction with partnerships across key strategic areas to accelerate available knowledge and take-up of sustainable procurement. This has meant a focus on key sectors for growth, currently the transport, construction and food sectors, along with sustained effort on procurement at the municipality level, where two-thirds of public procurement actually happens. In addition, priority areas of activity include collaboration with the private sector to encourage development of practices that support sustainable procurement, and the need to disseminate knowledge on available tools and the benefits of sustainable procurement.

The key tools and approaches are identified below:

Manuals for Green Procurement: Guidelines for public purchasers on a range of 46 different goods and services, from simple paper supplies to complex transportation services. Manuals identify the specific environmental issues relating to each product category, educate on the advantages and benefits of procuring green technology, and provide advice for procurers on the kinds of questions and specifications to be looking for when designing tenders or negotiating with suppliers. Includes links to endorsed product lists and criteria associated with eco-labels, certifications or mandatory standards. Although not mandatory, some 69 per cent of all public purchasers use these manuals to inform the design and administration of environmental requirements in their procurement activities (EPA website, n.d.).

Eco-Labels: Although it is prohibited within the EU to use labels as a precondition for qualification within the tender process, it is possible to design technical specifications in accordance with criteria from the appropriate label and indicate that products that have received that label are deemed to satisfy the technical specifications. The EU eco-label “the Flower” and the Nordic Council of Ministers’ eco-label “the Swan” are the only two officially recognized eco-labels in Denmark. “Eco-labeling Denmark” is an independent administrator within the Danish Standards Foundation, and is responsible for the processing and award of eco-labelling, but also provides support and information material for companies and purchasers.

Knowledge sharing: Numerous documents and resources have been compiled to provide information and training on relevant topics relating to green procurement, such as life cycle costing and cradle-to-cradle procurement, and which are stored and made freely available on the Ministry website. Similarly, the website also provides links to additional tools and support hosted by other Ministries or centres for excellence, for example in food, transport and energy consumption. Conversations undertaken within the course of research suggest that these resources are not well known and underutilized.

Partnership for GPP

Municipalities in Denmark are responsible for approximately two-thirds of government procurement, and as the authorities are closer to the general public, a partnership between municipalities on GPP is seen as the best way to lead the debate forward. Membership is voluntary, but jointly agreed objectives become mandatory. The partnership is intent on developing concrete methods for incorporating environmental requirements into procurement and is an important forum for sharing knowledge and procurement solutions. So far, the three largest municipalities of Copenhagen, Aarhus and Odense have joined with the Ministry of Environment and three other municipalities to form the partnership.

Forum on Sustainable Procurement

Established since 2010, and building on the experience of the earlier Panel for Professional Environmentally Conscious Procurement operating from 2003–2009, the Forum on Sustainable Procurement is aimed at promoting environmentally responsible procurement among professional procurers in both the public and private sectors. Membership is made up from both sectors, such as the Confederation of Danish Industry, Copenhagen University, Association of Public Procurers in Denmark, Local Government Denmark and the EPA, and comes together within themed working groups to act as a platform for capacity building, knowledge sharing and lobby activities to both advance sustainable procurement and break down barriers.

Regional Collaboration

Green 7: Along with England, the Netherlands, Sweden, Austria, Finland and Germany, Denmark forms part of an informal advisory group dubbed the “Green 7.” Representing the frontrunners of GPP within the EU, the Green 7 cooperation is focused towards assisting the Commission to achieve its GPP goals, as a platform for proactive and constructive interaction with the Commission.

Norden: This is the official cooperation platform in the Nordic region that includes the Nordic Council and the Nordic Council of Ministers, along with a number of other organizations and initiatives. The opportunity to combine regional action on identified issues multiplies the ability to find and implement solutions and extends the Nordic leadership on green and sustainable procurement. An example is the development of the Nordic eco-label.

Private Sector

Business also has an important part to play in supporting the development of green procurement practices, and engaging with the private sector is crucial to creating the right mix.

Confederation of Danish Industry (DI): Green procurement website and blog

This serves as a web portal for enterprises doing business with the government to be updated on both the green procurement policy landscape and trends in the development of green public procurement specifications. The website (www.di.dk) also refers to ongoing efforts to help municipalities increase the use of green criteria in procurement specifications. Moreover, the portal highlights the early debate on the value of “standardized green specifications” in providing more certainty to suppliers, as well as serving as a more cohesive policy signal for scaling and green innovation across supply chains in Denmark. In commenting on government procurement frameworks and procedures, the private sector can help drive and inform reform through knowledge sharing, but also by giving the government clear signals on business priorities and areas of opportunity. The DI recommendations for a strategy on Intelligent Public Procurement would be an example of this.

Clean Enterprises of the 21st Century (Cle-En 21)

The project, a partnership between DI and the EPA, aims to enable Danish enterprises and small- and medium-enterprises (SMEs) to expand their voluntary environmental efforts in accordance with the European Sustainable Development Strategy and the EU Integrated Product Policy. The deliverables of the project will include several digital tools, capacity building for technical assistance providers, a cross-sectoral coordination group for integrated product policy (IPP) efforts in industry, and pilot projects in selected companies.

Copenhagen Cleantech Cluster

Comprised of partners from within research institutions, industry, government and NGO's, the Cleantech Cluster is mandated to facilitate partnerships, host events or conduct analysis that supports the development of conditions that aid growth in the cleantech sector. One direct example of added value comes from Innovation Platforms, where public purchasers can sit at the table with stakeholders and present their needs, whereby the cluster model can provide targeted research and feedback that informs procurers as to the market or technology conditions and enable it to shape its specifications and tenders appropriately.

Procurement in Practice

Life cycle costing (LCC) as part of GPP allows for a more comprehensive assessment of a product's real cost beyond the initial purchase price. LCC is a tool regularly used by procurers in Denmark, where 45 per cent of purchasers identify LCC as being one of the evaluation criteria in proposal assessment, although 45 per cent still mainly rely on purchase cost as an evaluation criteria, and LCC was considered the main evaluation criteria by only 10 per cent of respondents (Centre for European Policy Studies, 2012, p. 91).

A PricewaterhouseCoopers analysis of GPP within the “Green 7” nations highlights the link between environmental awareness and knowledge in procurers and the use of environmental criteria in Denmark. Assessing what influences purchasers to include green criteria as minimum technical specification or award criteria it was found to be that the environmental impact of the purchase and familiarity with green alternatives are the biggest drivers. This is especially true for Denmark, where its procurers were among the highest respondents to these motivators. The availability of green alternatives is an essential link in the GPP chain, but here purchasers in Denmark only considered it of relative importance following the other two knowledge-driven motivators (PricewaterhouseCoopers, 2009, p. 81).

Although pushed heavily by government and well supported by partnerships and guidance materials, GPP remains largely voluntary within Denmark. A National Action Plan has been in place since 1994 (updated in 2008) and the target of 50 per cent green procurement referred to in the European Commission's communication on GPP has also been adopted as an indicative political target. However, environmental requirements are mandatory only for central government, implemented across 20 product groups, and rely upon voluntary initiatives at regional level, such as those identified above where action becomes mandatory only after voluntary membership.

Within the stages of the procurement process, green criteria are integrated into the technical specifications and award phases, signifying both compulsory and preferential elements within tender proposals, but do not feature as a contract performance clause (Centre for European Policy Studies, 2012, p. 44).

Interviews with the Confederation of Danish industry present the private sector perspective as one that very much appreciates the new green thinking coming from government and the opportunities for business growth that comes along with it, but also underline the importance of consistency in messaging and regulatory requirements in supporting the growth of green markets.

Key responses include:

- a disconnect between political rhetoric and actual requirements generates private sector uncertainty and does not provide a stable platform for investment in R&D.
- there is often insufficient and inconsistent demand through tendering to motivate companies to undertake the administrative burden of registering as a green enterprise.
- market fragmentation exists due to a lack of standardized definitions and criteria across municipalities.
- there is an internal conflict between the development of environmentally friendly products and a retained emphasis on pricing and budgetary constraints within tender evaluation.

Part 2: The Innovation Angle

Historically, it is the cost, energy and environmental savings associated with GPP that have attracted the attention and been the focus of governments procurement and research activities. However, as a policy tool, GPP also has the ability to give important incentives and stability to the private sector and industry, encouraging innovation in "green" technologies and products. The present need across Europe and North America to spur more growth has seen a renewed focus on the environmental conditions best suited to fostering innovation and has signalled an evolution in the GPP debate. This is also true for Denmark, where emerging challenges presented by decreasing competitiveness and productivity and a need to lift technology exports have added fuel to the innovation agenda and are pushing the development of GPP-related solutions.

GPP has proven effective in helping to support best products and bring them into the common market, playing an important role in the "chain of innovation." The new emphasis is on discovering ways to use GPP as an initiator and incubator earlier in the development cycle, thereby multiplying the innovation effect on products, markets and the economy more widely. The questions being asked within this case study begin to unpack what the impact on innovation has been within Denmark's GPP experience and seek to identify key tools or factors with a causal link between procurement and innovation-led green growth.

A Good Practice Example

The use of output-based specification on environmental matters leads to a culture of innovation, not laziness, where there is an incentive to create more effective and efficient solutions that are currently available in the open market. Rather than stipulate technology to meet a desired need, the authority instead identifies a problem or need to be met, or minimum evaluation targets, and allows the private sector to design and present the best solution.

This approach was one of the key success points in the modification of the wastewater treatment systems throughout Denmark, where process-focused, rather than technology-focused, legislation combined with clear environmental objectives from the Water Act of 1974, to facilitate the use of output-based and contextually appropriate methodologies in the Action Plans that implemented the public policy. In this way, new and innovative technologies made significant contributions to reducing the pollution caused by wastewater by between 80-90 per cent.

One of the companies involved in the wastewater system modification was Krüger A/S, who, in 1988, along with the Danish Technical University, developed the biological BioDenitro/BioDenipho process for the removal of nitrogen and phosphorous. These theories and technologies were world leading at the time and have formed the foundation of many modern wastewater treatment practices, establishing a leading industry for Denmark. Despite a small market for suppliers and consultants in this area, companies such as Krüger, Grundfos and Danfoss together with a total of around 100 Danish companies, have built a market on wastewater technology and have exports of about €1 billion each year (Danish Ministry of the Environment, 2008).

Some Eco-Innovation Success

According to the Eco-Innovation Observatory, Denmark is one of the eco-innovation leaders of the EU, ranking second across Europe in 2010. Benefiting from high performance in R&D investment, and as one of the leading exporters of environmental solutions and technology, eco-industry in Denmark made up 4.4 per cent of GDP in 2004 (again, second in Europe). This result stems largely from eco-innovation in air, water, waste and energy, where 4 per cent of the national workforce are employed in technology fields from these sectors. Notably, the market share of eco-innovation products has been growing faster than the total export of regular products in recent years, and in 2010 represented 16 per cent of total exports, equivalent to €15.5 million (Eco-Innovation Observatory, 2011).

The wide range of public Institutions and ministries involved in supporting eco-innovation in Denmark may be one of the reasons for its comparative success. Although active across policy-making and the setting of standards, the use of direct funding schemes to co-finance the development and demonstration of new products and technologies has been a particular focus of the EPA in recent years. A study in 2006 revealed that stronger regulation in itself does not necessarily increase innovation activities: it must also be supported by investment flows to bridge the initial gap between reality and policy goals. The Danish EPA Eco-Innovation, the Danish Advanced Technology Foundation, the Business Innovation Fund, and National Innovation System are some of the funding schemes that have been identified as important within this equation (Eco-Innovation Observatory, 2011).

More to Follow

The full version of this case study builds on the theme of innovation within green growth procurement strategies and presents ideas on:

- what elements are most necessary to spur innovation?
- role of concrete targets
- the role of GPP in the “chain of innovation”
- lessons from innovation in non-environmental procurement?
- Grant schemes for eco-efficient technology, the role of subsidies as a tool in supporting innovation

This case study was written with the support of Rasmus Boldsen and Mikkel Stenbæk Hansen of the Danish Ministry of the Environment-Environmental Protection Agency.

Developing GPP in India Through Public–Private Partnership

Sachin Joshi

CII-ITC Centre of Excellence for Sustainable Development

India is currently developing its green public procurement (GPP) policy, driven by national plans for sustainable development and voluntary commitments on climate change. GPP will be important to create aggregate demand for environmentally friendly goods and services, trigger private sector demand, improve supply chain processes and create opportunities to innovate.

The importance of GPP was emphasized at one of the early meetings of the Prime Minister's Council on Climate Change. The Ministry of Environment and Forests (MoEF) was mandated to develop the policy. What followed is a unique example of a public-private partnership in the development of GPP. The CII-ITC Centre of Excellence for Sustainable Development (hereafter the Centre) was entrusted with developing the policy.

The Centre is a think tank and active arm of the Confederation of Indian Industry, India's largest business association with more than 9,000 members. The Centre provides technical assistance to governments and business in various areas of sustainable development. Over 20 years, it has worked with the private and public sectors to improve environmental policy in India. It was also felt that GPP required development of product specifications, which was best done with input from producers. It was, therefore, not surprising that MoEF requested that the Centre work on GPP. This probably makes it a unique case in GPP development in the world.

There was already a market for green products in India, which had gradually developed despite the absence of GPP, mainly because of private sector moves to become environmentally friendly. It made good business sense: high standards in global supply chains, and in energy and natural resource use require efficiency and optimization of consumption. The 5-Star Energy Label of the Bureau of Energy Efficiency (BEE) at the Ministry of Power had become recent success. Many parts of the government were already procuring labelled appliances. Green buildings were also an increasing trend within new government offices.

There was little doubt that greener products and services were available in the country. Effort was required to review various product specifications, develop commonly acceptable specifications, and consolidate everything into GPP. The Centre had both the technical expertise as well as the ability to convene large groups under its auspices.

The Centre was mandated to:

1. Develop product specifications
2. Develop the GPP management framework
3. Provide recommendations for possible GPP legislation

It was particularly important that a GPP policy be designed in a manner so as to be able to deliver outcomes that were most relevant to the Indian context. A flexible methodology, responsive to the needs of the country, was required.

Product Selection and Specification Development

From an exhaustive list of products that the Government of India procures, a set of six product categories were identified for which to develop specifications. The six product categories are: public works (bricks, steel & cement), electric appliances, IT equipment (computers & peripherals, photocopier, telecoms), pharmaceuticals (bulk drugs), paper, office furniture and lighting. These products are mainly characterized by their environmental impact (in production, use or disposal), volumes in use, and significant share of public spending. These were selected on the basis of the following:

- Products which are low-hanging fruit (starting with products that are easier to green, requires minimal investment, etc.)
- High-purchase product categories within government procurement (in terms of volume or value)
- Product categories where greening initiatives have already been undertaken

There were many challenges to define product specifications. Few products have specifications for “green” indicators. The project had aspired to introduce green specifications on a life cycle analysis basis. However, data across the life cycle isn’t available, and even the infrastructure for manufacturers to satisfy life cycle requirements is lacking in India. To resolve these challenges, the project considered the most resource-intensive stage in the life cycle of a product and developed green specifications for that stage. The criteria for manufacturing processes were air and water pollution, energy intensity and raw material usage. For appliances and IT equipment, specifications were developed on in-use energy efficiency and recycle or reuse. Specifications were based on domestic energy labelling and e-waste regulations. In certain cases, conflict arose between green and quality specifications. This conflict could be resolved through improvements in technology or production process.

The project has suggested higher than prevailing green specifications and a gestation period for manufacturers to upgrade to those specifications without compromising on quality specifications. In that period, manufacturers should migrate to improved technology or processes.

Established standards and labels were also used to define criteria so as to ensure greater credibility for the whole process. For instance, energy efficiency criteria were drawn from the already existing Star Rating program of the Bureau of Energy Efficiency. In certain instances, conflict arose between environmental criteria and existing regulations and norms. Such issues had to be resolved by consulting various stakeholder groups and arriving at a consensus.

Public-Private Partnership

The three success factors of GPP development in India are: government leadership and commitment, a close working relation between public and private sectors, and the multistakeholder nature of the process.

India’s public authorities, including its federal government, are major consumers and procurers of goods and services. A recent estimate by the Planning Commission puts the scale of public procurement between 15 and 20 per cent of GDP, or US\$215-270 billion per annum. By using their purchasing power to choose environmentally friendly products and services, they can make an important contribution to creating green markets. It was important to make the connection between the country’s national priorities and objectives in relation to the economy, and the environment in particular.

The GPP policy was suggested at the highest levels of the Indian government. One of the early meetings of the Prime Minister’s Council on Climate Change stressed the importance of green public procurement if India was to succeed in its low-carbon growth plan. The Ministry of Environment and Forests was mandated to initiate the work. After discussions with many stakeholders, the CII-ITC Centre of Excellence for Sustainable Development was asked to help the Ministry develop a GPP policy.

Through the project, the Ministry has worked closely with the Centre. There have been occasions when the Ministry would follow up on the progress of certain issues. Within the government, the Ministry would periodically report to the Prime Minister’s Office.

One of the significant features of India’s GPP development is the role of the private sector. The fact that the Ministry entrusted the work to the Confederation of Indian Industry by itself was symbolic of private sector engagement. Over 20 years, the Centre has worked with business and government, particularly the MoEF, to improve the environmental performance of industries and also improve the environment policies. It has assumed recognition for being progressive about better environmental norms and proper implementation in the country. At the same time, it builds the capacity of business to reduce its environmental footprint.

The Indian market for “greener” products and services is already increasing. The success of BEE’s Energy Star label in both retail and institutional markets, increasing green building space, as well as the fact that the automotive industry is improving the fuel efficiency of vehicles are some of the indicators that the green market is developing. Information and communication technology companies are pressing for “green” criteria in a range of infrastructure projects. The private sector has been more than willing to participate in the development of GPP, for they have seen the increase in the size of the market for greener products. For global companies with operations in India, it has meant the beginning of migration of Indian standards to global standards sometime in the future.

The products are manufactured by the private sector which has the knowledge of product specifications. For each product category, the Centre and the MoEF appointed a sectoral business association that would be responsible to help with product specifications. In cases where a suitable sectoral association was not available, a group of companies was formed. Product specifications received were referred to the Bureau of Indian Standards and the Central Pollution Control Board. Product specifications were finalized after each specification went through a few rounds of discussion.

Multistakeholder Process

Involving multiple stakeholder groups adds legitimacy to the development of any program or policy. Multistakeholder inputs were seen as being valuable in appreciating the complexities involved not just in approaches such as life cycle analysis (LCA), but also in GPP and implementing strategies and systems to meet prevailing procurement patterns. In addition, the perspectives of private stakeholders who have been working on improving environmental and social performance in supply chains was of interest.

With this understanding in mind, The Centre worked towards developing the GPP guidelines in a consultative manner. Bringing different ministries to the table in a manner that was progressive for the project was identified as a challenge right at the start of the project. The Centre worked with the Planning Commission of India to be able to convene different stakeholders. A “Core Group” of different stakeholders was constituted that would act as a sounding board as well as contribute to developing product specifications. It brought to table different ministries, standard-setting organizations such as the Bureau of Indian Standards, regulators such as the Central Pollution Control Board, institutions such as the BEE, and sector associations to represent the private sector. These stakeholders were very proactive and willing to contribute towards the development of technical specifications for designated procurement products. This strategy worked well, and helped evolve consensus on some of the challenges, allowing the project to remain on schedule.

The Promise of GPP

GPP has a key role to play in India’s efforts to transition to a green economy. It can help stimulate a critical mass of demand for more sustainable goods and services which otherwise would be difficult to get onto the market. GPP is therefore a strong stimulus for eco-innovation.

Promoting green procurement gives important incentives for industry to develop “green” technologies and products and promote them in the market place. In particular, small- and medium-sized companies may profit from environmental procurement, as it offers an opportunity to find markets for their innovative solutions and products.

Introducing “green” tendering criteria can influence the marketplace and result in new entrants in the field of environmental technologies and products—potentially resulting in increased competition and reduced prices.

Utilizing the knowledge and experience of the private sector in developing GPP is a practical way to ensure a robust and effective program. The role of the CII-ITC Centre of Excellence for Sustainable Development in developing specifications and recommendations for legislation in India is a positive example of how government and the private sector can partner in designing and establishing GPP.

Public Procurement and Green Investment in Vietnam

Tom Moerenhout

International Institute for Sustainable Development

Public procurement is an important driver of economic activity in many rapidly growing economies. In Vietnam, government spending has consistently accounted for more than 25 per cent of economic activity in the last decade. The part of GDP owed to state spending more than tripled, from VND170,000 billion in 2000 to VND583,000 billion in 2009 (General Statistics Office of Vietnam, 2011). Like other rapidly industrializing nations, Vietnam may soon witness a decline in Official Development Aid when it reaches the GDP status of a lower middle-income country. This has important implications for the objectives of public procurement.

From one side, procurement policies play a primary role in ensuring an efficient economy. For example, in Vietnam and other South East Asian countries, infrastructure constraints prevent optimal growth. The Vietnamese government increased its spending on infrastructure from VND6.795 billion in 2005 to VND14.679 billion in 2009. With FDI adding another VND1.816 billion in 2010, the share of infrastructure procurement in Vietnam has been consistently between 8 per cent and 10 per cent of GDP. In spite of these efforts, investors still list poor infrastructure as one of the main hindrances for operations in Vietnam (Nguyen Xuan Thanh, 2009).

Procurement to Encourage Green Industrial Growth

In addition to ensuring an efficient economy, procurement can also guide economies to invest in efficient sectors. There is a consensus that Vietnam's growth is in large part attributable to its successes in the manufacturing sector. However, in its Vietnam Industrial Investment report, UNIDO righteously warns that, to maintain sustainable growth, industrial policy needs to refocus on transformation in strategic sectors that can yield future results from technological change, innovation and learning (UNIDO, 2012). Such a pattern is not Vietnam-specific, but reflects the growth pains transitional economies often encounter after a period of manufacturing-driven growth.

To escape what is often referred to as the "middle income trap," Vietnam needs to create new competitive advantages. This effectively means it needs to target sectors in which it can add value by innovation and technological advancement. Green industrial growth is commonly known as a path that creates significant added value. Both sustainable sectors—for example renewable energy and healthcare—as sustainability performance in conventional corporate sectors move companies to invest in longer-term value creation as opposed to shorter-term profit generation. When done properly, this eventually delivers stable competitive advantages (Eccles, Ioannou & Serafeim, 2011). Research on the 2006–2010 period indicates that companies that invest heavily into the impact of environmental, social and governance issues (ESG), perform better than those who do not (RCM, 2011).

Vietnam's Growing Interest in Green Industrial Growth

However, private investors rarely take first steps to increase short-term costs. Rather, public finance is needed to crowd in private capital, hence the importance of public procurement. The Vietnamese government is well aware of this and has made several attempts to formulate legislation to achieve sustainable, value-driven growth. In its 2004 Strategic Orientation for Sustainable Development, for example, it elaborated a growth plan around cleaner production, environmental friendliness and clear industrialization. It focuses especially on the manufacturing sector, and calls for a prioritization of technologies that facilitate modern and clean production. More practically, the strategy focuses on raising the quality of products to reduce costs, and, hence, increase the role of technical standards in industrial processes (Government of Vietnam, 2004). Vietnam has also set specific standardization targets in its National Environmental Protection Strategy (Moerenhout & Lam, 2011).

The need for cleaner industrialization to maintain economic growth has become more prevalent in recent years. In 2009, a specific Cleaner Production in Industry Strategy was adopted to ensure that at least 50 per cent of all industrial production facilities are informed of the benefits of cleaner production methods by 2015, with at least 25 per cent

already implementing such methods (Government of Vietnam, 2009). The government angle of this shift towards green industrial processes was mainly laid out in the 2005 Environment Protection Law. This strategy includes both guidance for governments to encourage cleaner industrial processes (“soft law”), and specific incentives that the government can offer to encourage sustainable production and consumption. These include, among others, land-related preferences, exemption from and reduction of taxes, loans from environmental protection funds and the prioritization of official development assistance (ODA) capital (Moerenhout & Lam, 2011, p. 44). This law was continued by a 2009 decree further deepening incentives for environmental protection activities (Government of Vietnam, 2009, Decree No. 04/2009/ND-CP).

The Missing Procurement Angle

While well aware of the necessity of adding value through innovation and green industrialization to avoid the middle-income trap, Vietnam’s legal framework is still missing the crucial procurement angle. The discrepancy between Vietnam’s priorities in policy and development, and governmental priorities in spending may well harm the prospects of clean industrialization. As mentioned, procurement is a strong economic driver that is able to crowd in private capital. Nevertheless, as part of its examination of green growth, the government is currently conducting research on how green procurement could be successfully introduced in the future. As an important first step, the Korean International Cooperation Agency has provided assistance to upgrade Vietnam’s public procurement system with the introduction of the electronic bidding system of the Republic of Korea (KONEPS) (Moerenhout & Lam, 2011, p. 44).

In spite of the absence of direct procurement policies to catalyze green industrial growth, Vietnam has made considerable progress in formulating legislation that is aimed at “greening” procurement. However, there are still shortcomings in the content and implementation of existing, indirect green procurement policies. For infrastructure projects, the most important tool is the environmental impact assessment (EIA), which is not procurement-specific. However, the effective implementation and follow-up of EIAs are still limited. There are also fines for not complying with environmental and social protection regulations. However, these fines are generally too low to enforce compliance. With regards to standardization, Vietnam’s bidding law does not integrate any. If standards are integrated, it is in the technical requirements of tenders. However, in those cases, the environmental score is still relatively low, and time frame, quality and costs remain more important than environmental or social standards. In this regard, for example, bidding documents and evaluations often assess immediate projects costs, rather than longer-term savings and life cycle costs (Moerenhout & Lam, 2011, p. 44).

The Need for Efficient Procurement as a First Step

In addition to problems related to direct and indirect green procurement strategies, Vietnam’s overall procurement policy contains flaws that need to be addressed if the government wants procurement to be efficiently used for innovation and green industrial growth. Primarily transparency and integrity are still underdeveloped. It is difficult or often impossible to comment on procurement-related regulation before it is adopted. When companies challenge a procurement decision, they are often excluded from future tenders. In addition, regulations are often applied in an inconsistent manner at different governmental levels. Often, there are no specialized procurement units within procuring entities and there is no procurement code of conduct. These inefficiencies make the implementation of a standardized procurement system very difficult (Transparency International USA, 2011, p. 40). The Vietnamese e-procurement system that South Korea is currently assisting with represents an important leap in this regard (Ketels, Nguyen, Nguyen & Hanh, 2010, p. 124).

Insufficient competition also harms the potential of procurement for green industrial growth. Generally, small- and medium-sized enterprises (SMEs) have difficulties complying with sustainability regulations because they did not implement prior requirements. However, because international market access is more and more conditioned upon such criteria, the companies are seeking training to catch up and reduce otherwise higher compliance costs. It would benefit Vietnamese growth if these market incentives were complemented by governmental enforcement and assistance. This can be primarily achieved by efficient procurement policies (Moerenhout & Lam, 2011, p. 44).

From their side, state-owned enterprises (SOEs) often operate with a lack of transparency. There are conflicts of interest as SOEs are often both bidders and procurers, with governmental entities often protecting and favouring “their” SOEs (Transparency International USA, 2011, p. 40).

If SMEs and SOEs, two important forces in the Vietnamese economy, do not structurally adjust, and the government does not tackle corruption and the lack of legislative enforcement, the potential to avoid the middle-income trap by generating green industrial growth seems relatively unfavourable. To date, procurement policies have not yet served as an efficient catalyst to investment in green growth. However, it is clear that they can play a critical role in the near future. The barriers experienced within Vietnam are indicative of barriers that South East Asian countries may experience when they are transitioning into lower middle-income economies. As in their case, efficient procurement can serve as important driver to avoid the middle-income trap and create added value through green industrial growth.

Section 3: Implications for Procurement Policy and Frameworks

The sheer volumes and values involved when governments buy present in themselves an important incentive for greener growth, for companies will be more inclined to invest and innovate when it becomes clear that the demand for green products and services exists, is of a long-term nature and of massive scale.

As we have begun to demonstrate in this policy brief, green industrial growth has indeed been triggered by procurement, and governments have indeed walked the talk on sustainable development through related policies. However, as countries seek to reposition themselves in global markets and improve their comparative trading advantages, public procurement policies need to be calibrated to address several distortions.

Recognizing that there are different levels of green

Different jurisdictions and procurement entities are using different criteria to identify green products and develop green product specifications. For example, specification for sustainable timber can range from compliance with international certification schemes, to sourcing from community-owned and -managed forests, to self-declarations from suppliers, to sourcing from domestic plantations. This creates market distortions that impede the commercialization of green products. For suppliers, it presents problems for achieving economies of scale and passing the related cost reductions down to the consumer. The feasibility debate in addressing this distortion hinges on the need to maintain flexibility within procurement policy. Should not procurers be given the flexibility to define different levels and characteristics of “green performance” based on their country’s industrial, economic and social priorities?

Challenges in procuring green infrastructure—making the case for whole life costing in times of economic austerity

The case for total cost of ownership needs to be far better articulated in procurement policy, since public purchasers are also facing challenges in “procuring green” in times of economic austerity. As demonstrated in the 2012 EU survey on the uptake of green public procurement, procurers are facing difficulties in both finding the time and resources to develop green specifications given budgets cuts for staffing and consulting services. In addition, government austerity programs have cut into training programs for procurers on the development of green tenders and, moreover, in the updating of science-based tools that are indispensable in the development of green tenders.

In emerging economies such resource constraints are commonplace. In addition, green products cost more to purchase and procurers are hard pressed to incur higher spending on greener products and services (despite being able to forecast savings during user life) given the many other pressing environmental and social issues on which government spending would be justified. The case for total cost of ownership needs to be far better embedded in procurement policy.

Fragmentation of markets

As much as there are different levels of environmental performance, there is also a large proliferation of eco-labels, certification schemes and voluntary standards on sustainable performance. Public agencies and suppliers around the world often cite the “eco-label dilemma.” IISD research indicates that globally, there are over 400 eco-labels in operation, and for sectors that are frequent areas of public spending—there are around 40 labels—all indicating varying levels of performance. For example, Hewlett Packard says that the company “faces 50 labels – and have decided to seek to influence 13 and prioritize compliance with 12” (Personal communication with IISD, May 2012).

This is leading in part to the fragmentation of demand—as different entities are using different eco-label intelligence and different performance criteria in articulating green tenders. As stated by the Confederation of Danish Industry in an interview with IISD in May 2012, “municipalities—even within the same metropolitan area—are using different green criteria when buying the same product. This poses problems for suppliers as they are not able to scale up supply and reduce unit costs.”

Trigger for green innovation

Green growth would be well served by direct synergies between procurement and innovation policies, such as targeting investment for R&D to priority procurement spending. For example, the U.S. Small Business Innovation Research (SBIR) program reserves 2.5 per cent of the total extramural (non-academic) research budgets of all federal agencies with extramural research budgets in excess of US\$100 million, for contracts or grants to small businesses. In 2010, that represented over US\$1Billion in research funds. Over half the awards are made to companies with fewer than 25 people and a third to companies of fewer than 10. A fifth are minority or women-owned businesses. A quarter of the companies selected for grants in 2010 were first-time winners.

The EU is also moving in this direction. The “Innovation Union” Communication (European Commission, 2010) identifies public procurement as a significant opportunity to foster innovation:

“Unsatisfactory framework conditions, ranging from poor access to finance, high costs of IPR, to slow standardisation and ineffective use of public procurement. This is a serious handicap when companies can choose to invest and conduct research in many other parts of the world. In addition, remaining barriers for entrepreneurs to bring “ideas to market” must be removed: better access to finance, particularly for SMEs, affordable Intellectual Property Rights, smarter and more ambitious regulation and targets, faster setting of interoperable standards and strategic use of our massive procurement budgets.”

The figure below indicates the estimated annual budget investment necessary to spur procurement for innovation within the EU, and points towards the importance of aligning spending and procurement policies if innovation for green growth is to be achieved.

INDICATIVE BUDGETARY IMPLICATIONS

Amounts						
Annual Public Procurement Spending of Member States above EU thresholds Estimate (PWC et al, 2011 ³)		€400 Billion		CURRENT ESTIMATE		
"Innovation Union" targets ⁴ per year		€ 10 Billion		TARGETS		
Estimated Innovation Potential Proportion of Annual spending in the EU (€400 Billion)	3.0%	€ 12 Billion				
Recommended Cross Border Procurement Proportion of the Innovation Potential (€ 12 Billion)	6.0%	€ 720 Million				
		Low Estimate		High Estimate		
		Factor	Amount €	Factor	Amount €	
Current EC co-financing rate of innovation procurements projects CIP (DG ENTR – 55%) & FP7 (DG INFSO – 75%) applied to Cross Border Targets (€ 720 Million)	55.0%			75.0%		CURRENT PILOTS Co-financing rates
Recommended Total Annual EU Budget (55% & 75% of € 720 Million)			€ 396 Million		€ 540 Million	BUDGET NEEDED
Of Which Strand 1 Share of Budget Proportion	60.0%		€ 2376 Million	60.0%	€324 Million	
Of Which Strand 2 Share of Budget Proportion	35.0%		€ 138.6 Million	35.0%	€189 Million	
Of Which Strand 3 Per Year Share of Subtotals	5.0%		€ 19.8 Million	5.0%	€27 Million	
Seven Year EU Budget Spend on this Policy €			€ 2.77 Billion		€ 3.78 Billion	

Source: EC (2012)

Pre-commercial procurement—can this be an effective trigger for green growth?

One method for public entities to trigger green growth is to expand the use of pre-commercial procurement—the procurement of R&D services which enables the public sector to:

- share the risks and benefits of designing, prototyping and testing new products and services with the suppliers;
- create the optimum conditions for wide commercialization and take-up of R&D results through standardization and/or publication; and
- pool the needs to several public agencies to deliver on a range of public policies that require products and services that are yet to be commercialized. These could include innovations in healthcare on HIV and to deal with the impacts of an ageing population, renewable energy and greener technologies for water and waste treatment, energy efficiency technologies, e-education tools and more.

By acting as technologically demanding first buyers of new R&D, public procurers can drive innovation by establishing long-term demand for related products and services. Pre-commercial procurement can also reduce time to market by developing a strong domestic market for innovative products and services.

The challenge is however to ensure that pre-commercial procurement works in addition to existing state budget allocations and targeted funds for research and development. If existing funds are channelled towards meeting government tenders for innovative products—a double subsidy is created leading to a waste in public funds. It would crowd out a large cross section of the innovation and investment community.

Embedding environmental and social safeguards into Private Finance Initiatives:

Private Finance Initiatives (PFIs)—contracts that involve private capital in the commission of public assets and services—are increasingly on the agenda for governments. They present potentially viable options for undercapitalized public agencies to both deploy public infrastructure and increase the efficiency of public services. Stakeholders in favour of this model point out that it offers governments a viable option to manage debt but still deliver on essential infrastructure that forms the basis on which further industrial expansion can take place. Opponents remain wary

of PFIs on their ability to deliver value for money for the public purse. Where all stakeholders agree is that these contracts can be better designed to serve as incentives and even as demonstration projects for greener materials and technologies:

Costs are a major influence in introducing safeguards into tendering and contracts, where there is a constant demand to justify spending and ensure optimal value for money on public monies. The flipside to accessing private capital through PFIs is that the infrastructure investment is neither coming from nor does it appear on public balance sheets. An undesirable result is that any reduced fiduciary responsibility on the part of the public sector may also have the effect of reducing incentives to install optimal economic safeguards within project tenders and contracts. It is important that safeguards within PFIs do not lose sight of achieving the highest value for money possible, in addition to elevating environmental considerations to equal importance.

The case for performance-based specifications

Instead of questioning “what needs to be purchased?” could procurers trigger green innovation by asking “what requirements need to be realized?” This would enable procurers, suppliers and intermediaries to collaborate and innovate to find the most optimal mix of products, services and technologies that is fit for purpose. For example, instead of purchasing office IT equipment, articulating needs around e-productivity, e-communication, e-conferencing, VOIP services, printing and copying can enable suppliers to design a customized service that includes the leasing of the hardware required.

The case for performance-based specifications is that it enables suppliers to calibrate the optimum mix of technologies and services to propose solutions that are cost effective and sustainable. The challenge is that for procurers to develop such specifications, they need to have some technical appreciation for the services under tender.

The role of clean technology platforms and intermediaries

As procurers work to buy state-of-the-art green technologies and promote innovation, they need to have a greater appreciation for market for green technologies and, moreover, be able to have a technical dialogue with suppliers and assess options on innovative solutions.

Working with technology platforms and similar intermediaries is critical to facilitating these dialogues and assisting procurers in the design of tenders and suppliers in making innovative proposals. The issue is that such intermediaries are expensive to establish, and many countries lack the tech-savvy innovation climate to establish these services in the first place.

The procurement of innovation – promoting Forward Commitment Procurement

Forward Commitment Procurement—giving potential suppliers accurate information on both the present and future requirements of the public sector—is gaining ground. Here again, it requires the use of performance based-specifications which move the onus of innovation and cost-effectiveness to the supplier. This method, as with pre-commercial and first commercial procurement, addresses difficulties when public organizations require products that are not commercialized or very expensive to purchase. It is also valuable as it alerts the market to future procurement needs and enables companies to agree on specifications, price and qualities in advance.

Funding and indemnity

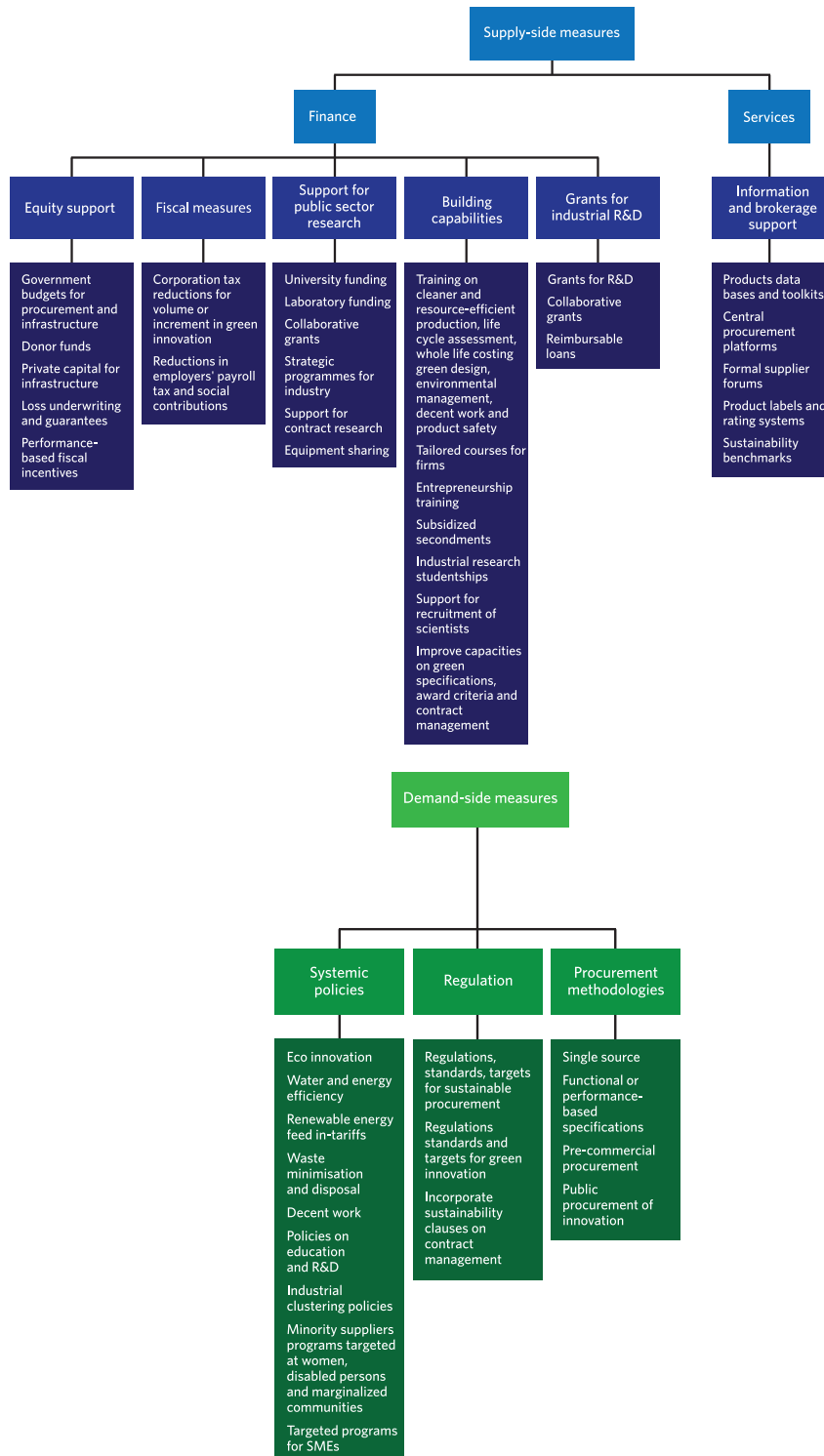
If green public procurement is to drive innovation, public entities will require additional funding to organize technical dialogues and innovation competitions. They would also need indemnity to protect themselves against the risk that the R&D outcome may need further lead time to refine or that may not be commercially viable. The jury is still out on the extent to which public funding on such activities renders value for money, and if, indeed, it is necessary that purpose agencies be set up to govern these transactions. What is clear is that procurement agencies will not be able to lead such processes and take on the associated risks alone.

In favour of smaller and minority-owned businesses

To what extent can public procurement target smaller companies and businesses owned and operated minority groups, disabled persons and women? The challenge is that procurers need to demonstrate Non Discrimination and Equal Treatment in tender processes. Potential solutions could include purchasing quotas, framework agreements and central purchasing platforms and small business cooperatives.

Synergies across multidisciplinary policy framework

ENABLING FRAMEWORK FOR SUSTAINABLE AND INNOVATIVE PUBLIC PROCUREMENT



Source: Georghiou (2006), p. 23

Positioning procurement to aptly serve as a green growth and innovation trigger will require multidisciplinary policy collaboration across a number of domains. As demonstrated through the case studies in the discussion, the weakest associations appear to be the capacity to develop green specifications despite the plethora of tools, labels and certifications in existence, increasing the priority and subsequent weighting of sustainability criteria in tender awards, capacity and lead time to examine needs in advance to experiment with performance-based specifications, pre-commercial and first commercial procurement and forward commitment procurement. There is also the issue of cost—it is understandably difficult for procurers to avoid purchasing the lowest-price option (as opposed to considering the total cost of ownership) when they cannot directly take credit for or be rewarded for future cost savings that will arise during the user life of the asset. It is also valid to question if the regulatory, fiscal and financial incentives are indeed sufficient to reward forward thinking agencies and suppliers, and, indeed if voluntary policies are sufficient to drive change at the desired pace and scale.

The good news is that green procurement might slowly be making headway in the global sustainability debate. The revised World Trade Organization Government Procurement Agreement (WTO GPA) and the revised UNCITRAL Model Law on Public Procurement make express provisions for including environmental and social criteria in tender specifications. The UN High-Level Panel included public procurement in their recommendations to Rio+20. The Government of Denmark, which will hold the EU Presidency during Rio+20, has selected Public Procurement as one of its key messages, and the Global Green Growth Forum established an ongoing work stream on procurement and green growth. Emphasis must now be put on implementation and the coordination of the many multidisciplinary policies that influence procurement. Only then can green procurement become a viable cross-cutting strategy for sustainable change.

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