

# The Relative Efficacy of Regulation as a Tool of the Singapore Government to Ensure Environment Sustainability

Kien Lay Low and Huong Ha

TMC Educational Group

## Abstract

This article addresses the question, "Is regulation by the Singapore Government, a sufficient measure to compel business to put in place environmentally sustainable practices (ESP)?" The article will first discuss briefly the background to the concern on the environmental sustainability of Singapore. The concepts of 'regulation' and 'environmentally sustainable practices' will also be examined. The research question will be addressed by carrying out a critical evaluation of the potential advantages and limitations of a rule-based regulatory approach to environmental sustainability versus non-rule-based measures, such as self-regulation and voluntary initiatives by businesses.

**Key words:** Environmentally sustainable practices, non-rule-based measure, regulation, self-regulation, voluntary initiative

## Introduction

Early this year, the Inter-Ministerial Committee on Sustainable Development (IMCSD) in Singapore was set up to look into measures of ensuring the environmental sustainability of the country for the next 10 to 15 years. In its press release, the Committee has highlighted the uncertainties of higher fuel prices and the country's increasing demand for resources due to economic and population growth (Government of Singapore, 2008). In addition, Singapore is under pressure to contribute to the reduction of carbon emissions as part of the international effort to mitigate global climate change. To overcome these challenges, the Committee has

identified three key working areas for review: resource efficiency, pollution control, and improving the quality of the physical environment. The new policy measures which will be promulgated under these three working areas, if formulated and implemented effectively, will help to sustain Singapore's economic growth and quality of life (Government of Singapore, 2008).

The IMCSD has recognized that there may be 'tradeoffs' in any resulting new policy measures, involving potential additional costs to business in order to realize the benefits of an environmentally-sustainable development in the country (Government of Singapore,

2008). In view of the controversy of the 'tradeoffs', this article will critically evaluate the potential advantages and limitations of rule-based regulation versus non-rule-based government measures, self-regulation, and voluntary compliance by the business sector from the perspectives of the regulator, business sector and public interest. In terms of contribution, it will broaden the existing body of literature relating to the tools of government, more specifically to the context of Singapore.

This article includes four main sections: literature review, research method, findings and discussion and lastly, conclusion and recommendations. The literature review discusses the current research views on the tools of government and the concepts of self-regulation and environmental sustainability. The section on research method explains the approach used in this research project while the findings and discussion evaluates the information found in the research. The last section provides a summary of all arguments and findings, and the recommendation for future research.

### **Literature Review**

#### **Rule-Based Regulation and Other Government Tools**

In contemporary governance, regulation covers a wide range of forms from hard regulation (such as Acts and Bills) to soft regulation (such as government guidelines), self-regulation to co-regulation

(Baldwin and Cave, 1999; Braithwaite and Drahos, 2000; Johnstone and Sarre, 2004). Regulation is defined by Johnstone and Sarre (2004) as

*a set of authoritative rules accompanied by a mechanism, usually administered by a public agency, for monitoring and promoting compliance with those rules (p.4).*

In other words, regulation is a sustained and focused attempt to alter behaviour according to defined standards or purposes with the intention of producing a broadly defined outcome or outcomes (Black, 2002). In this article, regulation will be defined as rule-based government measures or legal instruments, as identified by Parker and Braithwaite (2003, cited in Freiberg, 2006), comprising primary and delegated legislation, licenses and codes, such as tax laws, statutory provisions for grants and laws requiring the provision of information (Freilberg, 2006).

Besides regulation, there are other measures or tools available to government; namely those which are non-rule-based, which Parker and Braithwaite (2003, as cited in Freiberg, 2006) have identified as comprising economic incentives, education and information, architectural and technological designs which shape the environment. Teubner (1983) has identified such type of regulation as "reflexive law" which is an emerging form of a legal structure which required "legal self-restraint" and self-correction (p.

288).

Freiberger (2006) points out that currently there is little evaluative literature on the relative effectiveness of the tools or policy measures (i.e. regulatory and non-regulatory measures) used by government in different contexts, especially in Singapore. This article, therefore, proposes to shed some light in this area in the context of Singapore's pursuit of environmental sustainability.

Government may use regulation as a measure to protect the public from harm and to correct failure by market to deliver desirable social outcomes (Freilberg, 2006). For example, using an economist perspective of environmental pollution where it is assumed that it is easier and cheaper to pollute than not to pollute, the solution to pollution problem would lie in altering incentives (Weidenbaum, 2004). If polluters were to bear the clean-up cost through pollution taxes/effluent charges, it is likely that they will develop production forms that are less polluting or dispose their waste in a less environmentally-harmful manner to minimize their payment of the clean-up cost. Otherwise, the clean-up cost will be absorbed into the prices of goods and services produced by the polluter which will likely cause some consumers to change their demand to less expensive goods and services which incorporates lower environmental costs (Weidenbaum, 2004).

Imposing ESP in business through rule-based regulations may have

potential limitations. One of which is that they require interpretation. They can be complex and may result in unintentional non-compliance through lack of understanding of their regulatory provisions. There is also additional cost of compliance, including legal costs in seeking legal counsel. Operating costs as a whole will increase, which will reduce investment and capacity, leading to higher prices at lower level of production, thereby reducing profits/sales; and hence, competitive advantage may be eroded (Weidenbaum, 2004). Another potential short-coming is regulatory inflexibility, as regulation often only specify minimum standards and are therefore, poor vehicle for encouraging excellence or continuous improvements (Freilberg, 2006) in the area of ESP.

### **Self-Regulation**

The purpose of regulation is to maintain conditions necessary for private enterprises to function within a given social context. In an increasingly complex business environment with many challenges such as environmental problems, regulators need to promote adaptability and maximize public value. One of the ways which this can be achieved is through self-regulation (Skidmore, Chapman & Miller, 2003).

Self-regulation takes place when firms exert control over their own behaviour. There are variations in the concept of self-regulation. One variation which will be examined later

is self-regulation, in a purely private sense where private ends of a firm are pursued. Other forms of self-regulation vary from codes of practice established by industry to codes that must be approved by a relevant authority, or codes that are drafted which aim to complement certain pieces of legislation (Curtis, 2005). Corporate social responsibility (CSR), understood in terms of social and environmental impact of corporate strategy and activities, can also be considered one of the forms of self-regulation (Ha, 2007). Although self-regulation appears to lack state's involvement, in reality, it may be a response to potential threats that if nothing is done state action will follow (Baldwin & Cave, 1999). The advantage of self-regulation is its cost efficiency to taxpayers in terms of low monitoring and enforcement costs, as well as lower business opportunity costs due to the minimum intervention of government. In addition, governmental rules may not be consistent, and for practical reasons some cannot be enforced across borders, i.e., different standards and regulations exist in different jurisdictions (Kee, 2001). Therefore, some other forms rather than regulation need to be implemented in order to cover legislative gaps (Ha, 2007). Self-regulation is also favoured over regulation because of an increase in bureaucracy, red tape and cost of compliance of regulation for government and e-retailers (Dudley, 2002). This may not be a major issue in Singapore, but it is a serious matter in other countries such as in Australia. For example, the

cost of compliance with regulation was claimed to be more than \$17 billion a year in Australia (Lahey, 2005; Taskforce on Reducing Regulatory Burdens on Business (Australia), 2006).

In contrast to the inflexibility of regulation, self-regulation allows business to seize opportunities faster as market conditions change. However, the downside to self-regulation is that it has poor records of protecting public interest when it comes to enforcing standards (Baldwin & Cave, 1999). It is also difficult to predict the actual outcome of self-regulatory measures. Thus, government needs to provide guidance or direction to the development of self-regulation (Calliess, 2001).

### **Environmental Sustainability**

One of the uncertainties facing society today is the issue of environmental sustainability (ES), which affects the business sector in terms of its regulatory obligation as well as its social corporate responsibility. Goodland (1995) refers to ES as maintaining or not depleting environmental assets or natural capital, which provides a flow of useful goods and services. He differentiates between the 'source side' of environmental assets, which include resources like water and fossil fuel and the 'sink side' of environmental assets, which include resource like forest which function to assimilate waste and pollution (Goodland, 1995). He highlights that the prevailing models of economic

analysis treats consumption of natural capital simply as income, and therefore promote patterns of economic activity which are unsustainable. Baldwin and Cave (1999) refer to this effect as 'externalities' where the price of product (and consequently the income of a business) does not reflect the true cost to society of producing the good and excessive consumption.

Goodland (1995) also aptly points out that environmental assets or raw materials used for human needs can be conserved through sustainable consumption and production which will improve human welfare and productivity by doing more with less. There will be less pollution and more resources conserved for future generations.

Hence, it is a public choice whether action should be taken to ensure ES. One of the many decisions to be made in ES is in the selection of tools to be used by government, i.e. regulatory versus non-regulatory measures and determining their efficacy. In many countries, CSR has been advocated to be one of the effective tools to ensure environment sustainability (Ha, 2007). These will be examined in the context of Singapore.

### **Research Method**

In order to carry out the investigation, secondary data from a range of literature and information, covering different perspectives have been used. They cover information

from government agencies and media releases to external sources for a more balanced evaluation. External sources comprise independent sources, including published articles by academics and researchers.

The method used in this research is a case study approach. According to McNabb (2002), and Verlder, Jansen and Anderson (2004), a case study is one of the most suitable techniques to solve public administrative problems or to develop a theory. Case studies help researchers understand certain phenomena by in-depth analysis and generate the hypothetical theory from findings for further empirical testing (Ha, 2007). Findings from case studies can directly or indirectly influence policy making-decision processes, procedures, and the implementation of policies (Hancock and Algozzine, 2006). This method, which makes use of secondary data, is suitable for this research which focuses on real life situation in a 'specific context', i.e. Singapore. Also, the emphasis on 'exploration' and 'description' (Colorado State University, 2008), as well as the discussion/analysis and findings in the case study method, makes it suitable for gaining a better insight into the area of how the Singapore government is tackling the issue of environmental sustainability (ES) which will be useful in providing direction for future research in a related area. In particular, the findings and lessons learned in this research article on measures to effectively promote or encourage business practices that are environmentally sustainable in a small

country like Singapore has the potential to be adapted on a larger scale in the region of South-East Asia and beyond. This could reduce learning time and minimize the cost of 'reinventing the wheel' for the larger regional countries. This could be made possible through future research to support regional efforts in implementing environmental sustainability measures, such as the restoration and preservation of large areas of rainforest in Southeast Asia, which are 'carbon sinks' for carbon emissions. Issues such as developing capabilities, incentives for forest conservation or disincentives for deforestation through burning in the Indonesian Archipelago by business entities could potentially be addressed.

### **Findings and Discussion**

In this article, environmentally sustainable practices (ESP), refers to business practices in Singapore which support the maintenance of environmental assets such as water, atmosphere and forests for future economic and population growth while maintaining a quality of living environment that is clean, green and healthy (Government of Singapore, 2008). In addition, 'regulation' in this article, refers to rule-based government measures which comprise taxes, grants and the provision of information required by law.

### **Rule-Based Regulations**

At present, the setting of standards and metrics in ESP, as a corporate

social responsibility in the business sector, is not prevalent. For example, environmental costs, such as carbon emission which causes pollution and global warming, are not factored into the financial bottom-line of corporations. Globally, financial accounting of external costs remains more a concept rather than a reality (Lubber, 2008). This phenomenon is also true in Singapore.

### **Advantages**

#### Provision of transparency

In the circumstance of a lack of voluntary standards in ESP, as in the case of Singapore, an advantage of regulation is that it provides transparency to the expected standards of ESP. In Singapore, given the political will and commitment of the government in providing a predictable legal framework for businesses (Ministry of Trade and Industry, 2008) and a relative passive civil society (Kaufmann, Kraay and Mastruzzi, 2006) which is not strong in voicing objections on measures which promote environmental sustainability, especially when it is in the public interest, regulation can be used effectively as a means of providing transparency to ESP standards. This can be seen in the case of air emission standards which were introduced under Environmental Pollution Control (Air Impurities) Regulations 2001. The regulations set the limits allowed for dioxins and furans releases which are persistent organic pollutants that resist degradation and pose long-term

health risks to wild life and humans (Government of Singapore, 2005).

### Compulsory compliance

Another advantage in regulation is that it is a compulsory mandate and can be powerfully-used by the government to ensure compliance. For instance, in 2008, the National Environment Agency (NEA) introduced the Mandatory Energy Labelling Scheme which requires all air-conditioners and refrigerators (making up 50% of the average household electricity bill) sold in Singapore to carry an energy label (Ministry of the Environment and Water Resources, 2008). The label informs consumers of the energy efficiencies of different models of an appliance and thereby helps consumers to identify energy-saving products. The certainty provided by regulation, given the often strict enforcement in Singapore, will effectively ensure that minimum standards of ESP are upheld by business corporations. Otherwise, there are sanctions or penalties provided under the regulation.

### **Limitations**

#### Compliance and enforcement costs

Although regulations have their advantages, they also have their disadvantages, one of which is the implementation costs involved. Compliance costs, such as the costs of producing information in the case of the Mandatory Energy Labelling scheme for air-conditioners and refrigerators, may offset savings

gained from energy efficiency. In addition, policing for quality or accurate information to be provided may further increase compliance costs (Baldwin & Cave, 1999).

### Selective in application

As a result of additional compliance costs for business, regulations could be resisted by the business sector. This potential limitation is also highlighted by Freiberg (2006) when he points out that the imposition of new regulations is not 'unencumbered'. This realization is reflected in the Singapore government's current policy to regulate only when necessary and to use alternatives to direct regulations wherever applicable (Public Service for the 1<sup>st</sup> Century, N.D).

### **Non-Rule-Based Government Measures**

In addition, rule-based government measures have their limitations, owing to the co-existence of competing objectives, namely the government's objective of ensuring minimum standards of ESP by businesses, and the objective of businesses to minimize compliance costs. Negotiating between competing objectives when 'state power is invoked' in instituting regulation involves, besides the exercising of rational 'economic value' judgment, the fostering of 'social' or 'communitarian' value judgment such as the perception of fairness, equity and trust, i.e. 'public value' (Skidmore, Chapman and Miller, 2003, pp.72 & 74). As value judgment is involved in

ESP, especially when it benefits future generations more than the current generation, it tends to be emotive and subjective rather than solely rational. To ensure the success of implementation, a holistic approach needs to be adopted. Regulating ESP, therefore, needs to be complemented by non-rule-based measures, and self-regulation or voluntary initiatives by the business sector, which will be discussed later.

Non-rule-based measures by government in its facilitating role, including long-term planning in improving resource efficiency and building capabilities in resource and energy management, have many advantages which can complement those found in regulation and help to overcome the limitations of regulation.

### **Advantages**

#### Potential long-term resource efficiencies and developing capabilities

The advantage in the facilitating role of government in terms of the potential long-term efficiencies can be seen in the long-term planning of the government. It plays an important part in the management of resource efficiency in the long haul and hence promotes ESP practices in the business sector. For example, under the Singapore Green Plan 2012, National Environment Agency (NEA) will be intensifying its efforts to promote recycling so as to reach the recycling target of 60% (National Environment Agency, 2008).

Another evidence of the advantage in the facilitating role of government can be seen in its initiation of affordable 'green' features in its public housing at TreeLodge@Punggol which provides a 'test-bed' to change long-term consumer preferences, and provide a model and impetus for private developers to follow in the long-term. Environmentally-friendly features introduced in the development include a solar energy system, recycling refuse chutes and an integrated wash basin toilet pedestal system that channels used water from hand washing into toilet cistern for the next flush (Barker, 2008).

The advantage in the facilitating role of government is also already seen in its promotion of renewable energy, such as biomass and solar energy through research and development (R&D). Through R&D efforts and the resulting new technologies, the cost of renewable energy could be reduced. To facilitate the adoption of renewable energy, government agencies are working together to review the policies on distributed electricity generations using renewable sources in Singapore. This would encourage the take-up of small-sized renewable energy generation systems by companies and individuals (Ministry of the Environment and Water Resources, 2008). At the same time, this will generate new opportunities in the green business for corporations.

Hence, one of the advantages of the government's facilitating role in

ensuring the adoption of ESP by business is in terms of the stimulus it provides to the business sector through the promotion of green ideas, be it through research and development or provision of green features in public housing which if adopted by business will result in potential long-term resource efficiencies.

#### Overcoming barriers and resistance

The advantage of the government's role in facilitating ESP in the business sector in terms of overcoming barriers and resistance is already seen in its awareness-raising and funding which help to reduce the business sector's reluctance or difficulties in translating ESP into reality.

In this regard, the government is trying to change the business paradigm that savings as against cost can be made in ESP, especially in the light of the recent high oil and energy prices (Government of Singapore, 2008). This helps businesses to internalize the value of environmental sustainability and go beyond the minimum standard set by regulation which Freiberg (2006) points out as a limitation of the regulatory approach. The government does this by raising awareness through awards given out to model businesses and their employees for their contribution to environmental sustainability. For example, the Ecofriend award was given out in 2008, to Mr. Goh Yong Keng, a director of a local company who is credited with replacing the use of

diesel with natural gas in firing steam boilers. The change helped to reduce the company's greenhouse gas emission by 30% (National Environmental Agency, 2008). He had also initiated other energy conservation projects that reduced electricity usage by 6,000 megawatts a year which is equivalent to a reduction of 3,000 tonnes of carbon emission (National Environmental Agency, 2008).

Another evidence of the advantage of the government's facilitating role, in terms of overcoming barriers or resistance by business to ESP, is seen in NEA's funding of energy audits carried out by owners of buildings and industrial facilities which has helped them to identify annual energy savings (Fung, 2008).

Hence, another advantage of government's facilitating role in ensuring the adoption of ESP by business is in its potential of overcoming barriers and resistance by the business sector.

#### Engaging business sector for ideas and feedback

A further advantage of the government's facilitating role is in terms of its ability to engage the business sector for ideas and feedback. The Minister for the Environment and Water Resources, Dr. Yaacob Ibrahim, has pointed out in a press release that a "sustainable Singapore has to be built jointly by the government with the people and private sectors" and looked forward to "new policy ideas and practical

suggestions on how the community and businesses can also contribute to efforts to make Singapore cleaner, greener and more resource efficient" (Government of Singapore, 2008).

### Limitations

One of the foreseeable limitations of non-regulatory measures in ESP is the tendency to require long-term commitment from the government. Although more regulation makes implementation and enforcement more complex and unworkable (Ha, 2007), one of the serious issue associated with non-regulation measures is non-uniform implementation. In other words, inconsistent implementation or different measures may be applied to address the same problem which produces different policy outcomes (Ha and Coghill, 2008), and thus causes resistance and dissatisfaction.

### Self-Regulation and Voluntary Business Initiatives

Besides non-regulatory measures by government, self-regulation and voluntary business initiatives can also help to overcome the limitations of regulations in compelling business to put in place ESP (Winston, 2008). Self-regulation and voluntary business initiatives provide businesses with flexibility as well as allow for innovation, in contrast to the burden of compliance costs in regulation. The green initiatives of a business corporation can in turn benefit the business as they can be potentially used as marketing tools in

the promotion of the business. In addition, ESP can act as a driver of stakeholders' interests.

### Advantages

#### Flexibility

In contrast to the inflexibility of rule-based regulation, voluntary business initiatives do not constrain innovation and hence, allow businesses to seize opportunities quickly, including the use of green innovation and technology as they arise and gain competitive advantage in the market place. This is seen in Singapore's home grown, public-listed, utility company, Sembcorp Industries, which now sees business opportunities in the sustainable business; in particular, green, alternative energy such as biomass, or producing fuel from waste in its incineration plant. It is looking to these possible initiatives to fuel its next stage of growth and drive investor's interest (Teo, 2008). ESP can therefore be a potential driver of shareholder value. This therefore, shows that flexibility in terms of the freedom to undertake business initiatives, especially in response to market opportunities, has the advantage of influencing companies to enter into environmentally-friendly business and hence, environmentally-sustainable practice.

#### Potential marketing tool

City Development Ltd., a blue chip stock in Singapore, has prided itself as a leader in setting the benchmark for green buildings in Singapore (City

Development Ltd., 2008). It has taken steps to mitigate the impact of its operations on the environment, and apply environmentally-friendly practices in its business (City Development Ltd., 2008). As a result of its initiatives, it has publicized itself as the first private developer to use pre-cast or prefabrication technology which minimizes wastage and provides a cleaner construction site and higher quality output. It has also claimed itself to be the first to install a clean and odourless pneumatic waste disposal system and harnessed photovoltaic cells to power a condominium clubhouse (Koh, 2008). The company has been highlighting its green initiatives in newspaper reports, newsletters, as well as its annual reports, using them indirectly as a marketing tool to promote the company's reputation and development projects. This shows the advantage of adopting self-regulation/green initiatives as a marketing tool, motivating businesses to put in place ESP and overcoming the limitations of regulation which are often prescriptive, setting out only minimal standards to be complied. It is also consistent with what Hoffman et. al. (2008) have stated that movers who incorporate their ESP in the production or offering of their products early may gain a competitive advantage over their competitors.

#### Driver of stakeholders' interests

Besides the advantage of being a potential driver of investment value for shareholders, as mentioned earlier, business initiatives in ESP

also has the advantage of addressing stakeholders' interests. For example, suppliers and contractors of City Development Ltd. (CDL), such as Tiong Seng Contractors Pte. Ltd., have an interest to align their operations with the green practices of CDL and are actually required to do so by CDL (City Development Ltd., 2008). This underlies the potential advantage of voluntary ESP initiative by businesses, as its initiative would be extended to contractors and suppliers in the supply chain.

#### **Limitations**

##### Unprotected public interest

Unlike regulations, self-regulation and voluntary initiatives by business in ESP has their limitation in terms of the lack of protection of public interest, should the voluntary initiative be discontinued or not carried out inadequately. The Singapore government has realized this limitation when the energy efficiency label for air-conditioners and refrigerators was made compulsory. It was probably due to lack of direct incentives that the business sector did not voluntarily implement the scheme. As a result, consumers did not recognize its significance. Hence, the government had to step in and made it compulsory through regulation (Tan & Lin, 2008).

#### **Conclusion and Recommendations**

In conclusion, in terms of effectiveness, rule-based regulation in Singapore is a powerful mandate to compel business to put in place

environmentally-sustainable practices, as seen in the recently introduced Mandatory Energy Labelling Scheme (Ministry of the Environment and Water Resources, 2008) for all air-conditioners and refrigerators which informs consumers of their energy efficiencies. Besides, requiring compulsory compliance, regulations also have the administrative advantage of providing transparency and consistency. However, rule-based regulations come with the disadvantages of additional compliance and enforcement costs and hence may be constrained by potential resistance from the business sector. To enhance the efficiency aspect of regulation, it has to be complemented by non-rule-based government measures, self-regulation and voluntary compliance of guidelines by business. The advantage of non-rule-based measures by government is in their long-term planning in improving energy efficiency and developing capabilities, overcoming barriers and resistance, as well as engaging business sector for ideas and feedback. These advantages can complement those found in regulations and help to overcome the limitations of regulation.

This article, by providing insights into the relative effectiveness and efficiency of different measures used by the Singapore government in tackling the issue associated with environmental sustainability, will be useful in providing direction for future research in a related area such as to what extent co-operation

among public and private sectors and civil society can contribute to improve environment sustainability, or how the Singapore government addresses the issue of higher costs of living due to greening exercises. A cost-benefit analysis of implementing different policy to improve environmental sustainability can also be an area of future research.

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