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Pursuing Green Growth: Some Conflicts and Necessary Conditions for a Pragmatic Environmental Policy

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ABSTRACT

This paper focusses narrowly on three areas of public policy concerning the environment deemed necessary for sustainable economic growth. It has relevance to Asian nations as they continue to demand for higher growth and at the same time keeping environmental degradation in check. The three areas are: (1) the issue of siting environmentally unfriendly but nationally required facilities, otherwise known as the NIMBY syndrome, (2) the waste generation problem, and (3) the need to price green goods.

In addition to the above three areas for public policy, the paper also discusses a number of pragmatic principles for use in environmental management. Such things as cost-benefit analysis and project appraisal; the pursuit of clean and advanced technologies and inherent conflicts; exploring market solutions; understanding multiple stakeholders; and last but not least the need to establish data baselines for environmental quantity and quality.

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1. Introduction

It has become fashionable and politically correct these days to use the term 'sustainable development' to mean continued economic growth with some degree of concern for the environment and the future generation. Called green economic growth in some quarters, it is to some extent no longer lip-service but rather there is evidence of seriousness on the part of governments to attempt to adhere to some initiatives reflecting economic growth but tempered that with sound environmental management and policy. There are concerns naturally with an expanding population amidst growing economies and there are still in some parts of Asia ,pockets of abject poverty. But as in the case of China and India where there are large negative externalities from pollution, and expected future significance in contributions to greenhouse gases, active steps have however been taken by their respective governments to combat precisely problems of such nature through a wide assortment of strategies including encouragement of utilizing clean technologies through incentives from tax rebates, and subsidies, higher emission and effluent fees, strict enforcements and monitoring procedures, and higher penalties for violation of environmental laws. There are also increased requirements for project appraisal and environment impact assessment for large projects. On the ground side, the higher education, greater literacy and higher affluence have demanded a higher quality of life. This means that no longer is income the main input into the equation for happiness, but non-material aspects have also led to a greater appreciation of the environment. We now see greater public participation and awareness of impactful projects that may be detrimental to human health and the environment. Protests in some types of facility sitings are good examples.

Globalisation too has meant the arrival of the internet generation ,extensive and investigative media coverage, and the like, so that governments become more transparent and accountable for their decisions and firms or business become more responsible for their actions.

It is estimated that the world's population will grow to 8.5 billion by the year 2020! There will be more than 30 so-called 'megacities' with at least 10 million residents and most of these cities will be in the less developed countries of the world, according to the United Nations. Emission of greenhouse gases which contributes to global warming, continuing species extinction, overfishing, rising air and water pollution, and deforestation remain as continuing serious threats to environmental and eco-security of our planet earth. Comments such as "I shot an arrow in the air. It stuck!" (Tom Lehrer, songwriter and mathematician) and "When reading of the world's growing demand for goods, I cannot help reflecting how easier life would be if the world's population were no more than say one billion; it is estimated to have been no more than a hundred million at the time of Christ.... (E.J. Mishan, Professor Emeritus, London School of Economics) are polemical attempts to raise awareness on the plight of the environment. Still others prefer to talk endlessly about issues of sustainability without much action.

Sustainable development has come to mean different things to different people. A cursory look at the literature will reveal that currently there are at least 24 definitions apart from the varied ways in operationalising the concept. Sustainability to some people implies a higher awareness of environmental issues, while to others, a coordinated and organized theory for economic policy. There is the concept of weak

and strong sustainability where the latter requires non-decreasing aggregate natural capital whilst the former allows for substitutes between man-made and natural capital. Still others prefer sustainability to be linked and to include human welfare, progress and development needs.

While all these new dimensions do enrich intellectual thinking on the protection of the natural resource base and the environment, there also arose an equally significant amount of intellectual confusion not only in the way some concepts and objectives conflict but also in the problem of operationalising and implementing them.

It is precisely because of the lack of clear definitions in the concepts, and the operationalising procedures that much of the debate over sustainability rages on. We know that the world's eco-system is a complex one and the needs of the individual, the nation, between nations and global needs are more than often in conflict with each other. To try to force an all-encompassing concept such as sustainability would likely lead to confusion, disarray, and frankly an objective incurring much wastage of resources, energy, effort and time.

Here, I do not attempt to resolve this controversy or debate nor could I add significantly much to it. The literature on sustainability is growing almost too rapidly to cope with, and it transcends the scope of economics, although along with the ecological, natural and physical sciences, and other social science disciplines, economics do have an important role to play in it. Neoclassical economists, have for example, worked on an index of net national welfare, which includes data on

economic growth and its associated environmental costs (Tobin and Nordhaus, 1972; Daly and Cobb, 1989). Other economists have looked at ways and means to value environmental goods (Pearce, 1990s), understanding renewable and exhaustible resources (Hartwick; Clark, 1970s, 1980s), intra and intergenerational equity (Solow, 1974 and 1986; Becker, 1982), among other contributions made by economists.

What I have in mind is to focus narrowly on 3 areas of what I deemed to be important for public policy and which will if not already have had significant impact on Asian nations in particular, and therefore require much attention and immediate action. These three areas have direct or indirect bearing on sustainable development, or green growth. The three areas are:

- 1) the problems of siting environmentally unfriendly facilities, otherwise known as the NIMBY (not-in-my-backyard) or NIABY (not in anybody's backyard) syndrome.
- 2) the problem of accumulating wastes or garbage disposal; and
- 3) the problem of neglecting environmental intangibles in decision-making.

I will now elaborate on these 3 problem areas.

2. The NIMBY Syndrome

For economic growth and national development, the construction of certain kinds of facilities such as sewage pipelines, and even airports are, by general consensus, necessary. However, it is with little doubt that the local residents and the immediate neighbourhood surrounding the facility would have to endure all the negative external effects and sometimes even life-threatening risks that come with the facility. While the nation enjoys the goods and services produced by these facilities,

their host communities bears much of the burden or social cost associated with them, and as such these people would prefer to see such facilities located away from them (Frey *et al.*, 1996; Kunreuther *et al.*, 1990; O'Hare *et al.*, 1983; Quah and Tan, 2002).

Such facilities aptly labelled, NIMBY (not in my backyard), NIABY (not in anybody's backyard) or LULU (locally unwanted land use) facilities have been the subject of much discussion in Europe and North America, and more recently in energy-hungry Asian countries as the latter expands their infrastructure in support of economic growth: ¹There has been only limited research and analysis of the Asian experience with regards to the siting of NIMBY facilities but no doubt increasing in importance (Shaw, 1996).

A cost-benefit analysis study of such facilities using a national accounting stance rather than a local or regional one, would in many cases, lead to the acceptance of the facility. It is Kaldor-Hicks efficient (Quah, 1994; Skaburskis, 1988). (For cases that fail the cost-benefit test, the proper decision is not to build the relevant facility and the problem does not then arise.)

The literature seems to suggest that active public involvement together with mitigation and compensation auctions during a siting decision process is a potentially useful and successful strategy (Wiltshire, 1987; Kunreuther, 1988; Kleindorfer *et al.*, 1996). ²Concerns over the negative impacts arising from the siting of a NIMBY facility has led to the adoption of more open processes over private evaluation.

¹ Witness the numerous recent protests on pipelines (Thailand); nuclear power stations (Taiwan and Japan) and landfills (Malaysia).

² This is because these facilities which were more than just a local area are perceived to create net local welfare losses thus leading to entrenched community positions of not wanting these facilities to be near them.

Recently in some jurisdictions – for example, in British Columbia, Canada and in Massachusetts, United States – compensation schemes and/or mitigation actions are required as part of local development. Existing compensation plans require public participation in the form of public hearings and submissions so as to identify, measure and internalize major worries and concerns held by local residents.

One simple compensation scheme calls for local governments to submit sealed bids indicating the minimum compensation sum that they would be willing to accept from a higher level government to locate a NIMBY facility within their vicinity. The bids are then compared and the facility would be built in that jurisdiction which has submitted the lowest bid. If all the bids are perceived to be too high, plans for the facility would be shelved, reduced in scale and a re-bid conducted or new sites would be proposed (Randall, 1987).

Such a compensation auction method would provide some means of assessing the actual and perceived diseconomy brought about by the siting of the facility on the local residents and to ensure that the optimal location is selected in terms of minimizing social cost. If the compensation auction method was to be conducted efficiently, transaction costs in the form of delays and local opposition to the facility would be greatly minimized.

One major problem with any auction mechanism is strategic bidding. In the context of compensation auctions for siting NIMBY facilities, the potential hosts will likely attempt to make bids that do not correspond to their true social costs (Quah 1994).

The asymmetric distribution within a country of the costs and benefits of NIMBY facilities is often the main reason for local opposition. Often, the biggest difficulty in designing a compensation package to address the asymmetric cost-benefit distribution relates to eliciting truthful preferences.

Attempts to impose these NIMBY facilities on unwilling recipients is one of the most difficult challenges faced by governments today. Only by reconciling the perceived risks, benefits and costs could community opposition be overcome. Community recipients are no longer silent or even trusting, and governments as well as private sector enterprises are finding the public now demanding a voice in the decision-making processes that they used to entrust to others. Moreover, as Asian countries became more developed and literacy rates improved, the people would expect a higher quality of life of which a better environment plays a large part.

Knowledge of the studies characterising the North American and European experience suggest a set of reasons why many siting processes have failed as well as providing insight into those procedures which appear to be promising based on the few successes. Public policy research should aim therefore to: reduce such intrasocial conflicts by studying these cases and innovating new conflict resolution instruments.

I now turn to the problem of waste.

3. The Waste Generation Problem

One of the most important environmental concerns facing many of the countries in the world today and more so for Asia is on the management of waste.

Observable trends have indicated that as a society increases in affluence, consumption increases and inevitably the amount of waste it generates increases. With toxic waste, the main problem for policy makers is to ensure that it is safely disposed of. With municipal solid waste, the main problem is to correct the imbalance between the amount that is produced and the means and space necessary to dispose of it.

Solid waste is a problem because of defects in the pricing systems that govern these transactions. External costs associated with discarded solid waste are often not fully reflected in the disposal costs of consumers and producers; and so is the case with the use of virgin materials and its associated damage costs.

The principal environmental problems associated with domestic waste disposal concerns the following:

1. in the case of waste disposal by landfills, the solution is a costly one especially for small countries because of the amount of land that is used up, and amenity and externality problems arising from the build-up of methane gases released through the decay process of organic matter and pollution from run-off into water streams. In addition, there are problems of odour, soil contamination, and visually disturbing landscape aesthetics.
2. the alternative of incineration carries problems of air pollution, and incomplete disposal.
3. in view of (1) and (2) above, the facility siting issue becomes a major problem.
4. the issue of waste reduction requires an optimal combination of technology advancement, education, and a complying or willing public, and in the use of

economic instruments, and control regulations, their effectiveness, enforcement problems, and cost justification in implementation.

There is also the neglected fact that waste reduction as an active policy in the long run makes it increasingly difficult for the household and firms to produce enough recycled materials from the waste. In short, there is a strong relationship between waste reduction and recycling. Recycling itself is not free from problems.

Take the case of newsprint recycling, it is an established fact that producing 100 tons of deinked fibre from old papers would produce 40 tons of sludge which must be disposed of somehow. While the total volume of material is reduced, the remaining concentrated form can make it more costly to dispose of properly. It has also been argued by a report from the Resources For The Future that the most likely effect of newsprint recycling appears to be smaller, rather than larger forestry inventory. This is because most virgin newsprint comes from trees that had been planted expressly for that purpose. If recycling increases, these trees would not be planted.

Further in considering the various options, it might be noted that recycling and incineration may compete for both financial and political support, and also more importantly for trash or waste itself. For many large cities, incinerators require large financial investments and this may make funds unavailable for recycling, the latter requiring subsidies. Also, private incinerators often require contractually guaranteed volume of waste, and if recycling and waste reduction are encouraged policies, then this may result in a financial shortfall to operators which in turn requires financial

subsidies. These are significant issues in need of careful assessments and perhaps for each jurisdiction a benefit-cost analysis.

Finally, the third problem on the need to price environmental goods.

4. Pricing Green Goods.

Central to the ideas behind sustainable development is the need to place monetary values on the services provided by the natural environments.

By taking the environment for granted – equivalent to non-pricing in the use of environmental assets – the danger will be that the carrying capacity of the natural environment will be ignored to the extent of satisfying excess demand. For example, there is no incentive to protect the ozone layer since there has never been any price charged for the use of this resource.

Concern for valuing the environment and expressing the need to put dollar values on the services yielded by environmental assets has been treated by some environmentalists as a *sine qua non* with the latter offending many people. Here, it is important to emphasize that environmental economists are merely attempting to seek how much people are willing to pay to conserve or to improve the environment. Alternatively, for environmental degradation, people might be asked to reveal the compensation sum required to accept their welfare losses. How these money sums are elicited from the responses of the people is another question separate from the need to put a monetary value on environmental assets.

The monetization of environmental assets provides a means to measure the intensity and degree of concern for the environment. If in place of monetary values, the political system of 'one man one vote' were to be applied in decision-making involving environmental improvement or degradation, then a measure of intensity of preferences for alternative proposals would be lost. Consequently, if decision on projects in which some improvement on the environment are made on the basis of a 'numbers game', then the value for the environmental improvement would have been mis-measured, and a wrong decision made. For a long time public policy makers have held the view that it was difficult, if not impossible, to value empirically environment goods or bads, such as scenic views, recreation, quietude, water and air pollution. They were often classified as intangibles. However, in the past one and half decades, much new literature has been forthcoming in the areas of resource and environment economics, so much so as to render the term 'intangibles' meaningless to most economists. Many of these so-called 'intangible' environmental goods are now capable of being measured and valued.

Valuing and measuring such 'intangibles' is however, not an easy task since the lack of ownership rights to environmental assets imply no market transactions, and hence no market prices to indicate economic values. But to ignore such valuations or to ascribe descriptive features and to list them as in many benefit-cost studies and environment impact analysis is to essentially reduce it to a monetary value of zero, being not added to benefits nor to costs. The result is that many policy decision-makers tend to take these 'intangibles' for granted or to appeal to a subjective element to their valuation – usually their own value-judgement. Such methods as contingent

valuation, hedonic pricing, travel cost, damage schedule, and revealed preference have been used in North America, and are continually being refined.

There is thus no excuse for governments in Asia not to learn more about these methods, adapt and apply them in project evaluation studies where environmental degradation or enhancement are at issue.

5. Other Necessary Conditions

In addition to the above three areas of concern, there are also a number of pragmatic principles to note for environmental policy. One principle is the fact that money spent on addressing environmental problems is money diverted away from other equally pressing needs such as health care, education, foreign aid, etc. In order not to be carried away with only environmental concerns, we should have more benefit-cost analysis of any significant proposals so as to be clear in the choice of projects. Another principle is to pursue clean technology and on this, the thinking should be long run benefits. While using advanced technologies, care and consideration must be given to the possibility of conflicting end result. A case in point is that in an attempt to fix one problem, say introducing methyl tertiary butyl ether (MTBE), a fuel additive used to reduce air pollution, another problem is created as MTBE has led to the contamination of water bodies from leaking storage tanks. Also, with the use of reflective catalytic reduction for nitrogen oxides control, ammonia is released. The use of advanced technology to minimize pollution must also include other forms of scientific measurement and detection of pollutants. Remote sensing technology with satellite graphics which is currently used to detect forest fires and indirectly reduce transboundary pollution is an example.

A third principle is to try to explore and expand the use of market solutions by providing the right incentives and /or disincentives for pollution control. This allows for flexibilities in where, when, and how much to reduce. Emission fees, deposit–refund systems and tradeable pollution emission permits are instruments in point.

A fourth principle is to understand and be aware of multiple stakeholders in any environmental management or transfer of one land use to another. By studying, and accounting for these stakeholders will more robust and generally more acceptable solutions be reached.

Last but not least, societies need to establish for themselves acceptable air, water, and noise quality levels, and to be aware that these baseline levels will change over time as expectations on quality of life changes. Concomitantly, the principle of scarcity and value in economics comes into play. Assuming demand exists, the availability of resources whether land, or good environmental quality will determine its value. Where undeveloped land, pristine forests and beaches continue to be used up over time, the remaining resources should be more valued, and this itself is an insurance for the protection of the environment. This works only if society from time to time take stock of its natural assets, and along with this, undertake some measures of environmental accounting. In other words, the setting up of a set of satellite green accounts to augment the current GNP statistics is warranted. Economic growth is essential and in some countries necessary for a better quality of life but a more balanced, and informed economic growth with all the elements mentioned here is clearly desirable.

6. Concluding Comments

It is not a question of not wanting nor inability to be greener. But it is a question of how much attention do we want (as a society from a particular country) to be green. Being greener, like anything else requires costs or more precisely, opportunity costs in terms of forgone income, and forgone alternatives which by themselves do provide consumption benefits or investment opportunities. Keeping a piece of land in its pristine condition means forgoing benefits from development, housing, and with it jobs that may arise from such opportunities. It is a balance that a society has to strike. We also have other priorities such as alleviating poverty, providing sanitation and clean water – these are problems of the present generation where their needs are frequently immediate unlike benefits from reducing global warming, protection of biodiversity and reducing ozone depletion

The latter of course means forgoing present consumption and incurring costs for uncertain to some degree benefits in the far future in which the present might and most probably would not be there to enjoy. The benefits are moreover shared (global public goods) but the costs are borne locally.

I think we should also get a move on from definitions of sustainable development and put more emphasis on pragmatic policies for ensuring economic growth on the one hand and ensuring that we have maximum information on what is happening to the local environment on the other hand. In other words, the stock of natural assets, the depletion rate or usage rate of these assets and to include any significant damages to the environment into project appraisal. I don't think there is lip service here but we have to be more precise in pursuing objectives of sustainable

development. And, this means that (1) we pay attention to cost-benefit analysis of proposed changes; (2) we address market failures by correcting prices; and (3) we augment our traditional GDP accounts with some green accounting crediting where there are enhancements of the natural stock and debiting where they are clearly costs to the environment.

Further facility siting decisions today are constrained by their environmental implications for the well-being and quality of life of future generations. The problem becomes more acute when irreversible and non-renewable resources are involved. The government is often faced with the unenviable task of meeting both the needs of society as a whole through economic progress and growth by facilitating the process through the provision and building of NIMBY projects, satisfying energy demands while at the same time protecting the local public from the risks and external economies arising from such projects.

Attempting to impose these NIMBY facilities on unwilling recipients is one of the most difficult challenges faced by governments today. Only by reconciling the perceived risks, benefits and costs, and by transparency of decision-making, using a combination of mitigation and compensation elements, could some of these siting opposition concerns be overcome. Local residents are no longer apathetic or trusting, and governments and/or privately licensed firms are increasingly finding that the public demands to be heard in any of these siting decisions that once they used to entrust to others.

Indeed, in many Asian countries, the developing economies of Africa and Eastern Europe, the increased pace of development requires a continued reliable

supply of energy resources, and this in turn requires energy facilities to be built, such as hydroelectric dams, and nuclear power stations, as well as communications such as airports, and disposal facilities and incinerators for waste products. With increasing education, literacy and affluence, many of such NIMBY facilities have come under much public scrutiny and opposition. Such is the dilemma facing the governments of these countries. For example, the Bakun Dam project in Malaysia continues to face strong opposition from the environmentalists despite an environmental impact assessment conducted by the University of Malaya which concluded that the proposed dam is acceptable, and could supply cheap, clean and reliable electricity to meet the increasing demands of industry (*The Straits Times*, March 2 , 2001).

Much of the NIMBY literature has focused on the social, political, administrative and technical or engineering facilities in the siting decisions. Good relations with the host communities, involvement of community members, active dialogue and participation of all stakeholders are viewed as important elements in the social aspect (McDermitt, 1991; Rabe, 1994; and Pretts, 1995). The political aspect on the other hand views the lack of trust and confidence in the central government and their experts as the main obstacles to a NIMBY solution. The political and the social aspects tend to be considered together (Opaluch *et al.*, 1993). The technical aspects arise from the perception of risks involved and the technical feasibility of the site (for example, whether, given the type of NIMBY, the site is geologically stable). Evidence of the best technology suited to the proposed NIMBY is also produced. The demonstration of both appropriate technology and geologically sound location are attempts to persuade the potential host community that they are the best choice based

on calculated scientific risk assessment (Easterling, 1992; Kunreuther, 1988; Sokolowska and Tyszka, 1995).

The economics literature seems to suggest that active public involvement together with mitigation and compensation actions during a siting decision process form a potentially useful and successful strategy. Economists have devised some forms of auction mechanisms to effect and search for a socially efficient compensation system where theoretically the siting of a NIMBY facility should be in a community bearing the lowest social costs (Quah and Tan, 1998; Coursey and Kim, 1997; Kunreuther and Easterling, 1996; O'Sullivan, 1993; Gregory *et al.*, 1991; Kunreuther and Kleindorfer, 1986). Often the biggest difficulty in designing a compensation package to address the asymmetric cost-benefit distribution relates to eliciting truthful preferences and responses (Quah and Tan, 1998 and 1999b). Also, in some well-documented studies, compensation alone for local disamenities does not increase the level of community support, as in some types of NIMBY facilities the compensation is seen as a form of attempted bribe on the part of the federal government (Frey *et al.*, 1996; Kunreuther and Easterling, 1996). There is also the issue of equity: attempting to elicit a community's acceptance price for hosting a NIMBY facility may result in a biased concentration of such facilities in relatively poorer neighbourhoods (Quah, 1994; Young, 1993).

Clearly, the siting problem of NIMBY facilities is an important one. Operationalising the compensation mechanisms and identifying what items are compensable and which are not are further issues needing careful investigation.

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