



Worth Noting

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Worth Noting is the journal of research and conferences company L21. It is designed to offer short articles of relevance and interest to senior executives.

Everyone seems to have an opinion on the Kyoto agreement and whether countries should adopt the regime or not. However, in some instances, the debate has been falsely polarized.

Many see support for the Kyoto Agreement as support for doing something about Green House Gases (GHG) and a lack of support for Kyoto as a lack of interest in confronting the problems of GHG. That might be true in some instances and true of some world leaders but given the misdirected nature of many debates, it is also likely that many who are for or against Kyoto have not looked into what the Agreement entails.

Kyoto was the formalization of just one approach or regime to tackle the problem of GHG. As we will see, it is by no means the only or indisputably best approach to meet the challenge of GHG. There are a strong number of commentators with extremely strong environmental credentials who did not support the Kyoto Agreement.

In this edition of Worth Noting, we thought it might be worthwhile to summarise the key terms of the Kyoto Agreement and the new direction to deal with GHG the recent G8 meeting of leaders of industrialized economies in Scotland seem to be taking.

Summary of Kyoto Mechanisms

Kyoto covers the so-called greenhouse gases which are carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. However, to simplify the Protocol, the imposed targets are based on the carbon dioxide equivalent of each of these greenhouse gases. This is why CO₂ is always only mention even though there are more gases that contribute to the green house effect.

A. Setting Targets

The first part of the Kyoto Protocol sets a series of targets which were hammered out between the participating countries. How do these targets work?

1990 is taken as the base year. In other words, the gas emitted by country **A** has a base value of 100. The Kyoto Propocol covers the commitment period 2008-2012 (when these targets are meant to be met) with an obligation to show progress toward these targets by 2005. The overall aim of the Protocol was to reduce overall GHG emissions by at least 5 percent below 1990 levels in the period from 2008-2012.

Note also that no targets were set for the period after 2012.

What were the targets set for participating countries? These are below.

Kyoto Protocol Emission Targets

<u>Party Quantified emission limitation or reduction commitment</u>

(percentage of 1990 base year or period)

Australia 108
Austria 92
Belgium 92
Bulgaria* 92
Canada 94
Croatia* 95
Czech Republic* 92
Denmark 92
Estonia* 92
European Community 92
Finland 92
France 92
Germany 92
Greece 92

Hungary* 94
Iceland 110
Ireland 92
Italy 92
Japan 94
Latvia* 92
Liechtenstein 92
Lithuania* 92
Luxembourg 92
Monaco 92
Netherlands 92
New Zealand 100
Norway 101
Poland* 94
Portugal 92
Romania* 92
Russian Federation* 100
Slovakia* 92
Slovenia* 92
Spain 92
Sweden 92
Switzerland 92
Ukraine* 100
United Kingdom of Great Britain and Northern Ireland 92
United States of America 93

* Countries that are undergoing the process of transition to a market economy.

Source: *Kyoto Protocol to the UN Framework Convention on Climate Change, Annex B*

Remember that 1990 is the base year. This means that if Australia has a target of 108, Australia is allowed to emit 8 percent more gas than 1990 levels from 2008-2012. UK has a target of 92 which means their target is 8 percent less than 1990 levels from 2008-2012.

If you are wondering why countries have different targets, this was a consequence of the messy negotiation process. Some countries like Australia argued that our vast distance between cities warranted greater emissions due to larger transport burdens etc. Other countries like Hungary have a slightly less onerous target than other European countries because their economy is still behind in development and fuel use is less efficient. Supporters of the unequal targets would claim that this reflects truisms about individual circumstances. Cynics might say that countries like Australia just negotiated better. These differentiated targets should also be kept in mind when countries like Australia

boast about being one of the few countries to actually be within their Kyoto targets (even though we have not ratified the Protocol).

So setting targets is the first key part of the Protocol. But it is the second element which is quite revolutionary as far as environmental initiatives are concerned.

B. Emissions Trading Scheme

This is where the Kyoto Agreement becomes complicated. The framework of the Protocol permits trade in emission credits between countries that succeed in bettering GHG targets and countries that fail to meet the targets.

For example, let's say Australia's emissions were 1000 tonnes of gases in 1990 (the base level) and our allowance in 2008 is 1080 tonnes of gasses emitted. If we only emit 1060 tonnes in 2008, we can sell the 20 tonnes of additional emissions that we were allowed to another country who might be failing to meet their restrictions for emissions.

In other words, there is an attempt to set up a framework to buy the right to emit more GHG than your limit and sell the unused emissions that you were allowed.

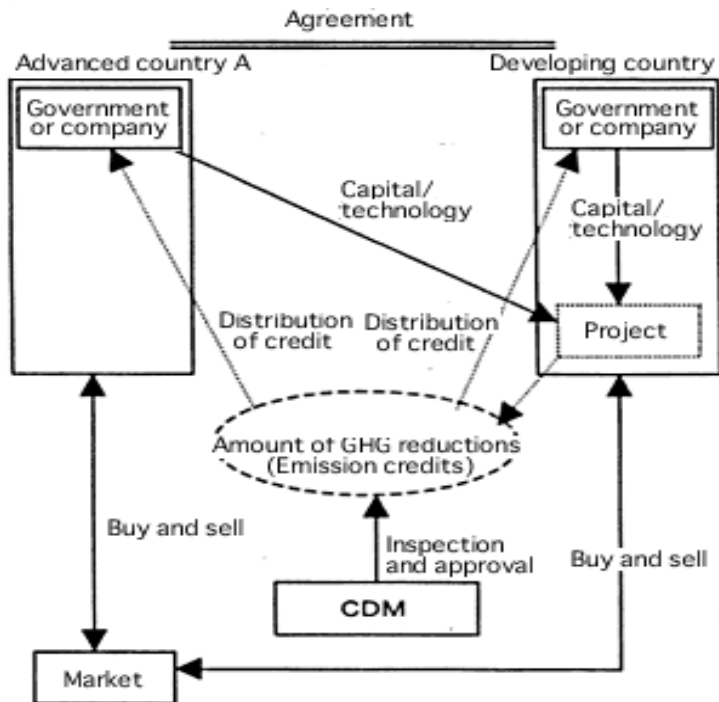
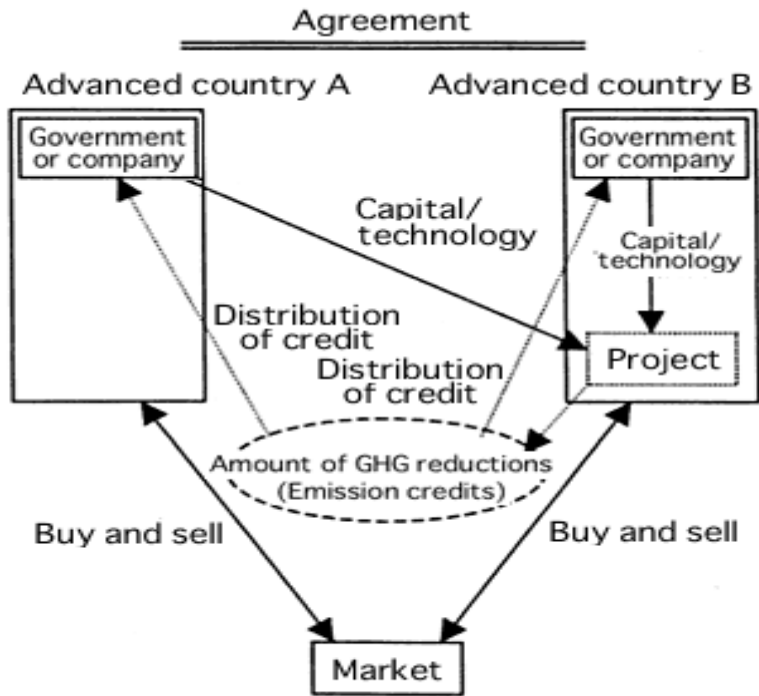
Moreover, participants in joint projects/technologies designed to reduce GHG emissions can share credits for the amount of reduction achieved.

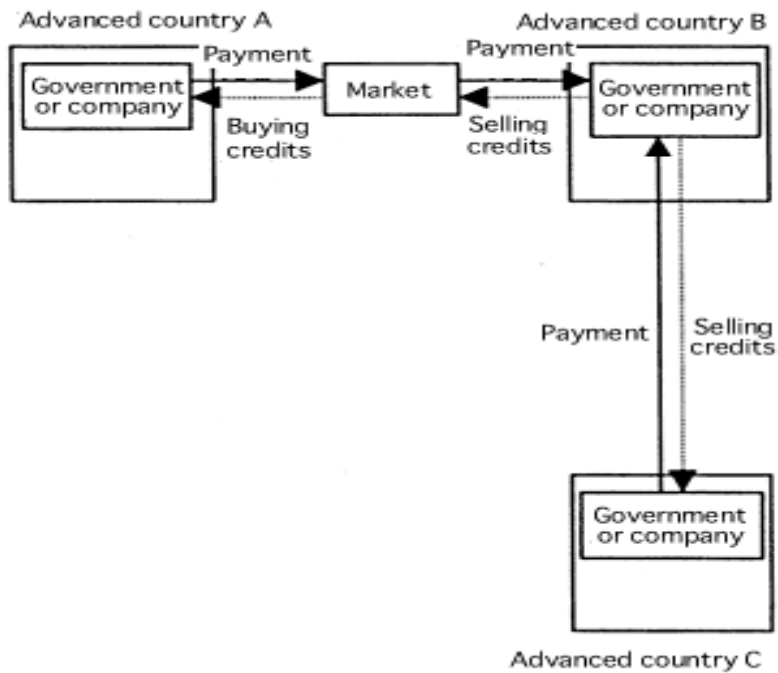
We won't go into the calculations of prices for emission credits which are extremely complicated. All we need to know here is that a 'carbon price' is applied to the cost of energy. The carbon price is applied to each of the energy fuels relative to its carbon content at its point of consumption.

For instance, electricity does not directly receive a carbon fee (as electricity itself does not emit carbons.) However, the fossil fuels used for generation receive the fee, and this cost as well as the increased cost of investment in generation plants, is reflected in the delivery price of electricity. If Australia was selling twenty carbon credits to the UK and the UK needed to generate more electricity, a model would establish how much electricity could be produced based on twenty carbon credits.

The idea here is that the creation of a sound and efficient market in carbon emission credits will lead to cost-effective control of CO₂ emissions. Countries and companies would have market based incentives to restrict their CO₂ emissions and also undertake projects to produce more emission-efficient energy.

Below are common assumptions about how the CO2 emissions market would operate between advanced/developed countries and between advanced and developing countries.





C. Weaknesses of Kyoto

The US attracts much of the blame for the seeming demise of the Kyoto Protocol since the world's biggest economy and heaviest emissions polluter will not ratify the Protocol. Whether the current US administration has GHG as a priority or not is a question for another day. Our concern is with the perceived weaknesses of the Kyoto Protocol itself.

One argument is that even if the Kyoto Protocols was ratified by every country in the agreement, and even if the market for emission credits was set up successfully, the emission restrictions would have a negligible benefit for the green house problem. Global emissions would only be reduced by 1%-4% rather than the 20%-40% needed to have an impact on the green house problem.

The counter argument is that something is better than nothing. We would argue that the question we should be asking is whether the Kyoto framework can conceivably get us where we need to be in terms of reducing emissions by 20%-40% in the next few decades. This is where we need to look at the potential of the model and inherent weaknesses and limitations of Kyoto before deciding whether the 20%-40% targets are possible with this framework.

We believe there are two main weaknesses of Kyoto that are significant.

The first important weakness is that developing giants China and India are not party to the Kyoto Protocol. The agreement is currently only subject to domestic ratification by the industrialized signatories. This is important for two reasons.

First, China and India are set to be two of the three top polluters over the next couple of decades. This is due to the enormous economic activity that is occurring in those countries as well as the fact that their energy production techniques are less efficient and less clean.

Second, the US in their current state of mind will not sign on to any limiting agreement that excludes these two major competitors. China and to a lesser extent India in the context of Kyoto like protocols have already indicated that they will not be bound by any agreement that restricts their economic development.

The second important weakness comes down to the basic model or framework as a genuine solution. How and why?

The logic behind the Kyoto framework is to place a cap on emissions (the targets) complemented by using cost-based incentives to produce energy with less carbon emissions. This is where one must be careful about directing criticism solely toward signatory countries like US and Australia who have so far refuse to ratify the Protocol. Countries that have ratified Kyoto are not behaving significantly different to countries that have not for the following reasons.

There is strong evidence to suggest that the agreed targets are flawed because the cap imposed in the timeframe cannot be met. Global energy demand is expected to grow by 60 percent in the next 25 years. Even for the signatories of Kyoto who are the industrialized economies, projections are these countries as a group cannot meet their targets without an intolerable negative economic impact. Moreover, needless to say, setting targets that reduce emissions by the 20%-40% needed to effectively arrest the Greenhouse Effect would have a disastrous consequence for our standard of living. We basically would have to fundamentally change our way of life.

We can put the argument another way. There are three main ways to reduce energy-related carbon emissions: **1.** reducing the demand for energy services; **2.** adopting and developing more energy efficient equipment and technologies; **3.** switching to less carbon-intensive or non-carbon fuels.

The Kyoto Protocol relies primarily on reducing demand (the targets approach) and then the operation of a market based model to move toward more efficient technologies and alternative fuels. The point is that the Kyoto market model is designed to first and foremost impose a cap on emissions. Efficient technologies and alternative fuels will be used only to the extent that the emissions cap is exceeded.

For example, to simplify, let's say one tonne of emissions generates one megawatt of energy using fossil fuels. Say Australia is allowed 10 tonnes of emissions under Kyoto which equates to an allowance of 10 megawatts of energy produced. Let's assume Australia needs 12 megawatts of energy. Getting by on only 10 megawatts is not an option. Under the Kyoto system, Australia would presumably produce 10 tonnes of emissions producing 10 megawatts of energy. To further produce the 2 megawatts needed, Australia would have two options:

1. Buy 2 tonnes worth of carbon emission credits to produce the 2 megawatts of energy needed.
2. Use alternative fuels and/or invest in better technologies to produce cleaner energy.

You might be thinking this is precisely how Kyoto is designed to work. The point is that Australia, or any other country or company, would presumably act on the basis of costs. That is what the model assumes. They would only invest in alternative fuels or better technologies if this was a cheaper option than buying carbon credits.

But the primary reliance would still be on carbon emitting fuels because these fuels are the cheapest sources of energy and will remain so for the foreseeable future. In other words, it would not be cost efficient under the Kyoto model to use alternative fuels and/or cleaner technologies until we have reached our carbon emission quotas. And as these quotas are unlikely to accommodate existing and future energy demands of developed (much less undeveloped) countries, it is highly unlikely that there is much room to move to enforce even stricter targets that are needed to significantly counter the greenhouse effect.

In summary, although a promising example of international cooperation, the Kyoto model offers some bleak outcomes:

1. Relies on and locks in a set of emission targets that do not meet economic needs or environmental needs.
2. Only creates limited market incentives to invest in and develop alternative fuels and cleaner technologies.
3. Does not provide a genuine long-term incentive and therefore solution for reversing the greenhouse effect.

G8 Gleneagles 2005 – New Emphasis

Countries like US and Australia have been criticized far and wide for not ratifying the Protocol. The question we have posed is to consider whether the Kyoto regime would be an effective one or not, whether it would lock in practices and create a market-system that stands little chance of genuinely meeting

environmental challenges. One must also view the issue of ratification or non-ratification by the standard of genuine intention. The record has shown that to ratify has frequently not been followed by sincere action to meet obligations.

For example, the Western European countries as a group have the most public enthusiasm for Kyoto. Yet, when their economies failed to deliver on acceptable growth over the past few years, not much more than cynical lip service was paid to Kyoto obligations.

This is not to say that US denials of definite human causation the greenhouse effect is acceptable either. About 70 percent of scientists believe that the greenhouse effect is occurring and is caused mainly by human activity. The potential disaster is so great that we ought to act as if the 70 percent are correct, not hope that the dissenting 30 percent are on to something.

Given this background, we believe that the G8 Gleneagles Summit held recently holds promise as far as addressing the challenge of GHG is concerned. Several of the weaknesses identified above about Kyoto have been looked at.

These include:

- Getting all signatories (in particular the US) to endorse a document that recognizes “increased need and use of energy from fossil fuels, and other human activities, contribute in large part to increases in greenhouse gasses ...”
- Drawing in undeveloped and developing countries into a common GHG reduction regime.
- Recognising that energy needs will increase especially due to modernization of developing and undeveloped countries – hence a move away in principle from lowering demand for energy which simply will not happen (arising from immediate caps in emissions).
- A move toward emphasizing development of more efficient use of energy rather than the basic cap system, and setting up frameworks to encourage private investment (in addition to public investment). The G8 Summit came up with the figure of US\$16 trillion over 25 years needed for investment in cleaner and more efficient technologies.
- Set up an official Dialogue on Climate Change, Clean Energy and Sustainable Development, with developing and undeveloped countries involved.

It is granted that these statements are currently only words. The glory of Kyoto was that a Protocol actually came into existence.

However, it is encouraging that the G8 Summit chose to explicitly address the weaknesses of Kyoto rather than merely offer directionless statements about the importance of confronting climate change.

Conclusion

Our view has been that strong opinions about whether one should ratify the Kyoto Protocol or not has frequently not been accompanied by an adequate understanding of the Kyoto regime and what it seeks to achieve and how. It is too simplistic to equate supporting ratification of Kyoto with being a good environmentalist. Similarly, simply dismissing Kyoto without knowing why does not make one a responsible economic or environmental realist either.

Whether one supports Kyoto or not, a noteworthy legacy of the Protocol is a recognition that there are issues that go beyond state territorial borders and states must sometimes cooperate in their common interest.