

## VOLUNTARY INSIDE COMPLIANCE - COUNTING AND CREDIBILITY

**Paper 3** in a suite of discussion papers exploring the compatibility and credibility of the *Voluntary Carbon Market* working within the 'space' of sectors and countries that are covered by the Kyoto Protocol

October 2008

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### **BACKGROUND AND CONTEXT**

This series of analytical policy papers sets out key relevant issues that are now apparent through the current debate about the role, if any, for the voluntary carbon market in sectors and countries covered by the Kyoto Protocol, a cap and trade emission trading scheme that has given rise to an international compliance carbon market. The series of papers also 'puts up' a set of propositions. The purpose is to stimulate informed and objective discussion with a view to begin to converge the debate towards outcomes that may be accepted by the majority of the carbon market community of regulators and private sector players.<sup>1</sup>

The series of five papers is structured as follows:

- Paper 1 VOLUNTARY MARKET ACTIVITIES – IS THERE A ROLE IN KYOTO COUNTRIES? set out the 'problem definition', i.e. the high level policy issues around why having an active voluntary carbon market nested within jurisdictions already covered by the Kyoto cap and trade scheme, and potentially 'domestic' emissions trading schemes, may potentially play a useful role in the 'big picture' of international climate change mitigation.
- Paper 2 SCALING UP VOLUNTARY MITIGATION ACTIVITIES comes at the issue from the 'other end of the telescope' and discusses how the voluntary carbon market can play a crucial 'scaling up' role by aggregating mitigation activities from the 'bottom up' and connecting these with willing buyers in the voluntary space.
- This Paper 3 takes on the issue of "double counting" with a series of simple scenarios and numeric analyses intended to tease out the counting issues that seem to be at the heart of the debate. This seems to be the single most important issue where apparently polarised views have resulted in an inability for the carbon market community to find the common ground needed to move forward.
- Paper 4 THE MEANING OF *CARBON NEUTRALITY* INSIDE JURISDICTIONS WITH CAPS takes up a series of broader issues about how the whole concept of *carbon neutrality* in Kyoto countries can make sense. Among other points, It develops a matrix that forms the basis for an appropriate matching of mitigation actions and emission types, given the complexities of what's covered under Kyoto accounting and what is not.
- Paper 5 THE VOLUNTARY MARKET – OUTSIDE THE COMPLIANCE SPACE finishes the suite of papers with a discussion about voluntary carbon market activities operating outside compliance jurisdictions and compliance sectors.

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<sup>1</sup> As described more fully in Paper 1, we introduce and use two new terms and acronyms: **VMA**s, short for *voluntary mitigation actions*; and **TVAC**s, short for Tradable Voluntary Action Credits (created through a reputable and transparent process involving recognised standards that test for the VMAs being real, verifiable and additional, and involve qualified third party verification)

## ANALYSING THE “DOUBLE COUNTING” QUESTION

The purpose of this paper is to determine the extent to which it is acceptable for voluntary carbon market transactions to occur inside sectors covered by compliance accounting. This is being undertaken against a backdrop of controversy in the carbon market community on this point, with some arguing that such activity constitutes “double counting”.

The key questions at the heart of this debate are:

- a. whether there is a difference in credibility between voluntary mitigation actions undertaken without a voluntary trading facility, and those that take place with a trading facility, and
- b. whether the atmosphere is better off, unaffected, or worse off as a result of trade in voluntary mitigation actions by means of tradable voluntary units (TVACs) that are non-fungible with compliance units

The analysis is undertaken by elaborating a set of scenarios under which voluntary carbon transactions might take place, and exploring their comparative consequences from a carbon accounting perspective.

The actors in these scenarios comprise the following:

- **B**: The Buyer - a **carbon neutrality aspirant** whose decision to “mitigate (in house) or buy” the next reduction they need in their carbon neutrality (CN) programme is what creates the demand for the voluntary mitigation activity. As elaborated in Paper 1, the “mitigate or buy” question is the essence of the policy point of emissions trading and that which underpins all carbon markets.
- **S**: The Seller - a **voluntary credits provider** whose project creates the Tradable Voluntary Action Credits (TVACs) that **B** can buy. **S** is not a carbon neutrality aspirant but seeks to use voluntary carbon market finance (sale of carbon units) to undertake real, verifiable, and additional mitigation.
- **E**: A third party emitter located within the collective Kyoto cap. **E** is able to undertake additional emissions by exactly the same volume of emission reductions voluntarily undertaken by **S** – if (and only if) S is located within the collective Kyoto cap. (Note: This is because the Kyoto Protocol is a cap and trade scheme, and this phenomenon is a normal feature of cap-and-trade systems – also see scenario assumption 1. below.)
- The countries where **B**, **S** and **E** are located and whose national Kyoto accounting balance of emissions and assigned amount units (AAUs) can be affected by these actions.

### Key assumptions

To enable these scenarios to focus on the core questions referred to above, a number of scenario assumptions need to be clarified:

#### Assumption 1:

All countries inside the Kyoto collective cap have implemented the necessary domestic policies and measures to ensure that the collective cap is met during the commitment period. This means that the emission reductions<sup>2</sup> undertaken by **S**<sup>3</sup> will ‘free up’ a commensurate quantity of AAUs (compliance units). NB: Had **S** not voluntarily reduced its emissions by X tCO<sub>2</sub>e, these very same

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<sup>2</sup> Voluntary emissions reductions by **S** must be “real, verifiable and additional” in order to meet voluntary market standards.

<sup>3</sup> If, and only if **S** is located within the capped collective

AAUs would have been used by the government of the country to cover (account for) X tCO<sub>2</sub>e emissions (i.e. not reduced) by **S**.

Assumption 2:

The emissions being reduced by **S** are covered under Kyoto accounting (e.g. they are energy emissions).

Assumption 3:

**S** is not a point of obligation (PO) under the Kyoto Protocol itself (i.e. the government of an Annex **B** country) or a PO in a domestic emissions trading scheme (such as the EU ETS).

Assumption 4

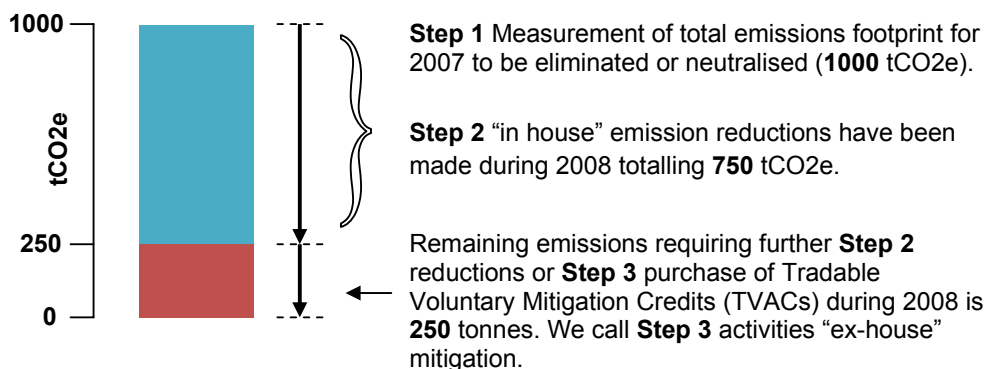
**S** undertakes **additional** mitigation only because it has received carbon finance to do so. In other words, the mitigation activity associated with the TVACs that **S** sells to **B** must pass an additionality test and therefore does not represent mitigation that would have occurred anyway without the financial value of the TVAC units that **S** sells to **B**.

(Note: The core credibility questions explored in this analysis change if the emissions being reduced are not covered under Kyoto accounting, or if they are being reduced by a PO. This broader set of credibility questions is explored in detail in Paper 4 of this discussion paper set.)

***The situation of the carbon neutral aspirant (the Buyer)***

This analysis is driven by the decisions faced by **B** concerning their carbon neutrality strategy. After measuring their carbon footprint, **B** then undertakes in-house mitigation (emission reductions). At some point **B** will need to decide how to manage the next tonne of CO<sub>2</sub>e – either mitigate in-house or buy units to offset that tonne. Figure 1 illustrates this situation.

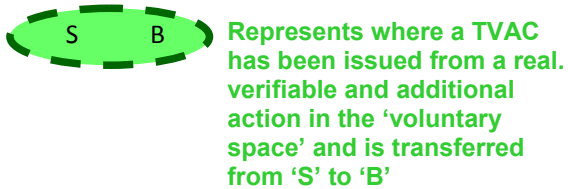
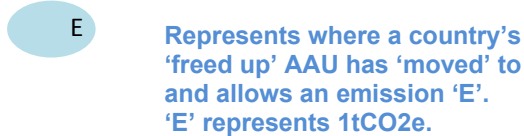
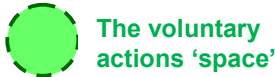
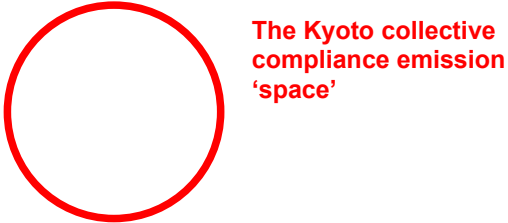
**Figure 1. Carbon neutrality through ‘in-house’ and ‘ex-house’ activities**



***Numerical Analysis Method***

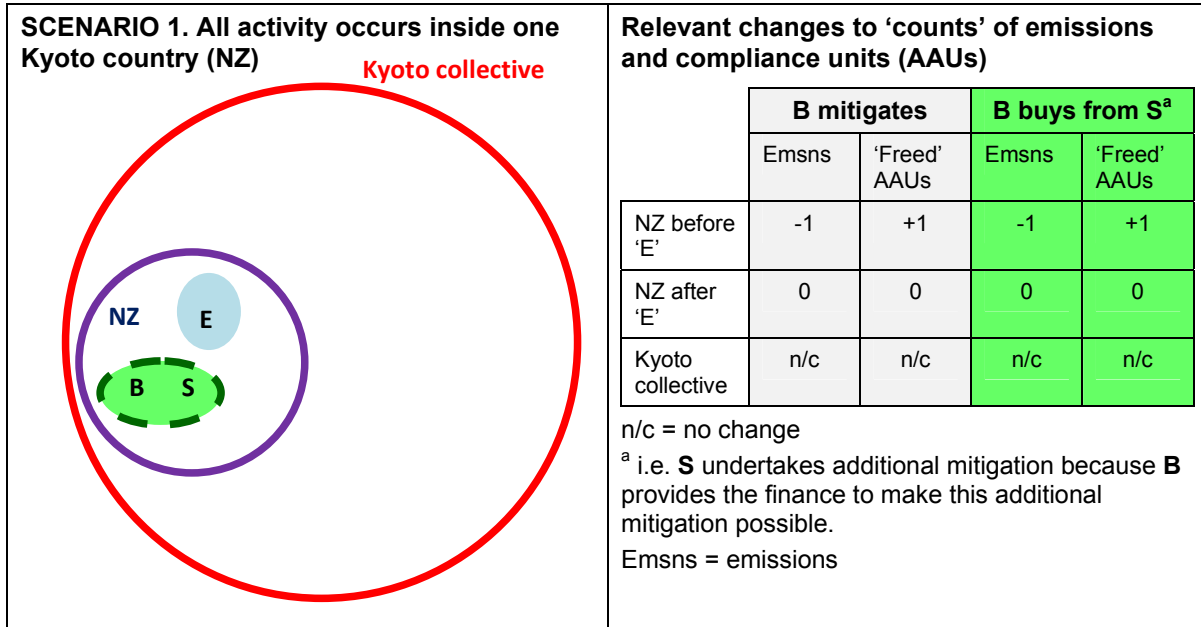
To explore the issues that are the subject of this paper, we employ a *marginal analysis* method that looks at the consequences of **B**'s next decision and whether this is to further mitigate 'in house' **1 tonne** of emissions (i.e. more Step 2 actions) or buy **1 tonne** of Tradable Voluntary Action Credits (TVACs) from **S** (i.e. Step 3). The analyses look at these “mitigate or buy” outcomes in terms of their effect on counts of compliance units (AAUs) and emissions occurring (and accounted) inside the compliance 'space'.

The following explains features of the graphic depictions used:



## SCENARIO 1

Scenario 1 shows two situations: One where **B** undertakes voluntary in-house mitigation (**B** mitigates), and another where **B** buys units from **S** (in essence where **S** undertakes additional mitigation on **B**'s behalf).<sup>4</sup>



“**NZ before ‘E’**” refers to a situation

- a. after a voluntary mitigation action (VMA) has been undertaken by **B** (which frees-up an AAU), or after a VMA has been undertaken by **S** (and purchased by **B** through the transaction of a TVAC) (which also frees up an AAU)

BUT

- b. before this AAU is used to allow further emissions elsewhere (in this case, elsewhere in NZ).

“**NZ after ‘E’**” refers to a situation after the government has used the AAU to allow for an equivalent volume of emissions elsewhere (in this case, elsewhere in NZ)

“**Kyoto collective**” refers to the effect of VMA (and TVAC transaction) activities on the overall collective Kyoto cap.

In the first “B mitigates” situation, **B** voluntarily reduces emissions by 1 tCO<sub>2</sub>e. This has the effect of freeing up 1 tCO<sub>2</sub>e (an AAU). This freed-up AAU can be used by the government to enable 1 tCO<sub>2</sub>e of additional emissions to occur elsewhere in the country. The effect this has on the country ‘Kyoto accounting’ is 0. And the effect on the collective intergovernmental Kyoto cap is 0. The effect for **B** is that **B** has changed behaviour and reduced its carbon footprint by 1 tCO<sub>2</sub>e.

This clearly shows that all voluntary mitigation action taking place inside a sector covered by compliance accounting has no additional effect on the atmosphere. Instead it helps a country meet its compliance obligation at lower cost by enabling the country to avoid purchasing the equivalent number of compliance units in intergovernmental emissions trading. This situation also potentially enables the country to allow some sectors to undertake less mitigation than others because of the freed up AAUs arising from voluntary actions by non-POs.

<sup>4</sup> In the scenarios presented the numbers in the table to the right of each diagram represent 1 tCO<sub>2</sub>e.

In the second situation (green part of the above table), **B** buys a TVAC from **S** (this is ex-house mitigation by **B**). This amounts to **B** paying **S** to undertake in-house mitigation on **B**'s behalf. This in-house mitigation by **S** needs to pass an additionality test and so therefore represents mitigation that would not have happened unless **B** had paid **S** to do it.<sup>5</sup> This also frees up 1 tCO<sub>2</sub>e (1 AAU). The effect on the country Kyoto accounting and the collective Kyoto cap is exactly the same as in the first situation. The local effect is that **B** has financed the behaviour change of **S**, which has lowered its carbon footprint by 1 tCO<sub>2</sub>e – behaviour change that would not have happened had **B** not paid **S** to do so.

**Question 1:** Are there any gains of trade, where voluntary trading takes place inside a sector covered by compliance accounting?

The gains from trade associated with voluntary emissions trading as described in Paper 1 apply here:

- a. the possibility of trade creates an incentive for **S** to mitigate more than would otherwise occur, and
- b. **B** is able to mitigate in-house for a percentage of their mitigation target, and where the marginal mitigation cost becomes significantly higher than the TVAC carbon price, **B** can buy units at the TVAC carbon price and no higher – thereby meeting their voluntary mitigation target (carbon neutrality) at a lower cost than would otherwise be the case.

The key question here is associated with gains from trade with voluntary trading occurring inside a compliance space, in comparison with a situation where voluntary trading is not permitted (or not possible) in the compliance space. If voluntary trading is not permitted or possible in the compliance space, then the situation has different effects on **B** and **S** respectively.

First, without voluntary trading permitted or possible inside the compliance space, **B** would still have the option of purchasing a TVAC from outside the compliance space (e.g. avoided deforestation in a developing country) or a compliance grade unit for its ex-house mitigation. So, in the absence of voluntary trading inside a compliance sector, **B** would still benefit from trade even if **S** did not undertake any additional mitigation. So there is potentially no difference for **B** apart from not being able to buy TVAC units generated locally in the same or similar sector or community<sup>6</sup>. However, TVACs from outside the compliance space or compliance grade units may well be more expensive than locally sourced TVACs, so **B**'s gain in trade may not be as much.

With respect to **S**, they would not have undertaken **additional** voluntary mitigation activity had it not been for the value of the TVACs created and sold to **B**. There are, therefore, net gains from trade for **S** where voluntary trading is possible inside the compliance space.

The question of gains from trade also needs to be addressed in terms of local and national contexts and from a broader policy point of view. Locally, we have seen that there may not be any difference for **B** given that **B** can buy units from outside this particular space. But there is a net gain from trade for **S**.

At the national level, in terms of domestic mitigation, 'voluntary inside compliance' trading enables **B** (i.e. the private sector) to voluntarily become a buyer (financier) of local (domestic) compliance-grade mitigation. Without this option, **B** would spend a proportion of their ex-house mitigation funds in non-compliance sectors (i.e. the voluntary market operating outside the compliance space). This would mean a loss of voluntary investment in mitigation in the domestic economy that, for the country, is

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<sup>5</sup> Note that in-house voluntary mitigation actions that do not involve any transaction of TVACs do not need to pass an additionality test and therefore may not be additional but simply part of business-as-usual.

<sup>6</sup> We note that many New Zealand carbon neutrality aspirants in the carboNZero programme want to buy TVACs from locally sourced projects within their own community. This helps to build a feel-good story line which seems to be an important factor in the overall exercise for these buyers.

compliance grade. This would put more pressure on tax-payers to fund government initiatives designed to generate compliance-grade mitigation.

Furthermore, if 'voluntary inside compliance' trading is not permitted or possible, then an opportunity has been lost for the establishment and development of a service industry of aggregator entrepreneurs who could facilitate the 'scaling up' of compliance-grade mitigation. If 'voluntary inside compliance' trading is both permitted and possible, this opportunity is not lost. Therefore, there is a local and a structural gain from trade.

**Question 2:** Is there double counting?

We have already shown that the government will 'count' any voluntary mitigation action occurring inside a sector covered by compliance accounting, and use this for compliance. This is true whether it occurs in-house or ex-house. There is, therefore, no difference in the environmental integrity of in-house or ex-house mitigation. No one argues that voluntary in-house mitigation should be stopped – to the contrary, it is strongly encouraged. Central to the double counting issue is whether there is any qualitative or quantitative difference between in-house mitigation (which is encouraged) and ex-house mitigation (which some oppose if it takes place within the compliance space). It is important to identify the reasoning behind this opposition.

Two related concerns are commonly raised here. One is a concern for environmental integrity, and the other relates to double selling of the same action.

To address the issue of environmental integrity, we need to evaluate whether there is any difference between in-house and ex-house voluntary mitigation in terms of environmental integrity. In this analysis we have shown that there is no difference between in-house and ex-house voluntary mitigation in terms of the environmental outcome (where ex-house mitigation occurs within the compliance space). It seems clear, therefore, that environmental integrity does not constitute a valid reason for opposing ex-house voluntary mitigation inside the compliance space, because it produces exactly the same environmental outcome as an action that is strongly encouraged. Such actions assist compliance. They cannot go beyond this if they occur inside the compliance space. The architecture of the Kyoto Protocol determines this.

To address the issue of the double selling of a single environmental action, we need to evaluate whether this is really a problem given that there are no problems in terms of environmental integrity. To be clear, the first sale takes place when **S** undertakes an additional voluntary mitigation action and sells a TVAC unit to **B** (and **B** retires the unit because **B** uses it for carbon neutrality purposes). The second sale takes place when the government:-

- a. measures this voluntary mitigation, which frees up an AAU, and then either
- b. sells this AAU to another country if it is in a situation of over-compliance (an outcome taken up in Scenarios 2, 3 & 5 below), or
- c. avoids buying an AAU if it is in a situation of under-compliance (as in this Scenario 1).

We have already established that in-house voluntary mitigation actions occurring inside the compliance space generate exactly this situation, and yet such voluntary mitigation action is strongly encouraged (even though it simply assists compliance). Furthermore, the purpose of this Tradable Voluntary Action Credit (TVAC) is to provide a means to enable additional voluntary mitigation actions to occur and be aggregated. In other words, it is merely a means of transferring funds from **B** to **S**, to enable **S** to undertake additional voluntary mitigation on **B**'s behalf. In addition, the TVAC is non-fungible with compliance units and so does not cross over into the compliance space as a unit to exist along side another unit (AAU) representing the same action.

Another way of viewing this situation is to conceptually remove the TVAC unit and provide another financial mechanism for the transfer of funds from **B** to **S**. Instead of buying a TVAC unit from a broker, **B** simply undertakes a direct bilateral transaction with **S** (e.g. writes a cheque). As a result of

this transfer of funds, **S** undertakes additional voluntary mitigation action. Few would argue that this lacks credibility. And few would argue that this amounts to double counting – i.e. that the government will still use the voluntary mitigation actions of **S** and **B** for compliance purposes.

Lastly, **B** is motivated to buy a TVAC as part of a carbon neutrality goal. Accordingly, **B** will retire the TVAC after purchasing it, thereby taking this unit out of circulation. The TVAC unit, therefore, functions as a certificate of mitigation action, and not a commodity of CO<sub>2</sub>e destined for circulation in a commodity market.

## SCENARIO 2

Scenario 2 is the same as Scenario 1 apart from the end location of the AAU that is freed up as a result of voluntary mitigation action. Here instead of the freed-up AAU being redistributed domestically, the New Zealand government sells it to Japan (assuming New Zealand is in a position of over-compliance).

SCENARIO 2. Voluntary action inside one country (NZ) but AAU sold to another country (Japan)	Relevant changes to 'counts' of emissions and compliance units (AAUs)				
	B mitigates		B buys from S		
	Emsns	'Freed' AAUs	Emsns	'Freed' AAUs	
<p>The diagram shows a large red circle labeled 'Kyoto collective'. Inside it are two purple circles: 'NZ' on the left and 'Japan' on the right. Inside the 'NZ' circle are two smaller green circles labeled 'B' and 'S'. Inside the 'Japan' circle is a light blue circle labeled 'E'.</p>	NZ before trade'	-1	+1	-1	+1
	NZ after trade/"E"	-1	0	-1	0
	Japan after trade before "E"	n/c	+1	n/c	+1
	Japan after "E"	+1	0	+1	0
	Kyoto collective	n/c	n/c	n/c	n/c
	n/c = no change				

The situation in New Zealand after the voluntary mitigation action, but before trade with Japan is the same as in Scenario 1. When Japan buys the AAU from New Zealand, New Zealand loses the freed-up AAU and Japan gains an AAU. Japan then uses this AAU to cover an additional emission. The net effect is for New Zealand to forego the opportunity to emit 1tCO<sub>2</sub>e, and instead sell this opportunity to Japan.

As can be seen from the numerical analysis, the overall environmental outcome for the Kyoto collective is the same as in Scenario 1. We can also see that the environmental and trade outcomes are identical irrespective of whether **B** mitigates in-house or buys a TVAC from **S**.



### SCENARIO 3

Scenario 3 is more complex in that the buyer and seller of the voluntary mitigation actions are located in different countries. This depiction provides an example of international trade in TVACs and its effect on AAUs and the overall Kyoto collective cap.

In this scenario's two situations (**B** mitigates or **B** buys), the VMAs either take place in New Zealand or the UK. In either case these VMAs generate freed-up AAUs in their respective countries. Japan is the buyer of which ever AAU is freed-up.

**B** is located in New Zealand. **S** is located in the UK. If **B** mitigates this VMA frees up an AAU which New Zealand sells to Japan. If **B** buys a TVAC from **S** this VMA by **S** frees up an AAU in the UK, which it then sells to Japan.

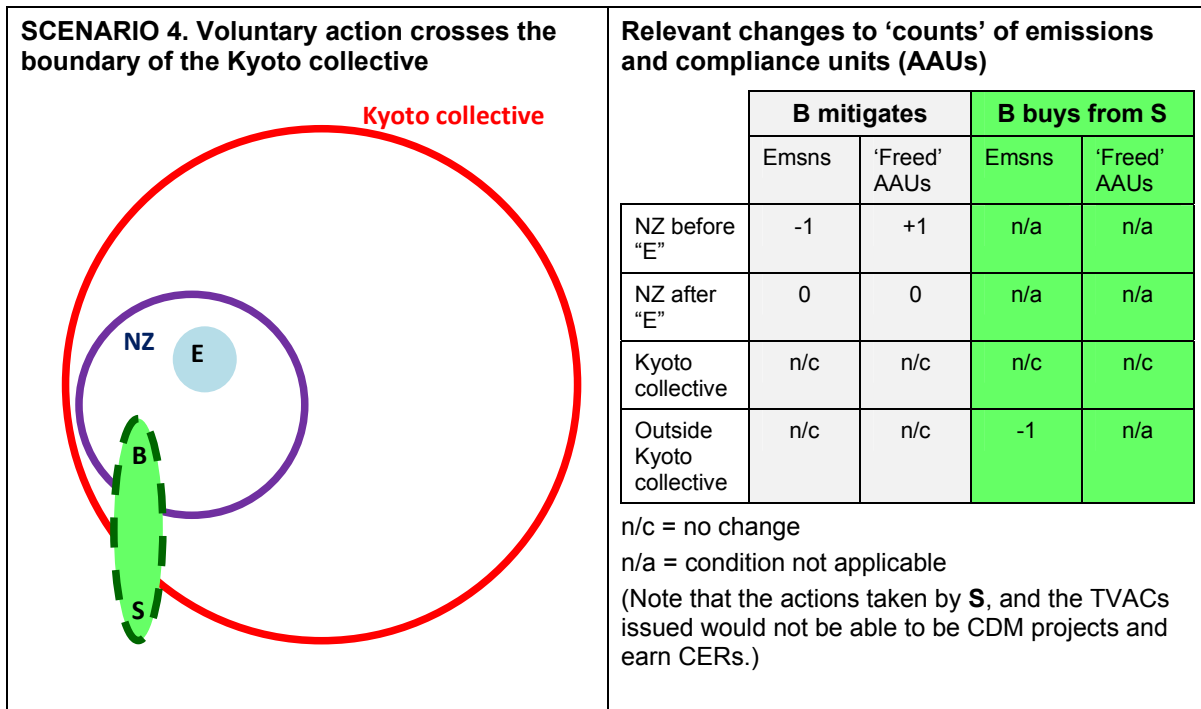
SCENARIO 3. Voluntary mitigation action across two countries (NZ and UK) and AAU sold to a third country (Japan)		Relevant changes to 'counts' of emissions and compliance units (AAUs)			
		B mitigates		B buys from S	
		Emsns	'Freed' AAUs	Emsns	'Freed' AAUs
NZ before trade (B mitigates)		-1	+1	n/a	n/a
NZ after trade (B mitigates)		-1	0	n/a	n/a
Japan after trade before "E"		n/c	+1	n/c	+1
Japan after "E"		+1	0	+1	0
UK before trade (S mitigates)		n/a	n/a	-1	+1
UK after trade (S mitigates)		n/a	n/a	-1	0
Kyoto collective		n/c	n/c	n/c	n/c

n/c = no change  
n/a = condition not applicable

As can be seen in the table above, even though there is a redistribution of AAUs between New Zealand, the UK and Japan, a gain is matched by a loss and everything balances out. The overall outcome for the Kyoto collective is unchanged as with Scenarios 1 and 2 above.

## SCENARIO 4

In this scenario the location of VMAs is distributed both inside and outside the Kyoto collective compliance space. This may include sectors not covered by compliance accounting (e.g. international aviation, international marine transport), or countries not covered by a Kyoto cap (developing country or the USA).



This scenario generates an outcome very similar to Scenario 1 except that the only AAU freed up is that arising from the in-house VMA of **B** if it mitigates. Because **S** is located outside the compliance space, the underlying VMA that produces the TVAC purchased by **B** will not contribute to New Zealand's compliance at all (or that of the Kyoto collective). Instead this VMA will have a direct relationship with the atmosphere.

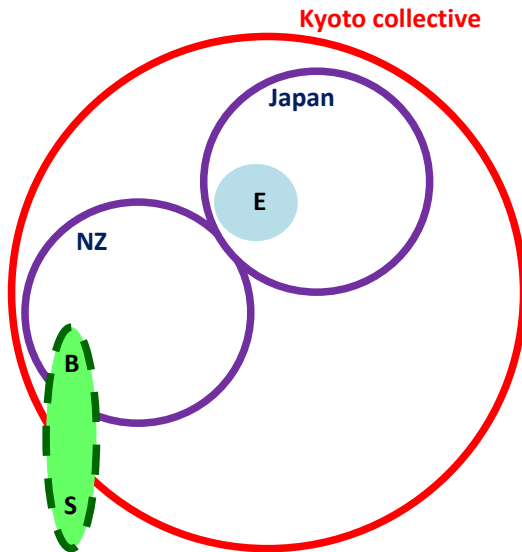
From an overall environmental outcome point of view, it is correct that this scenario is more 'climate friendly' than Scenario 1. However, this does not diminish the legitimacy of Scenario 1, or the legitimacy of **B** deciding to mitigate, not buy.

## SCENARIO 5

This scenario is very similar to Scenario 4 above with the single difference that the freed up AAU generated from in-house voluntary mitigation by **B** is sold to another country.

		B mitigates		B buys from S	
		Emsns	'Freed' AAUs	Emsns	'Freed' AAUs
NZ before trade		-1	+1	n/a	n/a
NZ after trade		-1	0	n/a	n/a
Japan after trade before "E"		n/c	+1	n/a	n/a
Japan after "E"		+1	0	n/a	n/a
Kyoto collective		n/c	n/c	n/c	n/c
Outside Kyoto collective		n/c	n/c	-1	n/a

**SCENARIO 5. Voluntary action crosses the boundary of the Kyoto collective and (in the mitigate situation) AAU sold to another country**



**Relevant changes to 'counts' of emissions and compliance units (AAUs)**

	B mitigates		B buys from S	
	Emsns	'Freed' AAUs	Emsns	'Freed' AAUs
NZ before trade	-1	+1	n/a	n/a
NZ after trade	-1	0	n/a	n/a
Japan after trade before "E"	n/c	+1	n/a	n/a
Japan after "E"	+1	0	n/a	n/a
Kyoto collective	n/c	n/c	n/c	n/c
Outside Kyoto collective	n/c	n/c	-1	n/a

n/c = no change

n/a = condition not applicable

(Note that the actions taken by **S**, and the TVACs issued would not be able to be CDM projects and earn CERs.)

If **B** mitigates the outcomes are like Scenario 2. If **B** buys from **S** the outcomes are like Scenario 4

## INTERPRETING THE RESULTS

### **Factual outcomes**

With respect to observations that may speak to the issue of *credibility*:

- (i) In scenarios 1 and 2 it can be seen that the outcomes are identical whether **B** undertakes further in-house voluntary mitigation or **B** buys voluntary mitigation units from **S**. In other words, no matter what **B**'s decision is, **B**'s country will either be able to emit elsewhere inside the country or sell an AAU to another Kyoto country which can then emit there. And in the event of this emissions trade, for the buyer country there is no difference whether this trade was made possible by **B** mitigating or **B** buying (with **S** mitigating).
- (ii) The added complexity of scenario 3 does not change the key messages of (i).
- (iii) There is no change in any of the scenarios to the allowed emissions of the Kyoto collective, i.e. its cap is unaffected. What this shows is that nothing occurring in the 'voluntary space' affects the environmental outcomes of the Kyoto collective apart from those outcomes being generated at a lower cost to governments.
- (iv) However, in scenarios 4 and 5, where if **B** buys and **S** is outside the Kyoto collective, the atmosphere has an absolute (additional) benefit (i.e. a "compliance + some" situation).

## CONCLUSION

The debate around the credibility of having voluntary market activities occurring within sectors and countries covered by the Kyoto 'compliance' emissions trading scheme seems first and foremost to hinge on people's perceptions that "double counting" may (or does) occur. However the term *double counting* is itself problematic, as it can be used to describe a number of quite different things. It is unclear whether the use of this term is always intended to refer to a lack of environmental integrity of some form. But it seems most often to convey the notion of something being not right and that should be prevented.

This analysis has therefore sought to fully elaborate the 'count' of what is going on in terms of compliance units (AAUs) and compliance emission inventories. We do not see anything in these cases that, to us, has a *double counting* nature to it, even though we do see situations of *double beneficiaries*. Importantly, we see no signs of anything we would judge to not be credible. In particular, the Kyoto collective cap is unaffected, so there is no deleterious effect on the atmosphere which would be one key indicator of "not credible".

Another key indicator of "non-credibility" that some raise is the 'generation' of two units from the same action. It is correct that whenever **B** buys there is a voluntary unit involved and (except in the circumstances where **S** sits outside the Kyoto collective), this has the effect of freeing up an AAU that can also be traded by a government. But we have shown that this is true also if the voluntary mitigation is done in-house by **B**, and these actions are universally supported. Furthermore, the non-fungibility of TVACs with compliance units, and the fact that TVACs will be retired following purchase (when used for carbon neutrality purposes) should address any credibility challenges. (This is not a situation where two voluntary units are being created for one action – which would be double counting.)

Also, we note that there is no need to "back a TVAC with an AAU" (or cancel an AAU to issue a TVAC) to ensure that the collective Kyoto cap is unaffected. This is in contrast to the Kyoto compliance mechanism Joint Implementation (JI). If this mechanism's compliance units (ERUs), are issued without, in effect, cancelling an AAU<sup>7</sup> there would be an increase in the collective Kyoto cap, and hence increased "allowed emissions". But as shown in this analysis, as long as units in the voluntary carbon market are kept fully separate from the compliance market, and any TVACs issued have no rights or status in the compliance scheme, the problem of inflating the Kyoto cap does not occur.

What scenarios 1 and 2 show is that the outcomes in terms of effects on the compliance system are identical whether a carbon neutrality aspirant takes further Step 2 reductions or resorts to Step 3 and buys TVACs. Logically, as we see it, each of these options must therefore be equivalent in terms of credibility.

Step 2 actions (as prescribed by the assumptions frame of this analysis) can never have the effect of producing an absolute benefit to the atmosphere, because they only occur inside the Kyoto collective cap. To suggest that these are not credible because they do not absolutely benefit the atmosphere seems to us to be a nonsense. This would be tantamount to saying that carbon neutrality aspirants in Kyoto countries should not reduce their emissions at all (e.g. the 750 tCO<sub>2</sub>e done so far in 2008 by the entity in our example). Instead they should spend all their money on voluntary market offset projects outside the Kyoto collective, e.g. in developing countries (or the US) which do not have (or which rejected their) emissions targets under Kyoto.

Such a suggestion runs exactly counter to the normal, and credibility-connected expectation that the Step 2 reduction part of a carbon neutrality aspirant's programme should comprise the major effort, and Step 3 voluntary mitigation action is the minor residual component.

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<sup>7</sup> In practice, ERUs are created by converting an existing AAU into an ERU, to ensure a zero sum, i.e. that the collective cap is not increased.

We do acknowledge the outcome shown in scenarios 4 and 5 that there can be an absolute (additional) benefit to the atmosphere if TVACs are sourced from projects outside the Kyoto collective. And we accept that this may be seen as a desirable outcome by some buyers of TVACs in the market. **But we disagree with any suggestion that for voluntary actions to be credible they must have this outcome.**<sup>8</sup>

On the contrary, we see the principle value of a voluntary carbon market operating inside the compliance space as enabling the majority of entities in an economy (who are not points of obligation in the compliance scheme) to participate in and benefit from emissions trading (i.e. access “gains from trade” that are available). This can help overcome economy of scale and transaction cost barriers to demand side behaviour change in price inelastic sectors such as energy and transport. And in turn, this can build structural capacity for a larger quantity of compliance-grade mitigation activities to occur in a domestic economy. Flowing from this is the political and economic momentum that can foster the acceptance of more ambitious mitigation targets in future, along the path to a low carbon economy.

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<sup>8</sup> This said, there are circumstances sitting outside the assumptions frame of this analysis where, to properly match emissions, e.g. from international aviation and marine fuels, it is necessary for the TVACs to come from actions outside the Kyoto accounting. This is among the broader mix of issues covered in Paper 4 in this set of papers.