Chapter 5

Conclusion

5.1 Conclusions

There is no doubt that tropical forests are under serious threat of depletion. Although the depletion rate is slowing down in recent years, still the current net depletion rate of 0.6% could cause serious destruction of the tropical forests in the long run. If the trend is not reversed, it seems almost certain, as explained in the Chapter 1, that the global community will have to face various calamities in the 21st century including accelerating global warming, loss of biodiversity, damages to agriculture, floods, drought, to name only a few.

ITTO is seriously tackling this very important issue for all of mankind by adopting year 2000 objective in its new ITTA of 1994. If this objective succeeds, the world tropical forest would be all managed sustainably by the year 2000. Unfortunately, despite serious efforts being taken by the member governments of ITTO, no concrete scheme to implement the objective through the Bali Partnership Fund has yet been adopted. Two of the most influential factors for the delay are the difficulties in identifying the level of sustainable management and the amount of contribution to the Fund. It is not hard to imagine that member countries view the level of sustainability differently because it is not necessarily determined scientifically. Negotiation for allocation of contribution is always very difficult and time consuming. Further, there is a doubt among ITTO member countries on whether trade incentive or restrictive measures could properly reduce the level of tropical forests depletion when only 6% of the tropical logs is traded in the world market.

However, ITTO is the only international body that specializes exclusively in tropical timbers and its members cover around 75% of tropical forests and 90% of tropical log imports. Therefore, if ITTO can successfully come up with trade control measures which attribute proper responsibility to both consuming and producing member countries in relation with tropical forest conservation, the measures must be the most workable among all possible alternatives thinkable in the world today. They would at least produce some favorable effects on the tropical forests conservation.

International negotiations are often considered under collective action problems. Without proper authority that can force its members to obey its decisions, any effective and workable measures seem unlikely to be achieved. However, an international agreement is a kind of law that all member countries must abide by and that members can be punished by the organization if they do not abide by the decisions taken under the agreement. Although a member country has liberty to withdraw from the agreement as an ultimate measure, it would be very difficult to leave the organization if it is supported by the overwhelming majority in the global community. ITTO is an international agreement organization and it holds majority of tropical timber producers and consumers in the world. Therefore, its decisions could influence the world trade of tropical forests if they are properly introduced. ITTO also holds the best information in the world about tropical timbers and provide proper consultation bodies for member countries to negotiate, discuss and exchange information related to tropical timbers. In this respect, ITTO is considered to be in the best position to handle the issues related to tropical timbers and conservation of tropical forests as well.

The games played in the Chapter 3 also indicates there are possibilities that ITTO can succeed in making both its producing and consuming member countries to contribute to the Bali Partnership Fund.

5.2 Summary of Results

Various games played in the Chapter 3 clearly indicated that the better results would be achieved when both producing and consuming member countries accept the similar values in the environmental values of the tropical forests. This can be achieved by patient and frequent consultation of policies and exchanges of information between producers and consumers under the framework of ITTO. Better appreciation of values claimed by each other would lead games to a success. Various games played in this paper also illustrated that it is possible to reach compromising equilibrium between consuming and producing members, although they became possible only under certain conditions applied for the games. The games also illustrated that transfer of funds from consumers to producers could cause favorable effects.

The game results in the Chapters 3 and 4 can be summarized as follows.

1.(1) All games become successful when both consumers and producers accept the same environmental values in the tropical timbers.

(2) When producers identify no environmental values in the tropical timbers, all games become failure or at best negotiable.

(3) In the cases producers accept half of the environmental value in tropical timbers, all games become successful or at least negotiable.

(4) Notwithstanding the above, if the transfer is made, all games become successful or at least negotiable.

2. If consumers contribute all the fund and transfer it to the producers, the games become all successful. However, this is not a realistic solution because responsibilities needs to be shared by the both sides.

3. When the penalty is charged against free-riders and the amount of the penalty is large enough to make the 'non-contribute' solution as the worst of all the choices, the games all become successful.

For the games to succeed without fail; therefore, either introduction of penalty or equal value recognition is required.

5.3 Recommendations

Based on the summary of the games stated in the Chapter 5.2 above, it may be possible to state that the best recommendation for the sake of conservation of tropical forests is that consumers bear all the contribution to the Bali Partnership Fund and that the Fund be transferred to producing countries as the compensation for forgoing economic benefits to be obtained from the exploitation of the tropical forests. However, this solution is not realistic because it would not be accepted by the consumers easily. If the fund is used as the compensation of the exploitation, the amount to be claimed by the producing countries would be unattractively high for the consumers. More importantly, it is the general understanding that responsibilities need to be shared by the both sides. Thus, the compensation measure is not necessarily a stable solution though it is a sure solution for the sake of the conservation of the tropical forests.

Likewise, the solution under which producers bare all responsibilities is not realistic, because producers are not willing in the first place to forgo their rights in developing their own tropical forests, and also, most obviously, they do not have enough funds to conduct conservation measures by themselves. They do need proper assistance from consuming member countries.

Another possible recommendation is that consumers provide all the fund but the fund be used directly to the conservation measures for the tropical forests. In this case, however, the Bali Partnership Fund may not succeed if producing member countries do not recognize any values in the tropical timbers as the environmental assets.

If producers recognize at least half as much environmental values as consuming countries do, the Fund may become successful because producers, even at the worst case under the condition of non-transfer, see no difference between contribution and non-contribution solutions. If producers recognize the same value as consumers do, the Fund can be considered to succeed.

Another important factor for the Bali Partnership Fund to succeed is the introduction of penalty articles in its implementation rules and regulations. By the successful introduction of penalty clauses, the Fund would succeed regardless the degree of producers' recognition in the environmental values of the tropical timbers. However, it may not be easy to reach consensus between the both sides in creating effective penalty clauses in the first place.

For this reason, and also for the sake of equalizing the values for the both sides, frequent and patient consultations and information exchanges are recommended. If and when the both sides share the same information and appreciate each other's positions, they would be able to recognize the same environmental values in the tropical timbers. Then the Bali Partnership Fund can succeed even without the penalty clauses.

By summarizing the above, it may be possible to say that the most reliable recommendations is the combination of introduction of penalty measures and the non-transfer of funds as a means of compensation. However, as stated before, penalty measures may not be agreed in the first place if the both sides do not accept the same values in the tropical timbers as the environmental assets. In other words, the Bali Partnership Fund becomes more successful and stable when the both producers and consumers identify the same environmental values.

Hence, the most important recommendation is that the both sides recognize the same values. It is therefore recommended that the ITTO should hold proper consultations between the producing and consuming member countries so that the both groups identify the same environmental value in the tropical timbers.

Last but not least, it should be mentioned that producers can make their portion of contribution to the Bali Partnership Fund such non-cash contribution as introduction of laws and the tighter control measures on export and domestic consumption of their tropical timbers. These non-cash contributions will decrease their economic benefits that could have been accrued from the utilization of tropical timbers; therefore, these measures can be considered as equivalent to cash-contribution to the Bali Partnership Fund.

Attachment

- Figures of Supplementary Games with the Penalty Factor 'e' -

This section includes all figures of supplementary games that are played with the penalty factor 'e'. They are listed in accordance with the order of their original games introduced in the Chapter 3.

Figure 17e: Same environmental value for both consumers and producers

Case 1e: Gv = Gvc = Gvp, e >750

		ITTO Producing Countries	
		Contribute	Not Contribute
ITTO Consuming Countries	Contribute	I (1500) 750 750	II (1500) 0 1500-e (Pv<750)
	Not Contribute	III (1500) 1500-e 0 (Cv<750)	IV (-1500) -1500-e -1500-e (Cv<-2250)(Pv<-2250)

(million $)

I: Gv = 2*{750(Cp) + 750(Pp)} - 1500 = 1500
Cv = 1500(Gv) - 750(Cp) = 750
Pv = 1500(Gv) - 750(Pp) = 750

II: Gv = 2*{1500(Cp) + 0(Pp)} - 1500 = 1500
Cv = 1500(Gv) - 1500(Cp) = 0
Pv = 1500(Gv) - 0(Pp) -e < 750

III: Gv = 2*{1500(Cp) + 0(Pp)} - 1500 = 1500
Cv = 1500(Gv) - 0(Cp) -e < 750
Pv = 1500(Gv) - 1500(Pp) = 0

IV: Gv = 2*{0(Cp) + 0(Pp)} - 1500 = -1500
Cv = -1500(Gv) - 0(Cp) -e < -2250
Pv = -1500(Gv) - 0(Pp) -e < -2250

Game result: Success, because Column I is the dominant solution (Column I Cv & Pv > Column II/III Cv & Pv > Column IV Cv & Pv).

Figure 18e: No environmental value for producers

Case 2e: $Gv = Gvc$, $Gvp = 0$, $e > 750$

		ITTO Producing Countries: Contribute	ITTO Producing Countries: Not contribute
ITTO Consuming Countries	Contribute	I (1500) 750 -750	II (1500) 0 0-e ($Pv<-750$)
	Not contribute	III (1500) 1500-e -1500 ($Cv<750$)	IV (-1500) -1500-e 0-e ($Cv<-2250$) ($Pv<-750$)

(million $)

I: $Gv = 2*\{750(Cp) + 750(Pp)\} - 1500 = 1500$
$Cv = 1500(Gv) - 750(Cp) = 750$
$Pv = 0(Gv) - 750(Pp) = -750$

II: $Gv = 2*\{1500(Cp) + 0(Pp)\} - 1500 = 1500$
$Cv = 1500(Gv) - 1500(Cp) = 0$
$Pv = 0(Gv) - 0(Pp)/2 - e < -750$

III: $Gv = 2*\{1500(Cp) + 0(Pp)\} - 1500 = 1500$
$Cv = 1500(Gv) - 0(Cp) - e < 750$
$Pv = 0(Gv) - 1500(Pp) = -1500$

IV: $Gv = 2*\{0(Cp) + 0(Pp)\} - 1500 = -1500$
$Cv = -1500(Gv) - 0(Cp) - e < -2250$
$Pv = 0(Gv) - 0(Pp) - e < -750$

Game result: Success, because Column I is the dominant solution (Column I Cv & Pv > Column II/III Cv & Pv > Column IV Cv & Pv).

Figure 19e: Half environmental value for producers

Case 3: Gv = Gvc, Gvp = Gv/2, e > 750

	ITTO Producing Countries: Contribute	ITTO Producing Countries: Not contribute
ITTO Consuming Countries: Contribute	(1500) 750 0	(1500) 0 750-e (Pv <0)
ITTO Consuming Countries: Not contribute	(1500) 1500-e -750 (Cv<750)	(-1500) -1500-e -750-e (Cv<-2250)(Pv<-1500)

(million $)

I: Gv = 2*{750(Cp) + 750(Pp)} - 1500 = 1500
Cv = 1500(Gv) - 750(Cp) = 750
Pv = 1500(Gv)/2 - 750(Pp) = 0

II: Gv = 2*{1500(Cp) + 0(Pp)} - 1500 = 1500
Cv = 1500(Gv) - 1500(Cp) = 0
Pv = 1500(Gv)/2 - 0(Pp) -e < 0

III: Gv = 2*{1500(Cp) + 0(Pp)} - 1500 = 1500
Cv = 1500(Gv) - 0(Cp) -e < 750
Pv = 1500(Gv)/2 - 1500(Pp) = -750

IV: Gv = 2*{0(Cp) + 0(Pp)} - 1500 = -1500
Cv = -1500(Gv) - 0(Cp) -e < -2250
Pv = -1500(Gv)/2 - 0(Pp) -e < -1500

Game result: Success, because Column I is the dominant solution (Column I Cv & Pv > Column II/III Cv & Pv > Column IV Cv & Pv).

Figure 17-2e: Same environmental value for both consumers and producers

Case 1: Gv = Gvc = Gvp, e>750

ITTO Consuming Countries \ ITTO Producing Countries	Contribute	Not Contribute
Contribute	I (1500) 750 1500	II (1500) 0 3000-e (Pv<2250)
Not Contribute	III (1500) 1500-e 0 (Cv<750)	IV (-1500) -1500-e -1500-e (Cv<-2250)(Pv<-2250)

(million $)

I: Gv = 2*{750(Cp) + 750(Pp)} - 1500 = 1500
Cv = 1500(Gv) - 750(Cp) = 750
Pv = 1500(Gv) - 750(Pp) + 750(Cp) = 1500

II: Gv = 2*{1500(Cp) + 0(Pp)} - 1500 = 1500
Cv = 1500(Gv) - 1500(Cp) = 0
Pv = 1500(Gv) - 0(Pp) + 1500(Cp) -e < 2250

III: Gv = 2*{1500(Cp) + 0(Pp)} - 1500 = 1500
Cv = 1500(Gv) - 0(Cp) -e < 750
Pv = 1500(Gv) - 1500(Pp) + 0(Cp) = 0

IV: Gv = 2*{0(Cp) + 0(Pp)} - 1500 = -1500
Cv = -1500(Gv) - 0(Cp) -e < -2250
Pv = -1500(Gv) - 0(Pp) + 0(Cp) -e < -2250

Game result: Success, because the game results in either Column I or Column II. When e is larger than 2250, Column I becomes the dominant solution.

Figure 18-2e: No environmental value for producers

Case 2: Gv = Gvc, Gvp = 0, e>750

ITTO Consuming Countries	ITTO Producing Countries: Contribute	ITTO Producing Countries: Not contribute
Contribute	I (1500) 750 0	II (1500) 0 1500-e (Pv<750)
Not contribute	III (1500) 1500-e -1500 (Cv<750)	IV (-1500) -1500-e 0-e (Cv<-2250) (Pv<-750)

(million $)

I: $Gv = 2*\{750(Cp) + 750(Pp)\} - 1500 = 1500$

$Cv = 1500(Gv) - 750(Cp) = 750$

$Pv = 0(Gv) - 750(Pp) + 750(Cp) = 0$

II: $Gv = 2*\{1500(Cp) + 0(Pp)\} - 1500 = 1500$

$Cv = 1500(Gv) - 1500(Cp) = 0$

$Pv = 0(Gv) - 0(Pp) + 1500(Cp) - e < 750$

III: $Gv = 2*\{1500(Cp) + 0(Pp)\} - 1500 = 1500$

$Cv = 1500(Gv) - 0(Cp) - e < 750$

$Pv = 0(Gv) - 1500(Pp) + 0(Cp) = -1500$

IV: $Gv = 2*\{0(Cp) + 0(Pp)\} - 1500 = -1500$

$Cv = -1500(Gv) - 0(Cp) - e < -2250$

$Pv = 0(Gv) - 0(Pp) + 0(Cp) - e < -750$

Game result: Success, because the game result in either Column I or Column II. When e is larger than 1500, Column I becomes the dominant solution.

Figure 19-2e: Half environmental value for producers

Case 3: Gv = Gvc, Gvp = Gv/2, $e>750$

ITTO Producing Countries

ITTO Consuming Countries	Contribute	Not contribute
Contribute	(1500) 750 750	(1500) 0 2250-e (Pv<1500)
Not contribute	(1500) 1500-e -750 (Cv<750)	(-1500) -1500-e -750-e (Cv<-2250)(Pv<-1500)

(million $)

I: $Gv = 2*\{750(Cp) + 750(Pp)\} - 1500 = 1500$
$Cv = 1500(Gv) - 750(Cp) = 750$
$Pv = 1500(Gv)/2 - 750(Pp) + 750(Cp) = 750$

II: $Gv = 2*\{1500(Cp) + 0(Pp)\} - 1500 = 1500$
$Cv = 1500(Gv) - 1500(Cp) = 0$
$Pv = 1500(Gv)/2 - 0(Pp) + 1500(Cp) -e < 1500$

III: $Gv = 2*\{1500(Cp) + 0(Pp)\} - 1500 = 1500$
$Cv = 1500(Gv) - 0(Cp) -e < 750$
$Pv = 1500(Gv)/2 - 1500(Pp) + 0(Cp) = -750$

IV: $Gv = 2*\{0(Cp) + 0(Pp)\} - 1500 = -1500$
$Cv = -1500(Gv) - 0(Cp) -e < -2250$
$Pv = -1500(Gv)/2 - 0(Pp) + 0(Cp) -e < -1500$

Game result: Success, because the game result in either Column I or Column II. When e is larger than 1500, Column I becomes the dominant solution.

Figure 25a/e: Same environmental value for both consumers and producers

Case 1: Gv = Gvc = Gvp, e >750

ITTO Consuming Countries		ITTO Producing Countries: Contribute	ITTO Producing Countries: Not Contribute
	Contribute	I (1500) 750 750	II (1500) 0 1500-e (Pv<750)
	Not Contribute	III (1500) 1500-e 0 (Cv<750)	IV (0) 0-e 0-e (Cv<-750) (Pv<-750)

(million $)

I: Gv = 750(Cp) + 750(Pp) = 1500
Cv = 1500(Gv) - 750(Cp) = 750
Pv = 1500(Gv) - 750(Pp) = 750

II: Gv = 1500(Cp) + 0(Pp) = 1500
Cv = 1500(Gv) - 1500(Cp) = 0
Pv = 1500(Gv) - 0(Pp) -e < 750

III: Gv = 1500(Cp) + 0(Pp) = 1500
Cv = 1500(Gv) - 0(Cp) -e < 750
Pv = 1500(Gv) - 1500(Pp) = 0

IV: Gv = 0(Cp) + 0(Pp) = 0
Cv = 0(Gv) - 0(Cp) -e < -750
Pv = 0(Gv) - 0(Pp) -e < -750

Game result: Success, because Column I is the dominant solution (Column I Cv & Pv > Column II/III Cv & Pv > Column IV Cv & Pv).

Figure 25b/e: No environmental value for producers

Case 2: $Gv = Gvc$, $Gvp = 0$, $e > 750$

		ITTO Producing Countries	
		Contribute	Not contribute
ITTO Consuming Countries	Contribute	I (1500) 750 -750	II (1500) 0 0-e (Pv<-750)
	Not contribute	III (1500) 1500-e -1500 (Cv<750)	IV (0) 0-e 0-e (Cv<-750) (Pv<-750)

(million $)

I: $Gv = 750(Cp) + 750(Pp) = 1500$
$Cv = 1500(Gv) - 750(Cp) = 750$
$Pv = 0(Gv) - 750(Pp) = 0$

II: $Gv = 1500(Cp) + 0(Pp) = 1500$
$Cv = 1500(Gv) - 1500(Cp) = 0$
$Pv = 0(Gv) - 0(Pp) -e < 750$

III: $Gv = 0(Cp) + 1500(Pp) = 1500$
$Cv = 1500(Gv) - 0(Cp) -e < 750$
$Pv = 0(Gv) - 1500(Pp) = -1500$

IV: $Gv = 0(Cp) + 0(Pp) = 0$
$Cv = 0(Gv) - 0(Cp) -e < -750$
$Pv = 0(Gv) - 0(Pp) -e < -750$

Game result: Success, because Column I is the dominant solution (Column I Cv & Pv > Column II/III Cv & Pv > Column IV Cv & Pv).

Figure 25c/e: Half environmental value for producers

Case 3: Gv = Gvc, Gvp = Gv/2, e>750

		ITTO Producing Countries	
		Contribute	Not contribute
ITTO Consuming Countries	Contribute	(1500) 750 0	(1500) 0 750-e (Pv<0)
	Not contribute	(1500) 1500-e -750 (Cv<750)	(0) 0-e 0-e (Cv<-750) (Pv<-750)

(million $)

I: Gv = 750(Cp) + 750(Pp) = 1500
Cv = 1500(Gv) - 750(Cp) = 750
Pv = 1500(Gv)/2 - 750(Pp) = 0

II: Gv = 1500(Cp) + 0(Pp) = 1500
Cv = 1500(Gv) - 1500(Cp) = 0
Pv = 1500(Gv)/2 - 0(Pp) -e < 0

III: Gv = 1500(Cp) + 0(Pp) = 1500
Cv = 1500(Gv) - 0(Cp) -e < 750
Pv = 1500(Gv)/2 - 1500(Pp) = -750

IV: Gv = 0(Cp) + 0(Pp) = 0
Cv = 0(Gv) - 0(Cp) -e < -750
Pv = 0(Gv)/2 - 0(Pp) -e < -750

Game result: Success, because Column I is the dominant solution (Column I Cv & Pv > Column II/III Cv & Pv > Column IV Cv & Pv).

Figure 26a/e: Same environmental value for both consumers and producers

Case 1: $Gv = Gvc = Gvp$, $e>750$

ITTO Producing Countries

		Contribute	Not Contribute
ITTO Consuming Countries	Contribute	I (0) -750 -750	II (0) -1500 0-e (Pv<-750)
	Not Contribute	III (0) 0-e -1500 (Cv<-750)	IV (-1500) -1500-e -1500-e (Cv<-2250)(Pv<-2250)

(million $)

I: $Gv = 750(Cp) + 750(Pp) -1500 = 0$
$Cv = 0(Gv) - 750(Cp) = -750$
$Pv = 0(Gv) - 750(Pp) = -750$

II: $Gv = 1500(Cp) + 0(Pp)-1500 = 0$
$Cv = 0(Gv) - 1500(Cp) = -1500$
$Pv = 0(Gv) - 0(Pp) -e <-750$

III: $Gv = 1500(Cp) + 0(Pp) -1500 = 0$
$Cv = 0(Gv) - 0(Cp) -e <-750$
$Pv = 0(Gv) - 1500(Pp) = -1500$

IV: $Gv = 0(Cp) + 0(Pp) -1500 = -1500$
$Cv = -1500(Gv) - 0(Cp) -e < -2250$
$Pv = -1500(Gv) - 0(Pp) -e < -2250$

Game result: Success, because Column I is the dominant solution (Column I Cv & Pv > Column II/III Cv & Pv > Column IV Cv & Pv).

Figure 26b/e: No environmental value for producers

Case 2: Gv = Gvc, Gvp = 0, e>750

		ITTO Producing Countries: Contribute	ITTO Producing Countries: Not contribute
ITTO Consuming Countries	Contribute	I (0) -750 -750	II (0) -1500 0-e (Pv<-750)
	Not contribute	III (0) 0-e -1500 (Cv<-750)	IV (-1500) -1500-e 0-e (Cv<-2250) (Pv<-750)

(million $)

I: $Gv = 750(Cp) + 750(Pp) - 1500 = 0$

$Cv = 0(Gv) - 750(Cp) = -750$

$Pv = 0(Gv) - 750(Pp) = -750$

II: $Gv = 1500(Cp) + 0(Pp) - 1500 = 0$

$Cv = 0(Gv) - 1500(Cp) = -1500$

$Pv = 0(Gv) - 0(Pp) - e < -750$

III: $Gv = 0(Cp) + 1500(Pp) - 1500 = 0$

$Cv = 0(Gv) - 0(Cp) - e < -750$

$Pv = 0(Gv) - 1500(Pp) = -1500$

IV: $Gv = 0(Cp) + 0(Pp) - 1500 = -1500$

$Cv = -1500(Gv) - 0(Cp) - e < -2250$

$Pv = 0(Gv) - 0(Pp) - e < -750$

Game result: Success, because Column I is the dominant solution (Column I Cv & Pv > Column II/III Cv & Pv > Column IV Cv & Pv).

Figure 26c/e: Half environmental value for producers

Case 3: Gv = Gvc, Gvp = Gv/2, e>750

	ITTO Producing Countries: Contribute	ITTO Producing Countries: Not contribute
ITTO Consuming Countries: Contribute	(0) -750 -750	(0) -1500 0-e (Pv<-750)
ITTO Consuming Countries: Not contribute	(0) 0-e -1500 (Cv<-750)	(-1500) -1500-e -750-e (Cv<-2250)(Pv<-1500)

(million $)

I: Gv = 750(Cp) + 750(Pp) -1500 = 0
Cv = 0(Gv) - 750(Cp) = -750
Pv = 0(Gv)/2 - 750(Pp) = -750

II: Gv = 1500(Cp) + 0(Pp) -1500 = 0
Cv = 0(Gv) - 1500(Cp) = -1500
Pv = 0(Gv)/2 - 0(Pp) -e < -750

III: Gv = 1500(Cp) + 0(Pp) -1500 = 0
Cv = 0(Gv) - 0(Cp) -e < -750
Pv = 0(Gv)/2 - 1500(Pp) = -1500

IV: Gv = 0(Cp) + 0(Pp) -1500 = -1500
Cv = -1500(Gv) - 0(Cp) -e < -2250
Pv = -1500(Gv)/2 - 0(Pp) -e < -1500

Game result: Success, because Column I is the dominant solution (Column I Cv & Pv > Column II/III Cv & Pv > Column IV Cv & Pv).

Figure 27a/e: Same environmental value for both consumers and producers

Case 1: Gv = Gvc = Gvp, e>750

		ITTO Producing Countries: Contribute	ITTO Producing Countries: Not Contribute
ITTO Consuming Countries	Contribute	I (1500) 750 1500	II (1500) 0 3000-e (Pv<2250)
	Not Contribute	III (1500) 1500-e 0 (Cv<750)	IV (0) 0-e 0-e (Cv<-750) (Pv<-750)

(million $)

I: Gv = 750(Cp) + 750(Pp) = 1500
Cv = 1500(Gv) - 750(Cp) = 750
Pv = 1500(Gv) - 750(Pp) + 750(Cp) = 1500

II: Gv = 1500(Cp) + 0(Pp) = 1500
Cv = 1500(Gv) - 1500(Cp) = 0
Pv = 1500(Gv) - 0(Pp) + 1500(Cp) -e < 2250

III: Gv = 1500(Cp) + 0(Pp) = 1500
Cv = 1500(Gv) - 0(Cp) -e < 750
Pv = 1500(Gv) - 1500(Pp) + 0(Cp) = 0

IV: Gv = 0(Cp) + 0(Pp) = 0
Cv = 0(Gv) - 0(Cp) -e < -750
Pv = 0(Gv) - 0(Pp) + 0(Cp) -e < -750

Game result: Success, because the game results in either Column I or Column II. When e is larger than 1500, Column I becomes the dominant solution.

Figure 27b/e: No environmental value for producers

Case 2: Gv = Gvc, Gvp = 0, e>750

		ITTO Producing Countries: Contribute	ITTO Producing Countries: Not contribute
ITTO Consuming Countries	Contribute	I (1500) 750 0	II (1500) 0 1500-e (Pv<750)
	Not contribute	III (1500) 1500-e -1500 (Cv<750)	IV (0) 0-e 0-e (Cv<-750) (Pv<-750)

(million $)

I: Gv = 750(Cp) + 750(Pp) = 1500
Cv = 1500(Gv) - 750(Cp) = 750
Pv = 0(Gv) - 750(Pp) + 750(Cp) = 0

II: Gv = 1500(Cp) + 0(Pp) = 1500
Cv = 1500(Gv) - 1500(Cp) = 0
Pv = 0(Gv) - 0(Pp) + 1500(Cp) -e < 750

III: Gv = 0(Cp) + 1500(Pp) = 1500
Cv = 1500(Gv) - 0(Cp) -e < 750
Pv = 0(Gv) - 1500(Pp) + 0(Cp) = -1500

IV: Gv = 0(Cp) + 0(Pp) = 0
Cv = 0(Gv) - 0(Cp) -e < 750
Pv = 0(Gv) - 0(Pp) + 0(Cp) -e <-750

Game result: Success, because the game results in either Column I or Column II. When e is larger than 1500, Column I becomes the dominant solution.

Figure 27c/e: Half environmental value for producers

Case 3: Gv = Gvc, Gvp = Gv/2, e>750

ITTO Producing Countries

ITTO Consuming Countries	Contribute	Not contribute
Contribute	(1500) 750 750	(1500) 0 2250-e (Pv<1500)
Not contribute	(1500) 1500-e -750 (Cv<750)	(0) 0-e 0-e (Cv<-750) (Pv<-750)

(million $)

I: $Gv = 750(Cp) + 750(Pp) = 1500$

$Cv = 1500(Gv) - 750(Cp) = 750$

$Pv = 1500(Gv)/2 - 750(Pp) + 750(Cp) = 750$

II: $Gv = 1500(Cp) + 0(Pp) = 1500$

$Cv = 1500(Gv) - 1500(Cp) = 0$

$Pv = 1500(Gv)/2 - 0(Pp) + 1500(Cp) - e < 1500$

III: $Gv = 1500(Cp) + 0(Pp) = 1500$

$Cv = 1500(Gv) - 0(Cp) - e < 750$

$Pv = 1500(Gv)/2 - 1500(Pp) + 0(Cp) = -750$

IV: $Gv = 0(Cp) + 0(Pp) = 0$

$Cv = 0(Gv) - 0(Cp) - e < -750$

$Pv = 0(Gv)/2 - 0(Pp) + 0(Cp) - e < -750$

Game result: Success, because the game results in either Column I or Column II. When e is larger than 1500, Column I becomes the dominant solution.

Figure 28a/e: Same environmental value for both consumers and producers

Case 1: Gv = Gvc = Gvp, e>750

ITTO Producing Countries

		Contribute	Not Contribute
ITTO Consuming Countries	Contribute	I (0) -750 0	II (0) -1500 1500-e (Pv<750)
	Not Contribute	III (0) 0-e -1500 (Cv<-750)	IV (-1500) -1500-e -1500-e (Cv<-2250)(Pv<-2250)

(million $)

I: Gv = 750(Cp) + 750(Pp) -1500 = 0
Cv = 0(Gv) - 750(Cp) = -750
Pv = 0(Gv) - 750(Pp) +750(Cv) = 0

II: Gv = 1500(Cp) + 0(Pp)-1500 = 0
Cv = 0(Gv) - 1500(Cp) = -1500
Pv = 0(Gv) - 0(Pp) +1500(Cp) -e < 750

III: Gv = 1500(Cp) + 0(Pp) -1500 = 0
Cv = 0(Gv) - 0(Cp) -e < -750
Pv = 0(Gv) - 1500(Pp) +0(cp) = -1500

IV: Gv = 0(Cp) + 0(Pp) -1500 = -1500
Cv = -1500(Gv) - 0(Cp) -e < -2250
Pv = -1500(Gv) - 0(Pp) +0(Cp) -e < -2250

Game result: Success, because the game results in either Column I or Column II. When e is larger than 1500, Column I becomes the dominant solution.

Figure 28b/e: No environmental value for producers

Case 2: Gv = Gvc, Gvp = 0, e>750

ITTO Producing Countries

		Contribute	Not contribute
ITTO Consuming Countries	Contribute	I (0) -750 0	II (0) -1500 1500-e (Pv<750)
	Not contribute	III (0) 0-e -1500 (Cv<-750)	IV (-1500) -1500-e 0-e (Cv<-2250)(Pv<-750)

(million $)

I: $Gv = 750(Cp) + 750(Pp) - 1500 = 0$
$Cv = 0(Gv) - 750(Cp) = -750$
$Pv = 0(Gv) - 750(Pp) + 750(Cp) = 0$

II: $Gv = 1500(Cp) + 0(Pp) - 1500 = 0$
$Cv = 0(Gv) - 1500(Cp) = -1500$
$Pv = 0(Gv) - 0(Pp) + 1500(Cp) - e < 750$

III: $Gv = 0(Cp) + 1500(Pp) - 1500 = 0$
$Cv = 0(Gv) - 0(Cp) - e < -750$
$Pv = 0(Gv) - 1500(Pp) + 0(Cp) = -1500$

IV: $Gv = 0(Cp) + 0(Pp) - 1500 = -1500$
$Cv = -1500(Gv) - 0(Cp) - e < -2250$
$Pv = 0(Gv) - 0(Pp) + 0(Cp) - e < -750$

Game result: Success, because the game results in either Column I or Column II. When e is larger than 1500, Column I becomes the dominant solution.

Figure 28c/e: Half environmental value for producers

Case 3: $Gv = Gvc$, $Gvp = Gv/2$, $e>750$

		ITTO Producing Countries	
		Contribute	Not contribute
ITTO Consuming Countries	Contribute	(0) -750 0	(0) -1500 1500-e (Pv<750)
	Not contribute	(0) 0-e -1500 (Cv<-750)	(-1500) -1500-e -750-e (Cv<-2250)(Pv<-1500)

(million $)

I: $Gv = 750(Cp) + 750(Pp) - 1500 = 0$
$Cv = 0(Gv) - 750(Cp) = -750$
$Pv = 0(Gv)/2 - 750(Pp) + 750(Cp) = 0$

II: $Gv = 1500(Cp) + 0(Pp) - 1500 = 0$
$Cv = 0(Gv) - 1500(Cp) = -1500$
$Pv = 0(Gv)/2 - 0(Pp) + 1500(Cp) - e < 750$

III: $Gv = 1500(Cp) + 0(Pp) - 1500 = 0$
$Cv = 0(Gv) - 0(Cp) - e < -750$
$Pv = 0(Gv)/2 - 1500(Pp) + 0(Cp) = -1500$

IV: $Gv = 0(Cp) + 0(Pp) - 1500 = -1500$
$Cv = -1500(Gv) - 0(Cp) - e < -2250$
$Pv = -1500(Gv)/2 - 0(Pp) + 0(Cp) - e < -1500$

Game result: Success, because the game results in either Column I or Column II. When e is larger than 1500, Column I becomes the dominant solution.

Figure 30a/e: Same environmental value for both consumers and Malaysia

Case 1: $GMv = Gvc = Gvm$, $e>26.25$

		Malaysia: Contribute	Malaysia: Not Contribute
ITTO Consuming Countries	Contribute	I (52.5) 26.25 26.25	II (52.5) 0 52.5-e $(Mv<26.25)$
	Not Contribute	III (52.5) 52.5-e 0 $(Cv<26.25)$	IV (0) 0-e 0-e $(Cv<-26.25)$ $(Pv<-26.25)$

(million $)

I: $GMv = 26.25(Cp) + 26.25(Mp) = 52.5$
$Cv = 52.5(GMv) - 750(Cp) = 26.25$
$Mv = 52.5(Gvm) - 750(Mp) = 26.25$

II: $GMv = 52.5(Cp) + 0(Mp) = 52.5$
$Cv = 52.5(GMv) - 52.5(Cp) = 0$
$Mv = 52.5(Gvm) - 0(Mp) -e < 26.25$

III: $GM = 52.5(Cp) + 0(Mp) = 52.5$
$Cv = 52.5(GMv) - 0(Cp) -e < 26.25$
$Mv = 52.5(Gvm) - 52.5(Mp) = 0$

IV: $GMv = 0(Cp) + 0(Mp) = 0$
$Cv = 0(GMv) - 0(Cp) -e < -26.25$
$Mv = 0(Gvm) - 0(Mp) -e < -26.25$

Game result: Success, because Column I is the dominant solution (Column I Cv & Mv > Column II Cv & Mv > Column IV Cv & Mv).

Figure 30b/e: No environmental value for Malaysia

Case 2: GMv = Gvc, Gvm = 0, e>26.25

ITTO Consuming Countries \ Malaysia	Contribute	Not contribute
Contribute	I (52.5) 26.25 -26.25	II (52.5) 0 0-e (Mv<-26.25)
Not contribute	III (52.5) 52.5-e -52.5 (Cv<26.25)	IV (0) 0-e 0-e (Cv<-26.25) (Mv<-26.25)

(million $)

I: $GMv = 26.25(Cp) + 26.25(Mp) = 52.5$
$Cv = 52.5(GMv) - 26.25(Cp) = 26.25$
$Mv = 0(Gvm) - 26.25(Mp) = -26.25$

II: $GMv = 52.5(Cp) + 0(Mp) = 52.5$
$Cv = 52.5(GMv) - 52.5(Cp) = 0$
$Mv = 0(Gvm) - 0(Mp) - e < -26.25$

III: $GMv = 0(Cp) + 52.5(Mp) = 52.5$
$Cv = 52.5(GMv) - 0(Cp) - e < 26.25$
$Mv = 0(Gvm) - 52.5(Mp) = -52.5$

IV: $GMv = 0(Cp) + 0(Mp) = 0$
$Cv = 0(GMv) - 0(Cp) - e < -26.25$
$Mv = 0(Gvm) - 0(Mp) - e < -26.25$

Game result: Success, because Column I is the dominant solution (Column I Cv & Mv > Column II Cv & Mv > Column IV Cv & Mv).

Figure 30c/e: Half environmental value for Malaysia

Case 3: GMv = Gvc,   Gvm = GMv/2,   e>26.25

	Malaysia: Contribute	Malaysia: Not contribute
ITTO Consuming Countries: Contribute	I (52.5) 26.25 0	II (52.5) 0 26.25-e (Mv<0)
ITTO Consuming Countries: Not contribute	III (52.5) 52.5-e -26.25 (Cv<26.25)	IV (0) 0-e 0-e (Cv<-26.25) (Mv<-26.25)

(million $)

I: GMv = 26.25(Cp) + 26.25(Mp) = 52.5
Cv = 52.5(GMv) - 26.25(Cp) = 26.25
Mv = 52.5(GMv)/2 - 26.25(Mp) = 0

II: GMv = 52.5(Cp) + 0(Mp) = 52.5
Cv = 52.5(GMv) - 52.5(Cp) = 0
Mv = 52.5(GMv)/2 - 0(Mp) -e < 0

III: GMv = 52.5(Cp) + 0(Mp) = 52.5
Cv = 52.5(GMv) - 0(Cp) -e < 26.25
Mv = 52.5(GMv)/2 - 52.5(Mp) = -26.25

IV: GMv = 0(Cp) + 0(Mp) = 0
Cv = 0(GMv) - 0(Cp) -e < -26.25
Mv = 0(GMv)/2 - 0(Mp) -e < -26.25

Game result: Success, because Column I is the dominant solution (Column I Cv & Mv > Column II Cv & Mv > Column IV Cv & Mv).

Figure 31a/e: Same environmental value for both Malaysia and consumers

Case 1: GM = Gvc = Gvm, e>26.25

		Malaysia: Contribute	Malaysia: Not Contribute
ITTO Consuming Countries	Contribute	I (52.5) 26.25 52.5	II (52.5) 0 105-e (Mv<78.75)
	Not Contribute	III (52.5) 52.5-e 0 (Cv<26.25)	IV (0) 0-e 0-e (Cv<-26.25) (Mv<-26.25)

(million $)

I: GMv = 26.25(Cp) + 26.25(Mp) = 52.5
Cv = 52.5(GMv) - 26.25(Cp) = 26.25
Mv = 52.5(Gvm) - 26.25(Mp) + 26.25(Cp) = 52.5

II: GM = 52.5(Cp) + 0(Mp) = 52.5
Cv = 52.5(GM) - 52.5(Cp) = 0
Mv = 52.5(Gvm) - 0(Mp) + 52.5(Cp) -e < 78.75

III: GMv = 52.5(Cp) + 0(Mp) = 52.5
Cv = 52.5(GMv) - 0(Cp) -e < 26.25
Mv = 52.5(Gvm) - 52.5(Mp) + 0(Cp) = 0

IV: GMv = 0(Cp) + 0(Mp) = 0
Cv = 0(GMv) - 0(Cp) -e < -26.25
Mv = 0(Gvm) - 0(Mp) + 0(Cp) -e < -26.25

Game result: Success, because the game results in either Column I or Column II. When e is larger than 52.5, Column I becomes the dominant solution.

Figure 31b/e: No environmental value for Malaysia

Case 2: GMv = Gvc, Gvm = 0, e>26.25

		Malaysia: Contribute	Malaysia: Not contribute
ITTO Consuming Countries	Contribute	I (52.5) 26.25 0	II (52.5) 0 52.5-e (Mv<26.25)
	Not contribute	III (52.5) 52.5-e -52.5 (Cv<26.25)	IV (0) 0-e 0-e (Cv<-26.25) (Mv<-26.25)

(million $)

I: GMv = 226.25(Cp) + 26.25(Mp) = 52.5
Cv = 552.5(GMv) - 26.25(Cp) = 26.25
Mv = 0(Gvm) - 26.25(Mp) + 26.25(Cp) = 0

II: GMv = 52.5(Cp) + 0(Mp) = 52.5
Cv = 52.5(GMv) - 52.5(Cp) = 0
Mv = 0(Gvm) - 0(Mp) + 52.5(Cp) -e < 26.25

III: GMv = 0(Cp) + 52.5(Mp) = 52.5
Cv = 52.5(GMv) - 0(Cp) -e < 26.25
Mv = 0(Gvm) - 52.5(Mp) + 0(Cp) = -52.5

IV: GMv = 0(Cp) + 0(Mp) = 0
Cv = 0(GMv) - 0(Cp) -e < -26.25
Mv = 0(Gvm) - 0(Mp) + 0(Cp) -e < -26.25

Game result: Success, because the game results in either Column I or Column II. When e is larger than 52.5, Column I becomes the dominant solution.

Figure 31c/e: Half environmental value for Malaysia

Case 3: $GMv = Gvc$, $Gvm = GMv/2$, $e>26.25$

		Malaysia: Contribute	Malaysia: Not contribute
ITTO Consuming Countries	Contribute	I (52.5) 26.25 26.25	II (52.5) 0 78.75-e (Mv<52.5)
	Not contribute	III (52.5) 52.5-e -26.25 (Cv<26.25)	IV (0) 0-e 0-e (Cv<-26.25) (Mv<-26.25)

(million \$)

I: $GMv = 26.25(Cp) + 26.25(Mp) = 52.5$
$Cv = 52.5(GMv) - 26.25(Cp) = 26.25$
$Mv = 52.5(GMv)/2 - 26.25(Mp) + 26.25(Cp) = 26.25$

II: $GMv = 52.5(Cp) + 0(Mp) = 52.5$
$Cv = 52.5(GMv) - 52.5(Cp) = 0$
$Mv = 52.5(GMv)/2 - 0(Mp) + 52.5(Cp) -e < 52.5$

III: $GMv = 52.5(Cp) + 0(Mp) = 52.5$
$Cv = 52.5(GMv) - 0(Cp) -e < 26.25$
$Mv = 52.5(GMv)/2 - 52.5(Mp) + 0(Cp) = -26.25$

IV: $GMv = 0(Cp) + 0(Mp) = 0$
$Cv = 0(GMv) - 0(Cp) -e < -26.25$
$Mv = 0(GMv)/2 - 0(Mp) + 0(Cp) -e < -26.25$

Game result: Success, because the game results in either Column I or Column II. When e is larger than 52.5, Column I becomes the dominant solution.

Figure 33a/e: Same environmental value for both consumers and Thailand

Case 1: GTv = Gvc = Gvt, e>21.75

		Thailand	
		Contribute	Not Contribute
ITTO Consuming Countries	Contribute	I (0) -21..75 -21.75	II (0) -43.5 0-e (Tv<-21.75)
	Not Contribute	III (0) 0-e -43.5 (Cv<-21.75)	IV (-43.5) -43.5-e -43.5-e (Cv<-65.25) (Tv<-62.25)

(million $)

I: GTv = 21.75(Cp) + 21.75(Tp) - 43.5 = 0
Cv = 0(GTv) - 21.75(Cp) = -21.75
Tv = 0(Gvt) - 21.75(Tp) = -21.75

II: GTv = 43.5(Cp) + 0(Tp)-43.5 = 0
Cv = 0(GTv) - 43.5(Cp) = -43.5
Tv = 0(Gvt) - 0(Tp) -e < -21.75

III: GTv = 43.5(Cp) + 0(Tp) -43.5 = 0
Cv = 0(GTv) - 0(Cp) -e < -21.75
Tv = 0(Gvt) - 43.5(Tp) = -43.5

IV: GTv = 0(Cp) + 0(Tp) -43.5 = -43.5
Cv = -43.5(GTv) - 0(Cp) -e < -65.25
Tv = -43.5(Gvt) - 0(Tp) -e < -65.25

Game result: Success, because Column I is the dominant solution (Column I Cv & Tv > Column II/III Cv & Tv > Column IV Cv & Tv).

Figure 33b/e: No environmental value for Thailand

Case 2: GTv = Gvc, Gvt = 0, e>21.75

		Thailand	
		Contribute	Not contribute
ITTO Consuming Countries	Contribute	I (0) -21.75 -21.75	II (0) -43.5 0-e (Tv<-21.75)
	Not contribute	III (0) 0-e -43.5 (Cv<-21.75)	IV (-43.5) -43.5-e 0-e (Cv<-65.25) (Tv<-21.75)

(million $)

I: GTv = 21.75(Cp) + 21.75(Tp) -43.5 = 0
Cv = 0(GTv) - 21.75(Cp) = -21.75
Tv = 0(Gvt) - 21.75(Tp) = -21.75

II: GTv = 43.5(Cp) + 0(Tp) -43.5 = 0
Cv = 0(GTv) - 43.5(Cp) = -43.5
Tv = 0(Gvt) - 0(Tp) -e < -21.75

III: GTv = 0(Cp) + 43.5(Tp) -43.5 = 0
Cv = 0(GTv) - 0(Cp) -e < -21.75
Tv = 0(Gvt) - 43.5(Tp) = -43.5

IV: GTv = 0(Cp) + 0(Tp) -43.5 = -43.5
Cv = -43.5(GTv) - 0(Cp) -e < -65.25
Tv = 0(Gvt) - 0(Tp) -e < -21.75

Game result: Success, because Column I is the dominant solution (Column I Cv & Tv > Column II/III Cv & Tv > Column IV Cv & Tv).

Figure 33c/e: Half environmental value for Thailand

Case 3: GTv = Gvc,   Gvt = GTv/2,   e>21.75

ITTO Consuming Countries \ Thailand	Contribute	Not contribute
Contribute	(0) -21.75 -21.75	(0) -43.5 0-e (Tv<-21.75)
Not contribute	(0) 0-e -43.5 (Cv<-21.75)	(-43.5) -43.5-e -21.75-e (Cv<-65.25) (Tv<-43.5)

(million $)

I: GTv = 21.75(Cp) + 21.75(Tp) -43.5 = 0
Cv = 0(GTv) - 21.75(Cp) = -21.75
Tv = 0(GTv)/2 - 21.75(Tp) = -21.75

II: GTv = 43.5(Cp) + 0(Tp) -43.5 = 0
Cv = 0(GTv) - 43.5(Cp) = -43.5
Tv = 0(Gvt)/2 - 0(Tp) -e <-21.75

III: GTv = 43.5(Cp) + 0(Tp) -43.5 = 0
Cv = 0(GTv) - 0(Cp) -e <-21.75
Tv = 0(GTv)/2 - 43.5(Tp) = -43.5

IV: GTv = 0(Cp) + 0(Tp) -43.5 = -43.5
Cv = -43.5(GTv) - 0(Cp) -e < -65.25
Tv = -43.5(GTv)/2 - 0(Tp) -e < -43.5

Game result: Success, because Column I is the dominant solution (Column I Cv & Tv > Column II/III Cv & Tv > Column IV Cv & Tv).

Figure 34a/e: Same environmental value for both consumers and Thailand

Case 1: GTv = Gvc = Gvt, $e > 21.75$

		Thailand	
		Contribute	Not Contribute
ITTO Consuming Countries	Contribute	I (0) -21.75 0	II (0) -43.5 43.5-e (Tv<21.75)
	Not Contribute	III (0) 0-e -43.5 (Cv<-21.75)	IV (-43.5) -43.5-e -43.5-e (Cv<-65.25) (Tv<-65.25)

(million $)

I: $GTv = 21.75(Cp) + 21.75(Tp) - 43.5 = 0$

$Cv = 0(GTv) - 21.75(Cp) = -21.75$

$Tv = 0(Gvt) - 21.75(Tp) + 21.75(Cv) = 0$

II: $GTv = 43.5(Cp) + 0(Tp) - 43.5 = 0$

$Cv = 0(GTv) - 43.5(Cp) = -43.5$

$Tv = 0(Gvt) - 0(Tp) + 43.5(Cp) - e < 21.75$

III: $GTv = 43.5(Cp) + 0(Tp) - 43.5 = 0$

$Cv = 0(GTv) - 0(Cp) - e < -21.75$

$Tv = 0(Gvt) - 43.5(Tp) + 0(Cp) = -43.5$

IV: $GTv = 0(Cp) + 0(Tp) - 43.5 = -43.5$

$Cv = -43.5(GTv) - 0(Cp) - e < =65.25$

$Tv = -43.5(Gvt) - 0(Tp) + 0(Cp) - e < -65.25$

Game result: Success, because the game results in either Column I or Column II. When e is larger than 43.5, Column I becomes the dominant solution.

Figure 34b/e: No environmental value for Thailand

Case 2: GTv = Gvc, Gvt = 0, e>21.75

ITTO Consuming Countries \ Thailand	Contribute	Not contribute
Contribute	I (0) -21.75 0	II (0) -43.5 43.5-e (Tv<21.75)
Not contribute	III (0) 0-e -43.5 (Cv<-21.75)	IV (-43.5) -43.5-e 0-e (Cv<-65.25) (Tv<-21.75)

(million $)

I: $GTv = 21.75(Cp) + 21.75(Tp) - 43.5 = 0$
$Cv = 0(GTv) - 21.75(Cp) = -21.75$
$Tv = 0(Gvt) - 21.75(Tp) + 21.75(Cp) = 0$

II: $GTv = 43.5(Cp) + 0(Tp) -43.5 = 0$
$Cv = 0(GTv) - 43.5(Cp) = -43.5$
$Tv = 0(Gvt) - 0(Tp) + 43.5(Cp) -e < 21.75$

III: $GTv = 0(Cp) + 43.5(Tp) -43.5 = 0$
$Cv = 0(GTv) - 0(Cp) -e < -21.75$
$Tv = 0(Gvt) - 43.5(Tp) +0(Cp) = -43.5$

IV: $GTv = 0(Cp) + 0(Tp) -43.5 = -43.5$
$Cv = -43.5(GTv) - 0(Cp) -e < -65.25$
$Tv = 0(Gvt) - 0(Tp) +0(Cp) -e < -21.75$

Game result: Success, because the game results in either Column I or Column II. When e is larger than 43.5, Column I becomes the dominant solution.

Figure 34c/e: Half environmental value for Thailand

Case 3: GTv = Gvc, Gvt = GTv/2, e>21.75

		Thailand	
		Contribute	Not contribute
ITTO Consuming Countries	Contribute	I (0) -21.75 0	II (0) -43.5 43.5-e (Tv<21.75)
	Not contribute	III (0) 0-e -43.5 (Cv<-21.75)	IV (-43.5) -43.5-e -21.75-e (Cv<-65.25) (Tv<-43.5)

(million $)

I: GTv = 21.75(Cp) + 21.75(Tp) -43.5 = 0
Cv = 0(GTv) - 21.75(Cp) = -21.75
Tv = 0(GTv)/2 - 21.75(Tp) + 21.75(Cp) = 0

II: GTv = 43.5(Cp) + 0(Tp) - 43.5 = 0
Cv = 0(GTv) - 43.5(Cp) = -43.5
Tv = 0(GTv)/2 - 0(Tp) + 43.5(Cp) -e < 21.75

III: GTv = 43.5(Cp) + 0(Tp) -43.5 = 0
Cv = 0(GTv) - 0(Cp) -e < -21.75
Tv = 0(GTv)/2 - 43.5(Tp) + 0(Cp) = -43.5

IV: Gv = 0(Cp) + 0(Tp) - 43.5 = -43.5
Cv = -43.5(GTv) - 0(Cp) -e < -65.25
Tv = -43.5(GTv)/2 - 0(Tp) +0(Cp) -e < -43.5

Game result: Success, because the game results in either Column I or Column II. When e is larger than 43.5, Column I becomes the dominant solution.

Figure 37e: Contribution to the Bali Partnership Fund and Game Theory
Scenario 6: Japan (Gv = Jp + OCp), e>750

		Contribution by Japan: Contribute	Contribution by Japan: Not Contribute
Contribution by Other Consumers	Contribute	(1500) 600 900 I	(1500) 0 1500-e (Jv<750) II
	Not Contribute	(1500) 1500-e 0 (OCv<750) III	(0) 0-e 0-e (OCv<-750) (Jv<-750) IV

(million US dollars)

I: Gv = 600(Jp) + 900(OCp) = 1500
Jv = 1500(Gvj) - 600(Jp) = 900
OCv = 1500(Gvoc) - 900(OCp) = 600

II: Gv = 0(Jp) + 1500(OCp) = 1500
Jv = 1500(Gvj) - 0(Jp)-e < 750
OCv = 1500(Gvoc) - 1500(OCp) = 0

III: Gv = 1500(Jp) + 0(OCp) = 1500
Jv = 1500(Gvj) - 1500(Jp) = 0
OCv = 1500(Gvoc) - 0(OCp) -e < 750

IV: Gv = 0(Jp) + 0(OCp) = 0
Jv = 0(Gvj) - 0(Jp) -e < 750
OCv = 0(Gvoc) - 0(OCp) -e < 750

Game result: Success, because the game results in either Column I or Column III. When e is larger than 900, Column I becomes the dominant solution.