Chapter 4

Results of Analysis

## 4.1 Payoffs (General scenarios)

The payoff relations obtained from the games played in the Chapter 3 can be highlighted by taking out the amounts for Columns I and IV for producers. The following are some reasons why the said amounts should be highlighted.

(1) Consumers payoff amounts are identical for all the cases within the same scenario because consumers are assumed to recognize the same full positive value in the environmental quality of tropical timbers. Therefore, it is not necessary to compare the payoff amounts of consumers. On the other hand, payoff amounts vary from case to case for producers because they are assumed to recognise different values in environmental assets of tropical timbers.

(2) Column I represents the case both consumers and producers agree to contribute the conservation of tropical forests by providing contributions to the Bali Partnership Fund. Column IV represents the case the both groups decide not to contribute to the Bali Partnership Fund. Consumers' value for Column I is always higher than that of Column IV owing to the said assumption but producers' value for Column I can be higher or lower depending on the types of scenarios and cases. Therefore, the games that produce higher value in Column I than Column VI for producers can be identified as the effective games for the Bali Partnership Fund to be successful.

(3) In this paper, it is presumed that ITTO can provide the proper platform to overcome the 'prisoners dilemma'; therefore, the Column IV is not the inevitable result. Column I (or Column II and III) is assumed to be achieved if the producers and consumers hold proper negotiation under ITTA of 1994 at the meetings of ITTO. However, it should be noted that this can only be applied to the cases the value in Column IV is lower than that in other Columns. There is no way to induce contribution

from producers when their Column IV value is the highest.

For this purpose, the game results are rearranged as follows:

| Scenario | Case | Pv(Column I) | Pv(Column IV) | Result |
|---|---|---|---|---|
| 1 | 1 | 750 | -1500 | Success |
| | 2 | -750 | 0 | Failure |
| | 3 | 0 | -750 | Success |
| 1b | 1 | 1500 | -1500 | Success |
| | 2 | 0 | 0 | In-between |
| | 3 | 750 | -750 | Success |
| 2 | 1 | 750 | 0 | Success |
| | 2 | -750 | 0 | Failure |
| | 3 | 0 | 0 | In-between |
| 2b | 1 | 1500 | 0 | Success |
| | 2 | 0 | 0 | In-between |
| | 3 | 750 | 0 | Success |
| 3 | 1 | -750 | -1500 | Success |
| | 2 | -750 | 0 | Failure |
| | 3 | -750 | -750 | In-between |
| 3b | 1 | 0 | -1500 | Success |
| | 2 | 0 | 0 | In-between |
| | 3 | 0 | -750 | Success |

Here, 'Success' means the case in which Pv (Column I) is higher than Pv (Column IV) because then the producers have the positive incentive to contribute to the Bali Partnership Fund. Likewise, 'Failure' means the case Pv (Column I) is lower than Pv (Column IV). 'In-between' means the case Pv (Column I) equals Pv (Column IV) and it depends on the negotiation with consumers for producers to decide which Column they should choose.

For the supplementary games with a parameter 'e' which represents the existence of enforcement power by punishment, payoff relations are rearranged as follows. It should be noted that the factor 'a' is not assumed to exist for these games; therefor, the games can fall into the prisoners dilemma.

| Scenario | Case | Pv(Column I) | Pv(Column II) | Pv(Column IV) |
|---|---|---|---|---|
| 1e | 1 | 750 | <750 | -1500 |
| | 2 | -750 | <-750 | 0 |
| | 3 | 0 | <0 | -750 |
| 1b/e | 1 | 1500 | <2250 | -1500 |
| | 2 | 0 | <750 | 0 |
| | 3 | 750 | <1500 | -750 |
| 2e | 1 | 750 | <750 | 0 |
| | 2 | -750 | <-750 | 0 |
| | 3 | 0 | <0 | 0 |
| 2b/e | 1 | 1500 | <2250 | 0 |
| | 2 | 0 | <750 | 0 |
| | 3 | 750 | <1500 | 0 |
| 3e | 1 | -750 | <-750 | -1500 |
| | 2 | -750 | <-750 | 0 |
| | 3 | -750 | <-750 | -750 |
| 3b/e | 1 | 0 | <750 | -1500 |
| | 2 | 0 | <750 | 0 |
| | 3 | 0 | <750 | -750 |

For all the above games, results turned out to be the success. However, results are not the same between the games with and without transfer from consumers to producers. When there is no transfer, the games always result in Column I, while the games can result either in Column I or II when the transfer is made.

## 4.2 Payoff Relations (Malaysia and Thailand)

For Malaysia and Thailand, the payoff relations obtained from the games played in the Chapter III for Columns I and IV can be rearranged as follows.

&lt;Malaysia&gt;

| Scenario | Case | Mv(Column I) | Mv(Column IV) | Result |
|---|---|---|---|---|
| 4 | 1 | 26.25 | 0 | Success |
| | 2 | -26.25 | 0 | Failure |
| | 3 | 0 | 0 | In-between |
| 4b | 1 | 52.5 | 0 | Success |
| | 2 | 0 | 0 | In-between |
| | 3 | 26.25 | 0 | Success |

&lt;Thailand&gt;

| Scenario | Case | Tv(Column I) | Tv(Column IV) | Result |
|---|---|---|---|---|
| 5 | 1 | -21.75 | -43.5 | Success |
| | 2 | -21.75 | 0 | Failure |
| | 3 | -21.75 | -21.75 | In-between |
| 5b | 1 | 0 | -43.5 | Success |
| | 2 | 0 | 0 | In-between |
| | 3 | 0 | -21.75 | Success |

For the supplementary games with a parameter 'e' which represents the existence of enforcement power by punishment, payoff relations are rearranged as follows.

<Malaysia>

| Scenario | Case | Mv(Column I) | Mv(Column II) | Mv(Column IV) |
|---|---|---|---|---|
| 4e | 1 | 26.25 | <26.25 | <-26.25 |
| | 2 | -26.25 | <-26.25 | <-26.25 |
| | 3 | 0 | <0 | <-26.25 |
| 4b/e | 1 | 52.5 | <78.75 | <-26.25 |
| | 2 | 0 | <26.25 | <-26.25 |
| | 3 | 26.25 | <52.5 | <-26.25 |

<Thailand>

| Scenario | Case | Tv(Column I) | Tv(Column IV) | Tv(Column IV) |
|---|---|---|---|---|
| 5e | 1 | -21.75 | <-21.75 | <-65.25 |
| | 2 | -21.75 | <-21.75 | <-43.5 |
| | 3 | -21.75 | <-21.75 | <-43.5 |
| 5b/e | 1 | 0 | <21.75 | <-65.25 |
| | 2 | 0 | <21.75 | <-21.75 |
| | 3 | 0 | <21.75 | <-43.5 |

For all the above games, results turned out to be the success. However, results are not the same between the games with and without transfer from consumers to producers. When there is no transfer, the games always result in Column I, while the games can result either in Column I or II when the transfer is made.

## 4.3 Payoff Relations between Pv (Column II) and Pv (Column IV)

Next, the producers' value (Pv) for Column II and IV are compared. This comparison is also useful to know the effectiveness of each game for the conservation of tropical forests because the producers would try to negotiate with consumers if the Pv in Column II is higher than that of Column IV even though the value in Column I is lower than the value in Column IV. In other words, producers will not have any incentive to achieve conservation if the Pv in Column IV is higher than Pv in both Column I and II. Therefore, the comparison between the Pvs in Column II and Column IV will reveal the effectiveness of each game in relation to tropical forest conservation through the Bali Partnership Fund.

It should be noted that the comparison between Column I and II is irrelevant to the judgement of success or failure of the games because the producers' value in Column II is always higher than Column III by the definition of the games adopted in this thesis.

For this comparison, the game results are rearranged as follows:

| Scenario | Case | Pv(Column II) | Pv(Column IV) | Result |
|---|---|---|---|---|
| 1 | 1 | 1500 | -1500 | Success |
| | 2 | 0 | 0 | In-between |
| | 3 | 750 | -750 | Success |
| 1b | 1 | 3000 | -1500 | Success |
| | 2 | 1500 | 0 | Success |
| | 3 | 2250 | -750 | Success |
| 2 | 1 | 1500 | 0 | Success |
| | 2 | 0 | 0 | In-between |
| | 3 | 750 | 0 | Success |
| 2b | 1 | 3000 | 0 | Success |
| | 2 | 1500 | 0 | Success |
| | 3 | 2250 | 0 | Success |
| 3 | 1 | 0 | -1500 | Success |
| | 2 | 0 | 0 | In-between |
| | 3 | 0 | -750 | Success |
| 3b | 1 | 1500 | -1500 | Success |
| | 2 | 1500 | 0 | Success |
| | 3 | 1500 | -750 | Success |

## 4.4 Payoff Relations between Pv (Column II) and Pv (Column IV)

### ---Malaysia and Thailand---

| Scenario | Case | Mv(Column II) | Mv(Column IV) | Result |
|----------|------|---------------|---------------|------------|
| 4 | 1 | 52.5 | 0 | Success |
|   | 2 | 0 | 0 | In-between |
|   | 3 | 26.25 | 0 | Success |
| 4b | 1 | 105 | 0 | Success |
|   | 2 | 52.5 | 0 | Success |
|   | 3 | 78.75 | 0 | Success |

| Scenario | Case | Tv(Column II) | Tv(Column IV) | Result |
|----------|------|---------------|---------------|------------|
| 5 | 1 | 0 | -43.5 | Success |
|   | 2 | 0 | 0 | In-between |
|   | 3 | 0 | -21.75 | Success |
| 5b | 1 | 43.5 | -43.5 | Success |
|   | 2 | 43.5 | 0 | Success |
|   | 3 | 43.5 | -21.75 | Success |

## 4.5 Payoff Relations for Japan

For consumers, only one game was played for Japan. It should be enough to mention that the game is successful because the value in Column I is higher than that of Column IV but the game is also unstable because the value in Column II is higher than that of Column I. (As already mentioned before, this implies that the contribution arrangement can fall into prisoners dilemma if the proper negotiation is not organized under the ITTA of 1994.)