SAM Paper Series **3** (2001)

**Mountain Agrarian Systems**

# SAMBA role-play in Xuat Hoa commune Bac Kan province, northern Vietnam

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## Abstract

This report presents the first experiment of using the SAMBA role-play game as a research tool by Mountain Agrarian Systems Program (SAM-Regional) in Bac Kan province of Vietnam. The role-play game was a follow-up to our previous work, field study and multi-agent modeling, done in the same commune. We present the game[1] and its rules, the sequence of events during the role-play session in Xuât Hoa commune, and an analysis of the process. Results from this experiment show that role-plays can be a useful tool both to validate hypotheses and to conduct research in a participatory way.

***Keywords:*** Role-play; participatory research; Xuât Hoa; Bac Kan; Vietnam

## 1. Introduction

One of the goals of SAM-Regional program is to understand agricultural dynamics in Bac Kan province, northern Vietnam and their consequences on land-use changes from village to provincial level. In pursuit of this goal, the SAMBA multi-agent model was developed to explore how successive lowland allocations at the end of the collective period affected the use of uplands (Castella et al., 2000).

The main findings of that study were that during the 1982-1990 period, the decision between opening upland fields or growing cash crops could be explained on the basis of the demographic structure of the family (ratio between mouths to feed and labor force). Following this, one could make the hypothesis of the absence of coordination between agents who were acting in a mainly reactive way.

However, field studies conducted in Bac Kan province indicated that land-use dynamics after 1990 were much more complex and diverse (Tran Quoc Hoa, 1999; Sadoulet et al., 2000). In order to characterize these dynamics in all their diversity, without the need for time-consuming multiple field studies, we had to develop a new methodology. We chose to derive a role-play game from the multi-agent model (Castella et al., 2000). That is, we kept the basic structure and functioning of the modeled environment, but transposed it onto a game board. Players (farmers) then are put into a situation inside this environment in which they can act, constrained only by a few general rules.

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[1] In this document, we use the term "game" to designate the equipment used and the rules applying to the "role-play", which in turn designates the whole process including the participants (players and facilitators).

On the 4th July 2000 the SAMBA role-play was tested for the first time in Xuat Hoa commune, Bac Kan town with the active participation of 10 farmers from Ban Don village. The farmers have been selected for their representativeness after the fieldwork implemented in this commune (Sadoulet et al., 2000). The role-play has been conducted on a whole day meeting with the farmers.

This was the first experiment of the SAMBA role-play. Consequently, although this report will give some results of the experiment, the report primarily should be considered as a written methodology for conducting the role-play. Furthermore, it helps the facilitators to realize the shortcomings and good points of the role-play in order to improve it the next time it is conducted in another place.

## 2. Composition and basic rules of the game

The game is composed of (see Figure 1):

- A game board made of 1600 wooden cubes, each representing a plot of 1000 square meters or 1 bung[2]. The 6 sides of each cube are coloured as follows:
  - dark green symbolizing the forest;
  - light green symbolizing paddy fields;
  - yellow symbolizing upland rice;
  - red symbolizing plantations of cash crops (fruit trees);
  - black symbolizing housing;
  - blue symbolizing river.
- Three sets of playing cards:
  - The "land" cards associated with each cube. Such a card is given to the player for each of his/her paddy field, upland field or cash crop field. On the card is written the use made of the plot year after year. It thus allows the facilitators to follow the evolution of land use and may help in analyzing the strategy developed by the player.
  - The "household" cards that determine the composition of each player's household in terms of labor force and total mouths to feed.
  - The "paddy field" cards numbered from 1 to 3 and used to distribute paddy fields to the players at the beginning of the role-play.
- Wooden chips symbolizing buffaloes that can be bought by players.

*Figure 1: The game board used for Samba role-play showing different colours representing land-use types*

[2] A "bung" is a traditional unit of land measure in northern Vietnam.

### 2.1. Initiation of the role-play

- The facilitator sets the initial land use for each of the 1600 plots of land (see role play description below).
- Each player draws a "household" card, which will assign him or her the composition of his or her household during the game, and therefore his or her needs set at 300 kg paddy/year/person.
- Each player draws a "paddy field" card, which will assign him or her a number of irrigated rice plots from 1 to 3, i.e. from 1000 to 3000 square meters (or 1 to 3 bungs).

### 2.2. Steps of play

- Players take turns deciding how to allocate their land, labor, and capital[3]. Each successive round of play represents one successive year. During his or her turn, a player can take one or more of the following actions:
  - Clear uplands to grow upland rice. The player has to choose the number of plots to use depending on his or her available labor force (one unit of labor force can grow 4 bungs of upland rice) and the location of his or her new fields on the board. No labor cost is associated to the clearing of new plots and the labor requirement is the same for all years of exploitation.
  - Convert his or her paddy fields from 1 cycle/year to 2 cycles/year. In that case, the required labor force for one plot shifts from 0.5 unit to 1 unit and one buffalo is also needed.
  - Construct new paddy fields and choose their location on the board.
  - Plant cash crops in the uplands following the same process as for upland rice fields. For cash crops, one unit of labor force can plant 5 bungs. The same amount of labor force is required every year.
  - Buy buffaloes from the facilitator at a price of 1000 kg of paddy/buffalo, or from other players at a mutually agreeable price.
- After each player has completed a turn, the facilitator distributes the production from the various crops to the players[4]:
  - For paddy fields, the production is fixed at 400 kg paddy/bung/year for a 1-cycle field and 700 kg paddy/bung/year for a 2-cycle field.
  - For cash crops, there is no production for the first four years after planting the crop. For the fifth and subsequent years, the production is fixed at the equivalent of 450 kg paddy/bung/year.
  - For upland rice, the production depends on the age of the forest at the time the land was cleared, and depends on the number of years of rice production, as shown in Table 1.

*Table 1: Upland rice production (kg/1000m2/year) according to the type of preceding land cover and number of cropping cycles. Based on data from Husson et al. (2001).*

| | | Age of the forest before clearing (years) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10+ |
| years of rice production | 1 | 20 | 40 | 60 | 80 | 100 | 110 | 120 | 130 | 140 | 150 |
| | 2 | | 10 | 30 | 50 | 70 | 80 | 90 | 100 | 110 | 120 |
| | 3 | | | | 10 | 30 | 40 | 50 | 60 | 70 | 80 |

[3] Labor requirements for the different options are derived from field data. They have been standardized in order to keep the role-play simple.

[4] Production patterns are also derived from field data and standardized for the requirement of the game.

## 3. Role-play description

At the beginning of the role-play, the game board represents a forest along the banks of a river. We put the players into the situation by creating along the river a village, their village, which we called Ban Khuoi Nam.

Each player then drew a "household" card for family structure, which comprised two factors (mouths to feed and labor force). Each player also drew a "paddy field" card determining his or her area of paddy field (between 1 and 3 bungs). The combinations of family structures and paddy field areas resulted in very different individual situations as summarized in Table 2.

The various explicit options were explained to the players: growing flooded rice, upland rice, or cash crops. In addition, whenever a player had accumulated enough rice (1tons), he or she could barter it for a buffalo. Apart from that, the players could convert their one-cycle paddy fields into two-cycle, or construct new paddy fields, which were implicit options, i.e. the facilitators didn't inform the players about these options.

First round

In the first round, all the players chose to allocate at least part of their spare labor force to the growing of upland rice, even those who had enough paddy fields to meet their needs. All of them tried to choose the cubes closest to the river, their paddy fields, and their houses. According to the players, it is more convenient to have upland rice fields close to the village, so could take good care of the fields, not having to walk too far from home.

Some players realized at the very beginning that if they didn't grow upland rice right away they wouldn't have enough rice at the end of the first time step, so they used all their available labor force to grow upland rice. Some others made careful calculations, choosing the fewest upland-rice plots needed to meet immediate consumption needs (300 kg per person per year) and reserving the rest of their labor force to grow cash crops. A third group of players were confused and didn't really know what to do, so they tried to imitate the cash-crop group. However, their calculations were not so careful. They were attracted by the higher productivity of cash crops (450 kg/bung/year) relative to upland rice. So, they decided to grow cash crops instead of upland rice, not realizing that they wouldn't have enough rice for immediate consumption needs.

After all the players had made their production decisions, the facilitators distributed to them the rice cards, the amount of which corresponded to the production of paddy fields and upland rice plots that each players had. Then the facilitators collected from each player the quantity of rice that was supposed to be consumed by the household on the basis of 300 kg paddy per year per mouth to feed. The results were different for each player. Those who had many upland rice plots had quite a lot of surplus. One person even had enough rice cards to buy a buffalo from the facilitators.

*Table 2: Situation of the players at the beginning of the role-play*

| Player | Mouths to feed | Labor force | Paddy field area (bungs) | Labor surplus* | Labor force / mouths to feed |
|---|---|---|---|---|---|
| A | 5 | 5 | 1 | 4.5 | 1 |
| B | 5 | 5 | 1 | 4.5 | 1 |
| C | 5 | 5 | 1 | 4.5 | 1 |
| D | 4 | 4 | 3 | 2.5 | 1 |
| E | 3 | 2 | 3 | 0.5 | 0.66 |
| F | 8 | 4 | 3 | 2.5 | 0.50 |
| G | 7 | 3 | 2 | 2.0 | 0.42 |
| H | 7 | 3 | 2 | 2.0 | 0.42 |
| I | 5 | 2 | 1 | 1.5 | 0.40 |
| J | 8 | 3 | 2 | 2.0 | 0.37 |

* "Labor surplus" designates the available labor force after allocating labor force to paddy fields cultivation.

As mentioned above, the players who planted cash crops instead of upland rice didn't have enough rice to consume, especially the players who had many "mouths to feed" and not enough labor force. To meet their first-round consumption needs, they had to borrow some rice cards from other more successful players.

Second round

Some players proposed to grow upland rice in intercropping with cash crops but the facilitators did not allow it. So, they converted their upland-rice plots to cash crops. Some decided to quit upland rice to grow cash crops even though they had to borrow rice for several rounds, because according to their calculations, after five rounds they would be able to pay off the debts and make a profit.
Those who had planted cash crops instead of upland rice and had to borrow from the others at the end of the first round, had to abandon the cash crop plots to grow upland rice, otherwise they would borrow more and more in the coming rounds.
At the end of the second round, they once again borrowed rice for consumption. But it was more difficult to borrow this time, as many players wanted to accumulate rice to barter for buffaloes to convert their paddy fields into two-crop ones. As a result, the facilitators had to lend rice to 2 players.

Third round

Because upland rice yields decrease markedly in the second and subsequent years of cropping, many players abandoned the plots that they had used for only one round and moved to other plots. This was especially true for the indebted players.

One player had a buffalo but nonetheless didn't want to convert her paddy fields into two-cycle ones. Therefore, one indebted player negotiated with her and borrowed her buffalo to convert his own paddy fields into two-cycle, so that at the end of the year he didn't have to borrow so much rice.

Fourth round

By the fourth round, players had markedly different options, depending on how much rice surplus they had been able to accumulate in previous rounds.
On one hand, the "well-to-do" players were accumulating more and more rice and looking forward to the fifth round, when they would be able to "harvest" their first cash crops. On the other hand, the "poor" players kept borrowing rice, and continued to take new plots for upland rice each round.

Fifth round

By now, many players had enough rice to barter for buffaloes. The facilitators noticed that there were many buffaloes near some cash crop fields, so they decided to destroy one bung to simulate that the buffaloes ate the crops there. In response, the owner of the fields moved the buffaloes away from the cash-crop plots.
Many players got quite a lot of rice this round because they harvested the cash crops that they had planted during the first round.

Sixth round

Some of the players who had difficulties at the beginning now had enough rice to pay their debts. In the coming rounds, one could expect that it would be easier for some of them thanks to the cash crops, which production starts only after 5 years.

*Table 3: Situations of the players after six rounds*

| Player | Mouths to feed | Labor force | Buffaloes | Paddy fields | Loaned to other players (kg) | Outstanding debt (kg) | Savings (kg) | Savings + loans + buffalo - debt |
|---|---|---|---|---|---|---|---|---|
| A | 05 | 05 | | 01 | 1150 | | 8900 | 10050 |
| B | 05 | 05 | 02 | 01 | 990 | | 4490 | 7480 |
| C | 05 | 05 | 04 | 01 | 1320 | | 800 | 6120 |
| D | 04 | 04 | 01 | 03 | 2520 | | 6900 | 10420 |
| E | 03 | 02 | 01 | 03 | 2280 | | 2720 | 6000 |
| F | 08 | 04 | 01 | 03 | 300 | 1780 | | -480 |
| G | 07 | 03 | | 02 | | 2420 | | 2420 |
| H | 07 | 03 | | 02 | | 940 | | -940 |
| I | 05 | 02 | | 01 | | 2840 | 260 | 2580 |
| J | 08 | 03 | | 02 | | 1600 | 400 | -1200 |

## 4. Debriefing session with the players (reactions to the role-play)

The facilitators stopped the role-play after six rounds and started the discussion. Firstly, we asked the players about their reactions to the role-play. All the players thought that the role-play was very practical and helpful for them. However, some of them were quite confused at the beginning and made mistakes. But the further the role-play went, the wiser the players became. Their decisions became more reasonable. As a result, their conditions improved little by little.

Some players thought that the environment would be seriously damaged if they chose the plots near the river for upland rice, especially if they abandoned the upland rice plots after just one year of cultivation. All the forests nearby would be destroyed and consequently the land would be eroded. Nevertheless, they continued doing slash-and-burn, cutting down trees to obtain the high, first-year production of upland rice.

In response to the question of whether the role-play was close to reality, most players agreed that the conditions and the process of the role-play were quite similar to real life. Many people in their village have similar conditions. All the players had tried to do exactly what they do in reality. However, they recommended three changes to the rules. First, they suggested intercropping a low density of upland rice among the trees of the cash crop. This is very common in their village, and it would help players with many mouths to feed and little labor force. The second rule change suggested was to allow players to grow non-rice crops (beans, potato, peanuts, etc.) on the one-crop paddy plots. This would help them to increase income. Thirdly, after 4 or 5 years it should take less labor to take care of the cash crops. In real life, labor requirements for cash crops are high only during the first three years after establishment.

The third question that the facilitators put to the players was if they ever had the thought of electing one player to be the head of their imaginary village Ban Khuoi Nam. And if they had elected a village head, would things have been different (for example, less deforestation)? All the players said that they had never thought of having a head of the village. They also agreed that, if there was a head, things would have gone differently, e.g., the head could have helped the players who had difficulties, set limits to some activities, etc.

Some players wanted to open more paddy fields, but they thought that it was not allowed, so they didn't propose it. When asked what they would have done if they could have hired someone to work for them, they said that they would hire people from other villages.

## 5. Interpretation

### *5.1. Global concerns*

The discussion following the role-play revealed a strong consciousness of environmental matters and more precisely of the dangers of deforestation along rivers. Nevertheless, in the absence of clear regulations (and penalties associated with the regulations), players (farmers) did not take environmental degradation into account when making their decisions. Because the plots along the river were nearest to the village and the paddy fields, they were the first to be cleared. The players admitted that if they had had a village head they would not have gone so far in deforestation, and other decisions would have been different as well.

No exchange of land (paddy fields or upland fields) was observed. Accumulation of buffaloes was not a very important concern to some players; they did not buy buffaloes or only bought a few even though they had enough money to buy more. In general, players did not want to share a buffalo when needed or to help each other in making strategic decisions.

### *5.2. Individual concerns (interpretation of individual strategies)*

From the initial situation of players (i.e. number of paddy fields and household composition), one can make a distinction between those who could get enough rice from their paddy fields to cover the needs of their virtual families, and those whose production from paddy fields could not cover the needs (Figure 2).

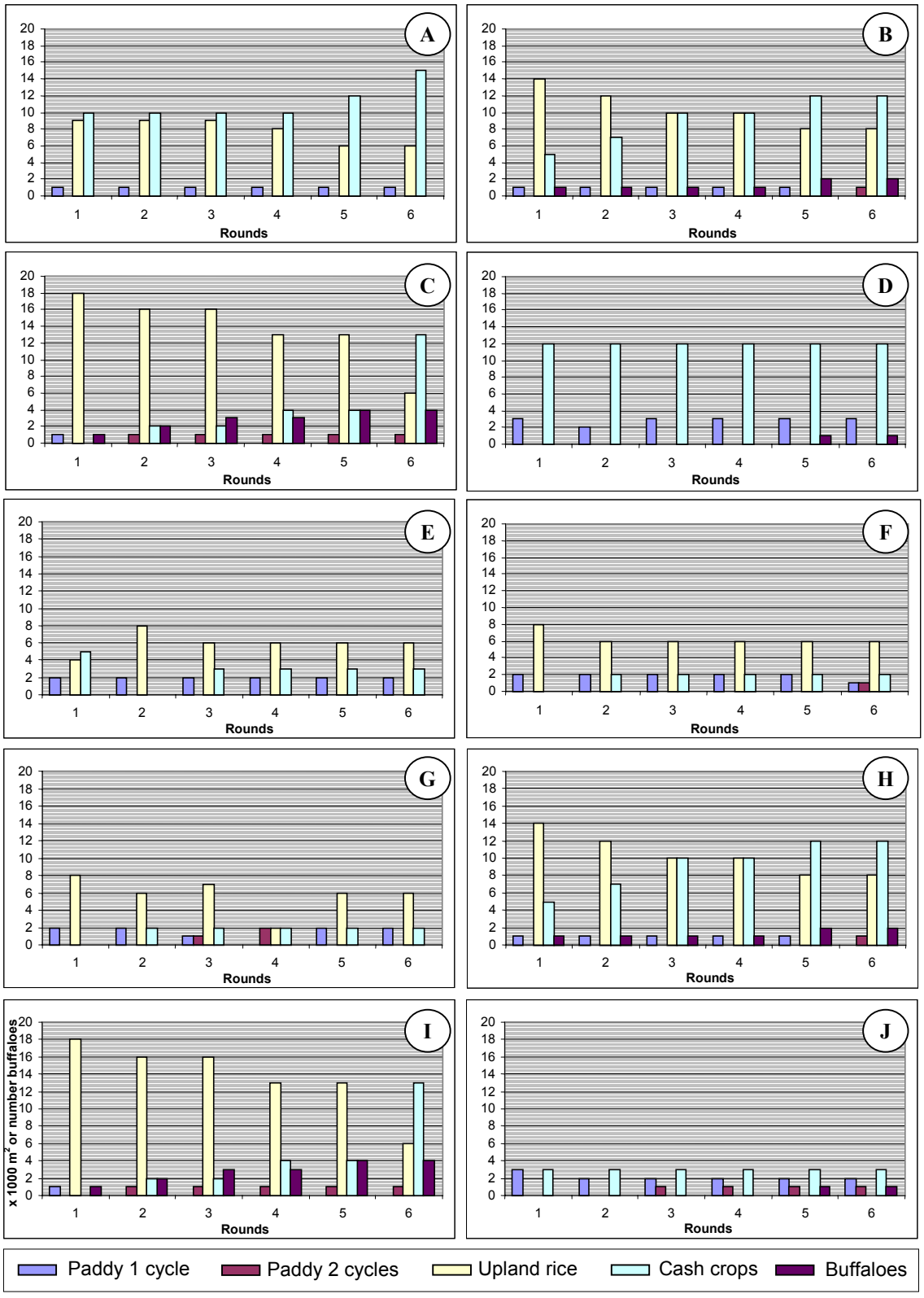


*Figure 2: Players' agricultural production and number of buffaloes during the course of the role-play session in Xuat Hoa commune, Bac Kan province*

Players in the first category (D and E) both adopted the same strategy: rice fields were used to feed the family and produce some surplus, part of which then was invested in a buffalo, while the remainder was either loaned or stored. Each of the players of this category bought only one buffalo, despite having accumulated a large amount of savings by the end of the role-play.

In the second category, players did not have enough paddy fields to cover their needs. We can distinguish 2 main strategies:

Strategy 1: Players A, B and C, who had relatively abundant labor force compared to their area of paddy fields, divided their surplus labor force between upland rice and cash crops. Player A allocated only the necessary labor force to upland rice to produce enough to feed his family; the rest of his labor force was allocated to cash crops and, after the 5th year, as cash crops started producing a harvest, only a small area of upland rice was still used. Players B and C allocated more labor force to upland rice so they could accumulate substantial rice surplus during the first rounds. Little by little, they then converted upland rice fields to cash crops. Player B, until the end of the role-play, kept enough upland rice fields to cover the needs of his family. Player C, by allocating a lot of labor force to upland rice, accumulated a substantial rice surplus, which she then invested in buffaloes. The needs of the families were covered by the combination of paddy fields, upland rice fields and cash crop production. Even though player G offered to sell his paddy fields after the 1st round due to his shortage of labor force and paddy for consumption, player I didn't want to buy them to convert them into two-cycle fields, which would have reduced deforestation. Instead, she kept growing a lot of upland rice until the 6th round, while the number of cash crop fields remained low.

Strategy 2: Players I, F, G, J and H adopted a "borrowing strategy", but for a variety of reasons. Players I, G, J and H didn't really have any other choice, because even if they allocated all their labor force to upland rice they couldn't cover the needs of their family. One of them (player I), after a few rounds, gambled by reserving all his family's labor force for the cash crops with the objective of paying off the debts once the cash crops began to produce a harvest. Player H was very active even though he faced many challenges initially. After the 2nd round he borrowed a buffalo and converted his paddy fields into two-cycle. Meanwhile, he kept some cash crops, so after six rounds he could feed his family with the production of his own fields and started paying his debts. Player G – the one who lagged behind - was the most passive one. One can say that he had no plan or strategy in the role-play. He had a lot of mouths to feed with little labor force and few paddy fields, but, imitating the others, he reserved half of the surplus of his labor force for upland rice, and the other half for cash crops. As a result, he had to borrow a huge amount of rice in order to cover the needs after the 1st round. Then he abandoned the cash crops in the 2nd round, grew some again in the 3rd round, and kept borrowing more and more rice.

## 6. Discussion on the role-play

### *6.1. Modifications suggested by the players*

*Introduction of intercropping practices* were proposed, consisting in growing upland rice among the young trees of the cash crops.

*Evolution of the family structure*: we could imagine that at the end of each round, the players draw cards with indications on the demographic evolution of the family. For example: mouths to feed = +/-1 (newly born/dead in the family); labor force = +/- 1; labor force and mouths to feed = +/- 1. Adding this feature to the role-play could be interesting to give a demographic dynamic to the role-play and observe the reactions of the players to this perturbation. The risk is that by becoming too complex, the results become too difficult to interpret.

*Add an incentive to be more active*: some players who have a lot of surplus did not know what to do with their rice.

### *6.2. Other possible modifications to be discussed*

*Introducing a "labor force penalty"* when opening a plot (either upland rice or cash crop) in forest representing the required labor force for clearing.

The role-play as it was conducted in Xuat Hoa did not contain any regulations/rules

concerning access to the land and protection of the environment. We can imagine that introducing such regulations in the role-play could lead to new scenarios.

*Allocation of upland fields*: One option would have been to allocate the uplands to individuals after a few rounds.

*Playing with 2 villages instead of one*. These two villages could be located along the river (representing 2 Tay villages) or one along the river and one in the uplands (representing for example 1 Tay village and 1 Dao village).

*Set limits to deforestation*, for example by having one player who would play the role of forest warden.

## 7. Conclusion

This first experiment of conducting a role-play in Bac Kan province has been very convincing both for the participants and the researchers. Participants found useful to simulate their real life in the framework of such a role-play as it gave them a synthetic view of the system as well as insights of the difficult conditions some families can face with sometimes no solution for escape.
For the researchers, the first result is that such a role-play is working in the sense that players accepted it very seriously, trying to manage their virtual economy and get the best results. Furthermore, at the end of the role-play, researchers and farmers could have a real discussion about what happened in the role-play and which could be seen as a model constructed with or even by the farmers. Such an exercise with additional features or modifications promises to be helpful tool for bringing forth communication between researchers and farmers.

Participants (players) appreciated the role-play for several reasons:

- It could give them a synthetic vision of how the combined actions of the households have an impact on the environment. Discussions about the environment arose spontaneously.
- At an individual level, they could better understand, through the roles they had been assigned in the role-play, the critical situation of some households in their own village.

Even if they felt a little confused at the beginning, the participants got hooked; they rapidly became engrossed by the role-play and became very serious about the actions they had to perform. Moreover, they recognized the similarities between the role-play and the reality of their own village. We could observe similarities and a real continuity between field studies previously conducted in the same commune (Sadoulet et al., 2000), the SAMBA multi-agent model derived from these studies (Castella et al., 2000) and observations drawn for the role-play. It thus gives us a good incentive to develop further this approach combining multi-agent simulation and role-plays. Now, the methodology needs to be refined in order to integrate role-plays throughout the entire research process. One can then imagine using role-plays both to gather information from the local stakeholders and to introduce technical and organizational innovations in a participatory way.

## Acknowledgements

The authors would like to thank Mike Zeiss at CIDSE Vietnam for his precious contribution in editing this paper.

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## Annex 1 : Evolution of players' production systems

**Player A**

| Round | Paddy field (bung) | Upland rice (bung) | | | Cash crops (bung) | Buffalo |
|---|---|---|---|---|---|---|
| | | 1st | 2nd | 3rd | | |
| 1 | 1 one-cycle | 9 | | | 10 | |
| 2 | 1 one-cycle | | 9 | | 10 | |
| 3 | 1 one-cycle | 2 | | 7 | 10 | |
| 4 | 1 one-cycle | 6 | 2 | | 10 | |
| 5 | 1 one-cycle | | 6 | | 12 | |
| 6 | 1 one-cycle | 3 | | 3 | 15 | |

**Player B**

| Round | Paddy field (bung) | Upland rice (bung) | | | Cash crops (bung) | Buffalo |
|---|---|---|---|---|---|---|
| | | 1st | 2nd | 3rd | | |
| 1 | 1 one-cycle | 14 | | | 5 | 1 |
| 2 | 1 one-cycle | | 12 | | 7 | 1 |
| 3 | 1 one-cycle | 10 | | | 10 | 1 |
| 4 | 1 one-cycle | | 10 | | 10 | 1 |
| 5 | 1 one-cycle | 8 | | | 12 | 2 |
| 6 | 1 two-cycle | 8 | | | 12 | |

**Player C**

| Round | Paddy field (bung) | Upland rice (bung) | | | Cash crops (bung) | Buffalo |
|---|---|---|---|---|---|---|
| | | 1st | 2nd | 3rd | | |
| 1 | 1 one-cycle | 18 | | | | 1 |
| 2 | 1 two-cycle | | 16 | | 2 | 2 |
| 3 | 1 two-cycle | | | 16 | 2 | 3 |
| 4 | 1 two-cycle | 13 | | | 4 | 3 |
| 5 | 1 two-cycle | | 13 | | 4 | 4 |
| 6 | 1 two-cycle | | | 6 | 13 | 4 |

**Player D**

| Round | Paddy field (bung) | Upland rice (bung) | | | Cash crops (bung) | Buffalo |
|---|---|---|---|---|---|---|
| | | 1st | 2nd | 3rd | | |
| 1 | 3 one-cycle | | | | 12 | |
| 2 | 2 one-cycle | | | | 12 | |
| 3 | 3 one-cycle | | | | 12 | |
| 4 | 3 one-cycle | | | | 12 | |
| 5 | 3 one-cycle | | | | 12 | 1 |
| 6 | 3 one-cycle | | | | 12 | |

**Player E**

| Round | Paddy field (bung) | Upland rice (bung) | | | Cash crops (bung) | Buffalo |
|---|---|---|---|---|---|---|
| | | 1st | 2nd | 3rd | | |
| 1 | 3 one-cycle | | | | 3 | |
| 2 | 2 one-cycle | | | | 3 | |
| 3 | 2 one-cycle, 1 two-cycle | | | | 3 | |
| 4 | 2 one-cycle, 1 two-cycle | | | | 3 | |
| 5 | 2 one-cycle, 1 two-cycle | | | | 3 | 1 |
| 6 | 2 one-cycle, 1 two-cycle | | | | 3 | |

**Player F**

| Round | Paddy field (bung) | Upland rice (bung) | | | Cash crops (bung) | Buffalo |
|---|---|---|---|---|---|---|
| | | 1st | 2nd | 3rd | | |
| 1 | 3 one-cycle | 10 | | | | |
| 2 | 3 one-cycle | | 6 | | 4 | |
| 3 | 3 one-cycle | 6 | | | 4 | |
| 4 | 3 one-cycle | | 6 | | 4 | |
| 5 | 3 one-cycle | 4 | | | 6 | 1 |
| 6 | 3 one-cycle | | | | 11 | |

**Player G**

| Round | Paddy field (bung) | Upland rice (bung) | | | Cash crops (bung) | Buffalo |
|---|---|---|---|---|---|---|
| | | 1st | 2nd | 3rd | | |
| 1 | 2 one-cycle | 4 | | | 5 | |
| 2 | 2 one-cycle | 4 | 4 | | | |
| 3 | 2 one-cycle | 6 | | | 3 | |
| 4 | 2 one-cycle | 6 | | | 3 | |
| 5 | 2 one-cycle | 6 | | | 3 | |
| 6 | 2 one-cycle | 6 | | | 3 | |

**Player H**

| Round | Paddy field (bung) | Upland rice (bung) | | | Cash crops (bung) | Buffalo |
|---|---|---|---|---|---|---|
| | | 1st | 2nd | 3rd | | |
| 1 | 2 one-cycle | 8 | | | | |
| 2 | 2 one-cycle | 6 | | | 2 | |
| 3 | 1 one-cycle<br>1 two-cycle | 7 | | | 2 | |
| 4 | 2 two-cycle | 2 | | | 2 | |
| 5 | 2 one-cycle | 6 | | | 2 | |
| 6 | 2 one-cycle | 6 | | | 2 | |

**Player I**

| Round | Paddy field (bung) | Upland rice (bung) | | | Cash crops (bung) | Buffalo |
|---|---|---|---|---|---|---|
| | | 1st | 2nd | 3rd | | |
| 1 | 1 one-cycle | 6 | | | | |
| 2 | 1 one-cycle | | 2 | | 5 | |
| 3 | 1 one-cycle | | | | 8 | |
| 4 | 1 one-cycle | | | | 8 | |
| 5 | 1 one-cycle | | | | 8 | |
| 6 | 1 one-cycle | | | | 8 | |

**Player J**

| Round | Paddy field (bung) | Upland rice (bung) | | | Cash crops (bung) | Buffalo |
|---|---|---|---|---|---|---|
| | | 1st | 2nd | 3rd | | |
| 1 | 2 one-cycle | 8 | | | | |
| 2 | 2 one-cycle | | 6 | | 2 | |
| 3 | 2 one-cycle | 6 | | | 2 | |
| 4 | 2 one-cycle | 6 | | | 2 | |
| 5 | 2 one-cycle | 6 | | | 2 | |
| 6 | 1 one-cycle<br>1 two-cycle | 6 | | | 2 | |