

Evaluation of the ' Acorn Bank ' in Kagawa Prefecture from the Viewpoint of Environmental Education

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Abstract : The aim of this study is to evaluate the " Acorn Bank " project through interview and questionnaire survey. The project is aiming to recreate the connectivity between people and nature. Owing to the popularity especially among children, the number of participants has been increasing. Acorn Bank has offered chances to wider range of people to take part in nature conservation activities than other former environmental groups. We hope that at least the project has contributed to raise environmental awareness of the participants.

Key words : Acorns, Environmental education, Forest affairs, Participation of citizens, Prefectural Government.

Introduction

In spite of all the efforts made to solve environmental problems, any solution that can settle all the problems has not been found yet. At this stage, it would be more effective to urge those who live in this modern society so that they would be more aware of the impacts on ecosystems from their daily live activities, and so that they would care for nature more deeply.

Since 1985, environmental education has been promoted in Environment White Paper in Japan. The Ministry of Education, Science and Culture has produced a Guideline for Environmental Education. In the guideline, the objectives of environmental education were described as to educate people so that they can have an interest and acquire knowledge about environmental problems, and they can have general understanding and synthetic recognition about the relationship between human beings and nature in order to take part in a creation of better environment with better skills, thinking and judging ability that enable them to act responsively to nature (The Ministry of Education, Science and Culture, 1991).

As written in the guideline, environmental education should be carried out in cooperation with three educational bodies, which are families, local societies, and schools.

In this paper, we performed a research on a project named 'Acorn Bank' (Donguri Ginkou) that has been carried out in Kagawa Prefecture since 1992. The project has created a unique contribution to re-establishment of the relationship between people and forests. We carried out

questionnaire survey to evaluate the whole project of Acorn Bank with a view to finding clues in the success and development of NGO's for nature conservation in Japan and also to find out ideas for the next step and aim of Acorn Bank.

Since few researches concerning environmental education have been published, this report is a preliminary report on environmental education. The main part of this paper was presented at the 107th annual meeting of the Japanese Forestry Society in Tsukuba, 1996.

The Target Project

1. Aims of Acorn Bank

The main aims of Acorn Bank are to offer the citizens chances to walk into forests by themselves. Secondly, through the experiences, participants are expected to grow 'Forests in the Hearts' in their mind. Acorn Bank sets its aims as follows: 1) To let people get into forests: 2) To make a public forests for local residents: 3) To promote greening: 4) To promote the participation of the Tree Planting Events: 5) To invite people to nature communication activities, and 6) To receive and dispatch information on the forests (Acorn Bank, 1992-1995).

2. Structure of "Acorn Bank" Project

Acorn Bank is a project founded and financially supported by 'Forests Fund for Green and Water', with the aim to re-establish the connectivity between citizens and forests. At the present, the head office is situated in the Forests Affairs Section, under the Department of Agriculture, Forestry and Fisheries in Kagawa Prefecture. The actual activities have been supported by a volunteer group called 'Donguri Staff'. Financially, Acorn Bank has another supportive group, 'Dojoh Club', whose members are companies which have donated to Acorn Bank.

The key tool of Acorn Bank is an acorn (nut of Fagaceae plants). A main system of Acorn Bank is similar to that of ordinary banks. The currency is not '¥' nor '\$' but 'D' (D = *Donguri* which means acorn in Japanese). In order to take part in Acorn Bank, what people have to do is only go into forests, collect acorns, bring them to the offices of Acorn Bank, and then the person will have registered for Acorn Bank. The period that Acorn Bank offices accept acorns is limited from the beginning of October to the first Friday of December. This registration can be done at the main office in Forestry Affairs Section in Kagawa Prefectural office, and other three forestry offices scattered in the prefecture. In fiscal year 1993, a new office was set up at Goshikidai National Vacation Village. Acorn Bank has taken part in local festivals in Kagawa Prefecture in order to open a temporary office there, where people can deposit acorns in the same way. At Acorn Bank, the currency unit is 'D'. A big acorn such as Japanese chestnut (*Castanea crenata*) is counted as 10D, and a small acorn such as konara (*Quercus serrata*) is 1D. The total D will be written down on a bankbook specially published by Acorn Bank.

The refundment is not done by acorns, but by other means, such as tree saplings, acorn cookies and so on. Request for saplings can be asked in advance within the budget. The rate of counting sapling is that; a sapling of the broad-leaved trees is 100D, and a sapling of conifer such as *Cryptomeria japonica*, *Chamaecyparis obtusa* and *Pinus* spp., is 500D, and special kinds of

saplings will be counted according to the market price. Saplings are supplied by the acorns that had been deposited to Acorn Bank as well. The refunded saplings can be planted anywhere of the depositors' choice. The 'depositor' means those who deposits acorns to Acorn Bank.

Methods

In this research, we used 'questionnaire survey' by way of mailing to gather data. In Autumn, 1995, the questionnaires were sent to 802 depositors those who were older than 10 years old (including 10) at the time of registration.

The questionnaire consisted of three parts. The first part is how the depositor got involved in Acorn Bank activities. The second one is about the activities of Acorn Bank. The last one is about attitude of the person towards the environmental issues on the whole (Table 1).

Table 1 Questionnaire and answers

Q-1: How long have you been taking part in Acorn Bank? (Please calculate the term by Oct., 1. 1995)

| | | | |
|--|-------------|-----|-----|
| 1.Longer than 2 years but shorter than 3 years (including 2 years) | 1 | 102 | 25% |
| 2.Longer than a year but shorter than 2 years (including one year) | 2 | 121 | 29 |
| 3.Shorter than one year | 3 | 173 | 41 |
| | no response | 19 | 5 |
| | TOTAL | 415 | 100 |

Q-2: How did you get to know Acorn Bank? Please chose the main information source.

| | | | |
|---|-------------|-----|-----|
| 1. TV programs, newspaper or magazine articles on Acorn Bank | 1 | 112 | 27% |
| 2. By events held by Acorn Bank such as ' Woody Festival' | 2 | 148 | 36 |
| 3. Those who have participated in Acorn Bank | 3 | 67 | 16 |
| 4. Other sources | 4 | 78 | 19 |
| | no response | 10 | 2 |
| | TOTAL | 415 | 100 |

Q-3: What are your motivations or aims for the participation of Acorn Bank?

| | | | |
|--|---|-----|-----|
| 1. I want to have the bankbook of Acorn Bank. | 1 | 132 | 32% |
| 2. Acorn Bank seems to be an entertaining activity. | 2 | 221 | 53 |
| 3. I want to have chances for recreation. | 3 | 34 | 8 |
| 4. I want to take part in a social activity for environment conservation. | 4 | 113 | 27 |
| 5. I want to have chances to communicate with nature. | 5 | 111 | 32 |

6. I feel attached to forests.
7. This program seems to be good for health.
8. I want to make new friends.
9. I want to take part in a local activity.
10. I want to have the chances to play with my family.
11. I expect that my child(ren) would have a good educational experience.
12. other reasons

| | | |
|----|-----|-----|
| 6 | 114 | 27% |
| 7 | 33 | 8 |
| 8 | 8 | 2 |
| 9 | 13 | 3 |
| 10 | 31 | 7 |
| 11 | 21 | 5 |
| 12 | 43 | 10 |

Q-4: As for each event please answer the times that you have taken part in so far.

1. Deposit acorns to Acorn Bank () times
2. Refundment of Acorn Bank () times
3. Tree planting events () times
4. Forest observation / Forest creation programs () times
5. Donguri instructors training course () times
6. events like Donguri Summit () times

| | 0 | 1-5 | 6-10 | 11-15 | 16-20 | 21-25 | 26-30 | 31- |
|---|-----|-----|------|-------|-------|-------|-------|-----|
| 1 | 38 | 343 | 16 | 2 | 1 | 0 | 0 | 0 |
| 2 | 335 | 59 | 1 | 0 | 0 | 0 | 0 | 0 |
| 3 | 349 | 60 | 1 | 0 | 0 | 0 | 1 | 1 |
| 4 | 328 | 63 | 1 | 0 | 0 | 0 | 0 | 1 |
| 5 | 374 | 17 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6 | 330 | 62 | 0 | 0 | 0 | 0 | 0 | 1 |

Q-5: Where did you plant the sapling that you got as refundment?

Please mark the all choices where you planted the saplings.

(Q-5 is for those who have done refundment of Acorn Bank.)

1. in a garden at home
2. in the forest of my family
3. at school
4. in a public park
5. at sites of the tree planting events
6. a vacant land
7. I gave it to others
8. other choices
9. I didn't plant it.

| | | |
|---|----|-----|
| 1 | 19 | 32% |
| 2 | 5 | 8 |
| 3 | 5 | 8 |
| 4 | 1 | 2 |
| 5 | 16 | 27 |
| 6 | 1 | 2 |
| 7 | 2 | 3 |
| 8 | 11 | 18 |
| 9 | 3 | 5 |

Q-6: What do you think the aims of Acorn Bank are like?

1. greening / reforestation
2. to offer the chances for recreation
3. to enlighten people about the forests and nature
4. to offer the chances to communicate with forests/
greenery
5. to conserve nature

| | | |
|-------------|-----|-----|
| 1 | 283 | 68% |
| 2 | 49 | 12 |
| 3 | 262 | 63 |
| 4 | 200 | 48 |
| 5 | 264 | 64 |
| no response | 24 | 6 |

Q-7: Do you know that the forests have a function similar to dams?

1. Yes
2. No

| | | |
|--------------|-----|-----|
| 1 | 365 | 88% |
| 2 | 33 | 8 |
| no response | 17 | 4 |
| TOTAL | 415 | 100 |

Q-8: Please present your opinion by marking one of the three choices :'1. Agreed','2.Opposition' and '3.Neither of the two'.

- a. The events of Acorn Bank has contributed to nature conservation.
- b. Tree planting by Acorn Bank would solve water shortage.
- c. I watch plants and animals around myself more carefully since joining Acorn Bank.
- d. I have more chances to play with my family since joining Acorn Bank.
- e. I go into the forests or mountains more often since joining Acorn Bank.
- f. I feel more attached to the forests or mountains since joining Acorn Bank.
- g. I have made new friends since joining Acorn Bank.
- h. I want to recommend my friends and family to take part in Acorn Bank.

- a. 1- 2-3
- b. 1- 2-3
- c. 1- 2-3
- d. 1- 2-3
- e. 1- 2-3
- f. 1- 2-3
- g. 1- 2-3
- h. 1- 2-3

| | 1 | 2 | 3 | TOTAL |
|---|-----|-----|-----|-------|
| a | 361 | 6 | 31 | 398 |
| b | 264 | 13 | 121 | 398 |
| c | 158 | 43 | 191 | 392 |
| d | 50 | 137 | 203 | 390 |
| e | 111 | 111 | 169 | 391 |
| f | 239 | 35 | 117 | 391 |
| g | 53 | 232 | 100 | 385 |
| h | 237 | 23 | 131 | 391 |

Q-9: Do you know the 'eco mark' that is put on the products which have less pressure on environment?

1. Yes
2. No

| | | |
|-------------|-----|-----|
| 1. Yes | 374 | 90% |
| 2. No | 21 | 5 |
| no response | 20 | 5 |
| TOTAL | 415 | 100 |

Q-10: Mark the choices that you are doing at home or in your daily life.

1. I/we try to purchase the products such as the one with eco mark that are less harmful to environment
2. For my own use, I/we am trying to purchase the products with less packaging.
3. I/we use soaps instead of synthetic detergent.
4. I/we reuse the water in the bath tub.
5. I/we try to use up the cooking oil, or soak paper with the oil and put away with other litters.
6. I/we wash the dishes after wiping off the oil with paper or cloth.
7. I/we put net in the mouth of kitchen drain or kitchen trash box so that the crust of the trashes doesn't flow into the drain.
8. I/we get the trash turn into the soil using such a tool as a compost.
9. I/we turn off the lights or TV when they are not needed, and also be careful in controlling the air-conditioner so that we can save electricity.
10. I/we separate the things for recycling and for resource materials.
11. I/we try to walk to or ride a bicycle to the near places, and to the remote places try to take public transportation.

| | | |
|----|-----|-----|
| 1 | 159 | 38% |
| 2 | 112 | 27 |
| 3 | 107 | 26 |
| 4 | 249 | 60 |
| 5 | 248 | 60 |
| 6 | 131 | 32 |
| 7 | 273 | 66 |
| 8 | 162 | 39 |
| 9 | 277 | 67 |
| 10 | 251 | 60 |
| 11 | 171 | 41 |

Q-11: You are:

1. Male
2. Female

| | | |
|-------------|-----|-----|
| 1 | 174 | 42% |
| 2 | 232 | 56 |
| no response | 9 | 2 |
| TOTAL | 415 | 100 |

Q-12: You are: () years old.

| | | |
|-------|-----|----|
| -10 | 10 | 2% |
| 11-15 | 235 | 58 |
| 16-20 | 39 | 10 |
| 21-25 | 21 | 5 |
| 26-30 | 11 | 3 |
| 31-35 | 10 | 2 |
| 36-40 | 9 | 2 |
| 41-45 | 10 | 2 |

| | | |
|--------------|------------|------------|
| 46-50 | 6 | 1% |
| 51-55 | 11 | 3 |
| 56-60 | 16 | 4 |
| 61-65 | 10 | 2 |
| 66-70 | 10 | 2 |
| 71-75 | 6 | 1 |
| no response | 11 | 3 |
| TOTAL | 415 | 100 |

Q-13: What is your (family's) annual income?

1. less than 2 million yen
2. 2 to 4 million yen (including 2 million yen)
3. 4 to 6 million yen (including 4 million yen)
4. 6 to 8 million yen (including 6 million yen)
5. 8 to 10 million yen (including 8 million yen)
6. more than 10 million yen (including 10 million yen)

| | | |
|--------------|------------|------------|
| 1 | 12 | 3% |
| 2 | 53 | 13 |
| 3 | 71 | 17 |
| 4 | 74 | 18 |
| 5 | 64 | 15 |
| 6 | 42 | 10 |
| no response | 99 | 24 |
| TOTAL | 415 | 100 |

Q-14: Your home is:

1. a house of your (family's) own with a garden
2. a house of your (family's) own without a garden
3. a rental house with a garden
4. a rental house without a garden
5. an apartment house
6. other ()

| | | |
|--------------|------------|------------|
| 1 | 288 | 69% |
| 2 | 32 | 8 |
| 3 | 21 | 5 |
| 4 | 7 | 2 |
| 5 | 41 | 10 |
| 6 | 5 | 1 |
| no response | 21 | 5 |
| TOTAL | 415 | 100 |

Note: The percentages for each question were acquired by a numeral expression as followed (except for Q-5);

Response number / 415 (total response number) x 100(%)

*As for Q-5, the percentages were acquired by a numeral expression as followed;

Response number / 60 (the number of those who had done refundment) x 100 (%)

Results

1. Achievement degree of Acorn Bank: The results of actual activities

The number is obtained from the annual report of Acorn Bank in the end of fiscal year 1994.

Individual refundment (Table 2): 'Individual refundment' means that the depositors get refundment individually at Acorn Bank.

Tree planting events (Table 3): The depositors can refund their saplings at the event site to plant their saplings in the prepared soil.

Forest observation/forest creation programs (Table 4): Acorn Bank plans to create public forests for local residents, besides it holds nature observation events with the support of Kagawa Nature Observation Association.

Donguri instructors training course: This course is aimed to facilitate environmental education at home, therefore, participants in the course are mainly parents so that they will be able to teach their children what they had learnt from the course. This course has been started from fiscal year 1994, and since then there were four courses. Number of participants were 164 in total.

The numbers of depositors and collected acorns (Table 5): Although its office is in Kagawa Prefecture, people who live out of Kagawa Prefecture can take part in Acorn Bank as well, by mailing acorns they collected from their local forests.

Donguri Summit: In 1994, 'Donguri Summit' was held with the purpose to discuss new and interesting ways to get along with forests. The participants gathered from all over the nation.

Forest Creation Program for All: At four elementary schools and one high school, the students have been nursing saplings of acorns.

Financing of Acorns: Acorn Bank has provided its acorns to other local governments seven times so far. In the Hanshin-Awaji Earthquake, it provided its acorns to Kobe City, and 'Donguri-net Kobe' was born under the slogan to green Kobe City with the participation of citizens.

Publication of Donguri Tsushin: To inform the depositors of the forest activities, Acorn Bank has been distributing a bulletin named Donguri Tsushin. Acorn Bank has published eight quarterly Donguri Tsushin, and twenty-one ordinal Donguri Tsushin. Since 1995, in addition to Donguri Tsushin, Acorn Bank has been publishing another bulletin, Nature Friend, which covers wider range of topics other than the activities of Acorn Bank.

Table 2 Individual refundment requested from office

| Fiscal Year; | 1992 | 1993 | 1994 | Total |
|--------------|------|-------|-------|-------|
| People; | 93 | 64 | 81 | 238 |
| Saplings ; | 855 | 1,208 | 2,029 | 4,122 |

Table 3 The numbers of the tree planting events held, participants and planted refunded saplings (total)

| Fiscal Year; | 1992 | 1993 | 1994 | Total |
|--------------|------|-------|-------|-------|
| Events; | 3 | 4 | 3 | 10 |
| People; | 175 | 131 | 241 | 547 |
| Saplings ; | 965 | 1,500 | 3,500 | 5,965 |

Table 4 The number of other events held, and the number of participants (total)

| Fiscal Year; | 1992 | 1993 | 1994 | Total |
|----------------|------|------|------|-------|
| People; | 2 | 5 | 5 | 12 |
| Participants ; | 147 | 229 | 320 | 696 |

Table 5 The numbers of depositors and collected acorns.

| Fiscal Year; | 1992 | 1993 | 1994 | Total |
|--------------------------|-----------|---------|-----------|-----------|
| newly registered | | | | |
| Depositors; | 1,362 | 695 | 1,376 | 3,433 |
| (from other Prefectures) | (34) | (36) | (75) | (145) |
| Acorns; | 1,180,275 | 982,210 | 1,358,285 | 3,446,770 |
| Continual Registration; | | | | 2,441 |
| (from other Prefectures) | | | | (119) |

2. Analyses of collected answers (Table 1)

The questionnaires were sent to 802 members of Acorn Bank and 415 answers were gained totally (Collection Rate: 51.7%). Age varied as showed in Table 1, and those who were under fifteen years old occupied 59 % of the respondents.

Information Source (Q-2): People got to know about Acorn Bank mostly by participating local festivals such as ' Woody Festival'. Furthermore, Acorn Bank has been broadcasted widely by mass media. As for the 'other information sources', the biggest one was that of at school such as by the teachers or at school cultural festivals.

Motivation in Joining Acorn Bank (Q-3): The 53% depositors took part in Acorn Bank because its activity seemed to be interesting and entertaining. While, those who answered that they wanted to take part in a social activity for environmental conservation was 27%.

Participation in the Acorn Bank Activities (Q-4): Table1 showed a notable pattern, which implied that the depositors were satisfied when they got Acorn Bank bankbooks. The 83% depositors (average) answered that they had never participated in other activities of Acorn Bank.

Refundment of Saplings (Q-5): There were 60 depositors who had done refundment. The number of saplings refunded so far is all together 10,087 and 64 % of them had planted in the forests to return into the natural ecosystems.

Aims of Acorn Bank (Q-6): The depositors thought much of greening/reforestation, conserving nature and enlightening people about the forests and nature. On the other hand, Acorn Bank seemed to offer chances for participants to communicate with forests and greenery as its basic aim.

Changes of Themselves through the Participation in Acorn Bank(Q-8): Ninety-one percent of the depositors saw that the events of Acorn Bank has contributed to nature conservation. Forty percent of the depositors answered that awareness towards plants and trees in their neighborhood

has increased, though the chances of actual activities like going into mountains and forests has not increased (13%). The 61% depositors felt more attached to forests. Acorn Bank has made contribution to environmental education in psychological aspect.

Sixty-one percent of the depositors were willing to recommend Acorn Bank to others. This suggested that Acorn Bank is capable of self-growing as a network.

Green Consumers (Q-9): There was a world wide pole showed that the Japanese were less aware (40%) than other countries like Canada (over 70%), in using goods those put less burden on the environment (Fujii, 1995). It was expected that the depositors be more aware of that, and the collected answers showed that the depositors were as aware in green consumerism as the ordinary people (38%, Q-10-1). Additionally, the depositors those who know about the eco mark were more aware in this point (41%) than those who had ignored the mark (19%).

The Depositors' Performances for Environmental Conservation (Q-10): Q-10 gave the same choices in a social opinion pole for the citizens in Japan (1993, except for Q-10-1). In comparison with the pole, the performances and awareness of the depositors towards environment conservation were not higher than the average standard (except for the choice 8 in Fig. 1). The results of Sendai City presented almost average data collected in the previous national pole in Fig.1 (Ajisaka, 1995) .

Financial Condition of the Depositors (Q-13): The middle income class was also included in Acorn Bank, which is reported to be usually absent from the social voluntary activities (Suzuki, 1989) .

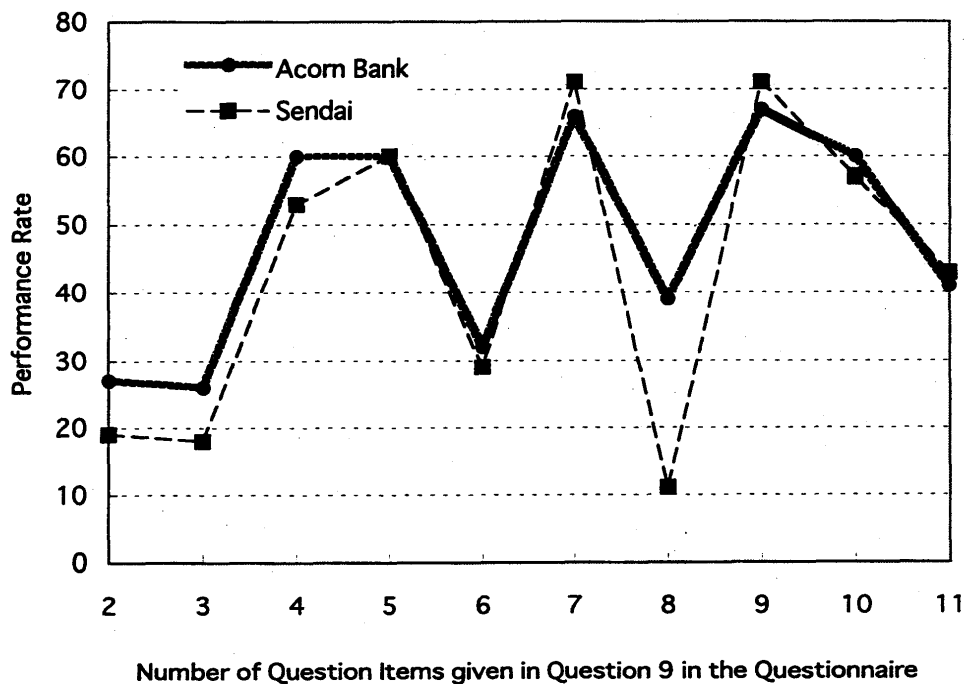


Fig. 1. Performance for environmental conservation : Comparison on the performance for environmental conservation between the depositors of Acorn Bank and the residents in Sendai City.

Discussion

In our research, we found that Acorn Bank has succeeded in three points.

First, Acorn Bank has succeeded in broadening the range of participants in nature conservation activity. Those who are not highly aware of environmental conservation have also taken part in it. The results of Q-3 and Q-9 apparently present this fact. One of the reasons why so many citizens feel free to take part in Acorn Bank might be because the local administration, Kagawa Prefectural office, has been involved in this project. This suggests the possibility that the involvement of administration in the environment conservation activities would enable to give the same kind of " relief " to the citizens.

Second, Acorn Bank has been producing an ideal field and structure for environmental education. Acorn Bank has facilitated environmental education at homes involving local societies. Moreover, it has been naturally introduced into the field of school education. By this way, Acorn Bank has been forming an ideal field as mentioned in the Guideline for Environmental Education (The Ministry of Education, Science and Culture, 1991) and a wide network that would contribute to environmental education.

Third, Acorn Bank has succeeded in allowing the depositors to feel more attached to nature and forests. The result of Q-8 supports this point. We should take this step as a very fundamental and important stage in environmental education.

Therefore we can conclude that Acorn Bank has succeeded in mental phase of Environmental Education, setting an ideal field for it.

On the other hand, there are some points that need to be improved.

First, as for the next step we propose that Acorn Bank should let more depositors take part in Acorn Bank activities, so that they can feel more attached to forests and gain experiences from forests. Acorn Bank has offered interesting and entertaining events, though the participants to each event are quite few. The result of Q-4 clearly shows this fact.

Second, the degree of contribution to the revegetation of forests is low at this stage. The 41% of refunded saplings were distributed as an individual refundment. And 11 % of them were planted in the mountains. Consequently, 36% of the refunded saplings were planted out of the forests. Moreover, the saplings planted in mountains will need a few decades to grow up big enough to contribute to the ecosystem in the forests. The planted saplings are 6 years old at the oldest plantation site.

Third, we suggest the managing structure of Acorn Bank should be stronger. In order to meet requests of the depositors, and to allow the promoters of Acorn Bank to enjoy their roles as well, a stronger core body is necessary for Acorn Bank. Acorn Bank has been contributing to the present society, and we are sure that Acorn bank is worthwhile to develop further. Along the course we claim that more resource, mainly, human resource is needed.

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