

論 説

## 農村サステナビリティのテーマ発見と調査：棚田保全策の提案を事例に

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Theme-finding and research in rural sustainability: a proposal for the preservation of terraced paddy fields (tanada)

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### 要旨

農村サステナビリティは、愛媛の将来のための最も重要かつ難しい課題の1つである。このような課題に対しては、新しい仕組みや取り組み、考え方を取り入れ、専門家が解決できなかった現状に対して方針を見出していく必要がある。本報告では、棚田の保全に関するプロジェクト演習を通じて、社会共創学部の学生によるプロジェクトのテーマ設定、調査結果、ステークホルダーからの評価を振り返るとともに、テーマ設定のあり方を検討した。学生によるテーマ設定は、学生がモチベーションを持って課題に取り組むことができた点、当該テーマに長期間取り組んでいる専門家には意外な新たな発見に結びついた点で、学生とステークホルダーの両者にとり意義があると考えた。

### Abstract

Promoting rural sustainability is one of the most critical issues that Ehime should tackle for a successful future. To that end, it is vital to explore directions by trial and error, by introducing new ideas, undertakings, and mechanisms into existing conditions, which professionals have not been able to explore. This report discusses the theme-finding activities, research results, and stakeholder evaluations of a field project regarding the preservation of terraced paddy fields (tanada), conducted by the students of the Faculty of Collaborative Regional Innovation of the University; and examines the effectiveness of theme-setting. Students' process of theme-finding was found to be effective for both students and stakeholders, as students could undertake the issue with higher motivation and come up with novel findings that would not usually be recognised by specialists in the field.

### 1. Introduction

Rural and agricultural problems have been piling up in Ehime, and rural sustainability has become vital for its successful future. Rural sustainability is a key and challenging issue that requires national effort; bold ideas, undertakings, and mechanisms are necessary. Novel directions should be found to alter the current issues that have not been solved by specialists. The Environmental Design course of the Faculty of Collaborative Regional Innovation of the University aims to analyse and solve local sustainability problems by introducing new views.

This report examines how second- and third-year

students of the course developed project themes, how they conducted research, the results of their research, and how stakeholders evaluated the project work regarding the preservation of terraced paddy fields (tanada). It also examines the effectiveness of such theme-setting activities.

### 2. Theme-finding and field surveys

#### 2.1 Theme-finding

The faculty provides many field work opportunities through classes, and themes are set for each class. Some students undertake three different themes in three consecutive, project-based classes during the

second half of their second year and the first and second half of their third year.

Since April 2018, three students in the second-year Environmental Design course proposed an effective abandoned farmland policy in their project-work class. In the usual commonsense or prevailing way of thinking, such a theme was rather difficult for students to explore and to make a realistic proposal to solve even only certain aspects of the issue. This is because the issue involved deeply rooted agricultural problems that should be solved at the national level. Furthermore, the students had little specialised knowledge regarding agricultural problems, as they were not in the agricultural department; and they had little working experience, as they were only sophomores.

First, the students started to examine a different rural sustainability project than the tanada preservation activities as an example of an abandoned farmland policy. They learned neither an abandoned farmland problem nor a sustainability project in a specialised way. However, recalling everyday life scenes and discussing information obtained from the Internet or the literature for two to three weeks, they obtained the minimum basic knowledge to enable them to understand the interviews with specialists. After this preliminary research, two interviews with specialists, and discussions among themselves, the students found that referencing some successful cases regarding the tanada preservation in Ehime Prefecture may be of interest to proceed to devise an abandoned farmland policy. Meanwhile, they worked on developing a theme about the tanada preservation.

## 2.2 Field survey

The field survey in the Tanada area was conducted through two interviews. The first interview was conducted with the Association for Sustainable Kashidani Tanada (Kashidani Tanada Hozon-kai) on 27 June 2018 in Ohzu City in Ehime Prefecture. The second interview was conducted with private farmers on 4 July 2018 in Imabari City in the same prefecture. The results obtained by the students are described below.



Kashidani Tanada (pictures taken on June 2018)

### The significance of preserving abandoned farmland in tanada areas

Tanada has environmental benefits; it provides dam functions, which is also important for residents in flat areas. Moreover, maintaining landscapes and preserving the Japanese traditional rice cultivation culture have significant meaning. These key features of tanada may attract town residents, even though they might not be involved in agriculture.

### Challenges of tanada preservation activities

The most significant bottleneck in preserving tanada was the relevant income problems. If there is a lack of sufficient income, farmers, especially younger ones, cannot survive in these areas. Farm workers from outside areas cannot settle in tanada areas. Therefore, the future challenges include establishing funding for the preservation of tanada, as a kind of donation from those who agree to participate in the activities, including residents of large cities.

### Preservation activities of the Association for Sustainable Kashidani Tanada

The society undertakes fundraising activities for the preservation of tanada, including the 'Tanada Owner System' and the 'Tanada Trust System'. Tanada Owner System participants who contribute 30,000 Japanese yen per year for 100 m<sup>2</sup> of tanada have the privilege of not only participating in tanada rice cultivation activities but also obtaining 25 kg of tanada rice and local vegetables.



Source: Association for Sustainable Kashidani Tanada's website (accessed August 2018) .

### Challenges faced by the Association for Sustainable Kashidani Tanada

The number of participants in the 'Tanada Owner System' and the 'Tanada Trust System' is low and should be increased. A needs analysis is required to determine how people value the tanada preservation activities, as well as the types of people who attach such value and are willing to contribute to these preservation activities.

### 3. Survey regarding the improvement of the Tanada Owner System

In the project work in the next half of the year, with four new second-year students additionally joining, the theme that was started in the previous half-year project work was continuously investigated in a more thorough way. This project theme continued for one year (a total of eight months) , which led to a deliberate consideration of the tanada problem.

In the second half of the year, students further examined how the Tanada Owner System could be improved. To that end, they conducted additional interviews, a pre-statistical survey, and a statistical survey. The results are described below.

#### Additional interviews

Field interviews were conducted on 17 October 2018 at the Izumidani Tanada in Uchiko City (for 110 min) and on 21 November 2018 at the Kashidani Tanada (for 110 minutes) . Students transcribed the interviews. The interviews revealed a deepening problem regarding the lack of successors of tanada, the main reason why it is a loss-generating operation,

and the high hurdles of tanada management for lay agricultural workers. In addition, the students gained a deeper insight into the detailed content of the Association for Sustainable Kashidani Tanada and the Tanada Owner System.

#### Pre-statistic survey

Based on the interview results, the students conducted a pre-survey on the needs of the Tanada Owner System. The respondents were aged 20 or older and residents of Osaka, Fukuoka, or Ehime prefectures. The collected data was analysed using the free software 'R' , and the statistical methods learnt in Statistics and Environmental Statistics, such as the *t*-test,  $\chi^2$ -test, and regression analysis. The important aspects of citizen decision-making regarding participation in the Tanada Owner System were extracted. These aspects included implementation/non-implementation, the contents of agricultural experiences or events in tanada areas, the privileges obtained by participating in the system, and willingness to pay for participating in the system.

#### Survey

Moreover, the students conducted a web survey between 8 January 2019 and 20 January 2019 on the needs analysis of the Tanada Owner System. For statistical analysis, they applied a discrete choice experiment. The sample comprised 449 residents of Ehime, who were aged 20 or older. Participants in a web research who responded to the questionnaire and expressed interest in the Tanada Owner System were asked subsequent questions. From the statistically significant variables and their estimated coefficients, the following results were obtained.

- ・ People interested in participating in the Tanada Owner System in Kashidani want to participate in events or projects that can be conveniently participated in, even by older people; they do not mind if higher participation fees are implemented for such events.
- ・ Some people consider participating in the system even if participation fees were higher than usual.
- ・ Tanada brown rice as a privileged product had a higher value than the market value of brown rice.
- ・ Local vegetables were highly evaluated as a privileged product.

## Conclusion and proposal

The following conclusions and proposals were obtained. First, the system can be improved to enable more participation, and more contributions could be collected. Events or projects that are conveniently accessible even by the elderly are worth exploring; however, their implementation needs careful consideration, especially with regard to additional costs that might eventually result in lower economic performance. Local vegetables may be worth considering as a privileged product for cost reasons. More listening to people's concerns, or more investigation and change in the content of privileged products might be worth considering.

## 4. Discussion and conclusion

Students recognised the importance of rural sustainability and its challenges. Moreover, they practiced the social research methods learnt in lecture-based classes, such as statistics and qualitative research methods, to deepen their understanding.

Although the Faculty does not specialise only in rural sustainability issues, which may be learned in a specialised way in the Faculty of Agriculture of the University, a member of the Association for Sustainable Kashidani Tanada encouraged us by commenting that a theme such as this may be well examined by people from other fields. Moreover, the Association's members showed much interest in the project analysis results, as it included novel information that had not been previously recognised by them.

Continuous conduct of the project with the same theme for one year (a total of eight months) would make the theme-setting and analysis more deliberate and eventually lead to appropriate results. Meanwhile, a certain level of specialised knowledge can be obtained, and a more focused theme can be gradually set. This project period is not too long; motivation or performance would be low during the middle part of the project if the project is too long.

Theme-finding by students may lead to inefficient research, as their themes could change in the middle of the examination or might widely vary; their analyses might be one-sided; or their perspectives might be narrow, since they do not have specialised

knowledge. Therefore, effective devices should be applied in the lectures to appropriately guide the students.

However, theme-setting by students may benefit both students and stakeholders. Students will be more motivated even if the themes might be challenging to examine. Moreover, such theme-setting may lead to novel findings that specialists dealing with these issues have not been able to recognise.

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## References

Association for Sustainable Kashidani Tanada's website (<https://sites.google.com/site/kashidanitanadahozonkai/>)