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Autonomous Dependence on Outsiders: Open Source Model for Regional Coastal Zone Management

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ABSTRACT

This study attempts to describe the importance of autonomous dependence on outsiders by describing open source model for regional coastal zone management and planning. The establishment of regional coastal zone management plan often depends on outsiders because local people often lack enough scientific knowledge and financial background particularly in developing countries. Even though the management plan is seemingly well established at the first stage, the renovation of management system to accommodate with unexpected changes in setting is likely to be needed. However, the local coastal community is not capable of re-creating better management plan because it does not have chance to learn how to innovate knowledge. It is in a sense the result of excessive dependence on outsiders. In order to manage the regional coastal zone adaptively, the author proposes an OPEN Circuit Model that explains transformational changes in management system by focusing on knowledge creation by local people. The model can provide a useful evolutionary design for adaptive management by introducing, sharing, transforming and presenting knowledge autonomously. It is considered an open source approach for the regional coastal zone management. This study may be the first to document an open source model with autonomous dependence in particular reference with knowledge creation.

Key words: open source, adaptive management, knowledge creation, OPEN Circuit Model, autonomous dependence,

Key learnings:

1. The OPEN Circuit Model for regional coastal zone management is proposed
2. Autonomous dependence on outsiders is the way to achieve open source development the role of outsiders is not likely to help local people, but to contribute to the local coastal community through knowledge creation

INTRODUCTION

The coastal zone is used excessively by a variety of coastal users because of its important resources and its environment. The economic growth and increasing interests in non-industrial activities such as coastal recreational activities and coastal tourism results in rapid and continuous growth of the number of users. Conflicts and competitions of interest among users occur when their coastal uses are poorly managed. Problems arise in the coastal zone when the impact of utilization exceeds the carrying capacity of the environment. As a result, destruction of the environment and depletion of resources follow.

In order to prevent destructive damage to the coastal environment; there have been several attempts to reconcile this situation. Among them, the introduction of integrated coastal zone management is considered an effective countermeasure. Numerous research attempts have been made by scholars and coastal practitioners to propose more effective coastal zone management. However we have not come up with persuasive proposals because there is no best solution to all users involved in the coastal zone.

This is more serious in developing countries and therefore they need variety of supports from outsiders both in technically and financially. Among them, the establishment of regional coastal zone management plan is likely to be depending on outsiders and donors because local people often lack enough scientific knowledge. However excessive dependence on them often causes independence and lack of managerial autonomy. Although the management plan is seemingly well established at the first stage, it is likely to be altered because of the unexpected changes in managerial and environmental settings in the coastal zone. Thus, local people need to prepare for the renovation of management system to accommodate with unexpected changes. However, local people are not capable of re-creating better management plan adaptively because they do not have chance to learn how to innovate knowledge.

Thus, this study attempts to describe the importance of autonomous dependence on outsiders by describing open source model for regional coastal zone management and planning. The core of the proposal is an OPEN Circuit Model that explains transformational changes in management system by focusing on knowledge creation by local people. The model can provide a useful evolutionary design for adaptive management by introducing, sharing, transforming and presenting knowledge autonomously. This is considered an open source approach for the regional coastal zone management. This study may be the first to document an open source approach with autonomous dependence in particular reference with knowledge creation. This will be a key management model for the regional coastal zone management in the future.

APPLICATION OF KNOWLEDGE SCIENCE FOR ICZM

It is noteworthy that little attention has been given to knowledge in the area of coastal zone management. On the other hand, a large number of studies have been made in the area of corporate management. A famous example of this work is the series of knowledge management studies (e.g. Nonaka and Takeuchi, 1995). They discussed how to create new knowledge for better cooperate management and how to create competitive advantage of companies.

There are numerous discussions on knowledge science in local resource management studies. One interesting example is a study on soil and water conservation in Bolivia done by Lawrence (2001). The study discussed a participatory soil conservation approach, and observed dynamics of knowledge and a process of creating knowledge. Other studies concerning knowledge can be found in the area of ecosystem management and adaptive management (e.g. Clark, Stankey and Kruger, 1999; Lee, 1993). These discuss the role of knowledge in resource management. Grumbine (1994) suggested that an ecosystem management does not simply mean science nor application of traditional resource management. It is expected to be a new approach for natural resource management. Even though the history of ecosystem management is not long enough, it has been supported by a large number of researchers and practitioners (Imperial, 1999).

One interesting application of knowledge for ICZM can be found in the South African Coastal Policy (Glavovic, 2000). In that document, integration of knowledge and a process of social learning are strongly pointed out. It demonstrates that the use of knowledge can be accepted by practitioners and administrative sectors. In order to create successful ICZM, it is no exaggeration to say that the use of knowledge will decide the future of ICZM.

The importance of the use of knowledge for ICZM can be explained by the enlargement of management objectives. As shown in Fig. 1, natural resource management may originally and naturally target species because it is easy to understand and is visible. However, survival of the species is likely to be affected by the condition of the ecosystem. Thus, management should focus on conservation of the ecosystem. Nonetheless, most ecosystems are quite vulnerable to human activity because the size and impact of human activity has recently been increasing greatly. Therefore we should think about managing human influences. This is not a simple task if both the ecosystem and human use fluctuates all the time. It is inevitable that we will need to adapt to the change of the

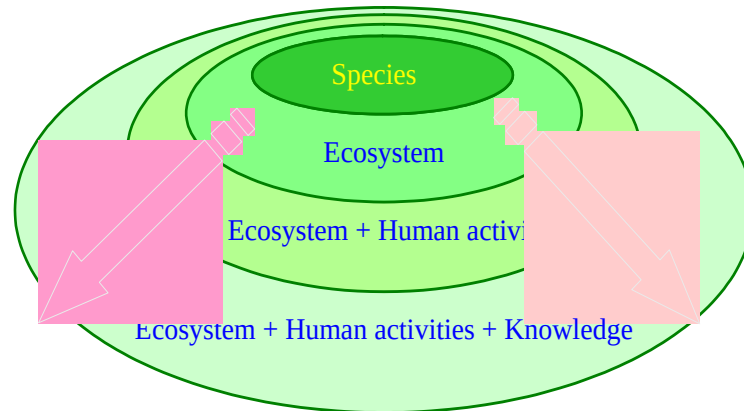


Figure 1. Enlargement of management objectives

environment and management. In order to pursue an effective resource management, we have to change our management itself to a more suitable form. It is obvious that the adaptation can be done by the creation or introduction of new knowledge. In other words, we need to manage knowledge. These changes in management target are summarized in Figure 1.

Another important key idea is collaboration. This idea also appeared in the South African Coastal Policy. Collaboration is a constructive solution-finding process conducted by multiple parties with different aspects. According to Gray (1991), it is likely to be a process where different types of knowledge are mixed and amalgamated into a new and more effective framework. Currently we need transdisciplinary research to solve complicated coastal ecosystem problems, and cooperation among stakeholders to execute ICZM more sophisticatedly.

A CIRCUIT MODEL AS A NEW WAY OF MANAGEMENT

As described before, it is necessary to manage knowledge for better coastal zone management. The most important question is how to create knowledge because continuous knowledge creation through social and individual learning may result in autonomous management. The author has summarized the process of knowledge creation in coastal zone management from a case study at Kotohikihama coast in Kyoto, Japan where day-to-day coastal management by a municipal government is the authorized for the first time in Japan. The coast is characterized by the presence of singing sands and beautiful natural coastlines. The author succeeded in identifying different types of phase in their conservation movement. The study has shown four different phases. The first is the visitation of scientists who found and advocated the preciousness of the singing sands. The second is the formation of a network among people concerned about conservation issues. The third is the transmission of a conservation scheme by enacting municipal coastal regulations. The forth is the evaluation and formation of a concept. The point about the model is that these phases are inter-related.

The author generalise the model in a way that allows its application to regional coastal zone management in Figure 2. The fundamentals of the OPEN Circuit Model are also shown in Fig. 3. The model is characterized by four different phases, Opening Store, Presentation, Evaluation, and Networking. Each stage presents a process of the management. Phases start from internal transmission to internal formation and move into external transmission, then finally to external formation. The model is explained is explained by the following sequence of events illustrated in Figure 2. If the outsiders and local people who have the knowledge in coastal zone management can demonstrate their knowledge, they may recognize the knowledge they have. The author named this stage as 'Opening store'(Phase 1) because the knowledge is displayed in explicit way like store displays. After opening stores in the region or community, there are likely to be opportunities 'networking' because the knowledge is shared with those who concerned (Phase 2). Some tools such

as a local meeting and the chances of discussion for better understanding of coastal zone can facilitate the knowledge sharing. In addition, the role of intermediary to create the network is crucial at this phase.

The collaborative work of people who have opened stores and share the knowledge can result in the creation of new knowledge (Phase 3). This process can be considered as an innovation. The most common shape of this is establishment of management plan in ICZM. However, it is necessary to show new knowledge in an explicit way for the evaluation by outsiders. Once the products of collaboration have appeared, the outsiders can see them (Phase 4). If they are thought to be satisfactory and encouraging, the outsiders can be interested in their products (=management plan) and therefore may enter the coastal community. The outsiders can enter the community after they understand the rules and roles. This means that outsiders can learn what they should not do and what they should do in the community. As a result, they may join the community and start running the circuit with new knowledge that is likely to contribute to improve the management (Phase 1 again). At this stage, the model can go into a more developed routine than before because more stores may open in the community and provide more knowledge to contribute to better ICZM in a region.

The important factor affecting the success of the model is openness. However this simply does not mean that the model is open to everyone, but opens to anyone who realizes rules and roles. This is oxymoronic and then the local coastal community can carefully avoid from relying too heavily on outsiders and donors. The community can select outsiders and donors by using the OPEN Circuit Model because the system can choose them autonomously. In addition to this, the creation of new knowledge may not occur outside of the community but inside of the community and therefore, knowledge wise, the local coastal community develop by themselves. In other word, the local coastal community do not need to depend on the knowledge imported from outside of the community. Furthermore, even though the conditions for the ICZM have changed, the community, by the request of society, can respond to these changes by creating new knowledge by themselves and partly with the help of outsiders and donors. This is considered to be autonomous dependence.

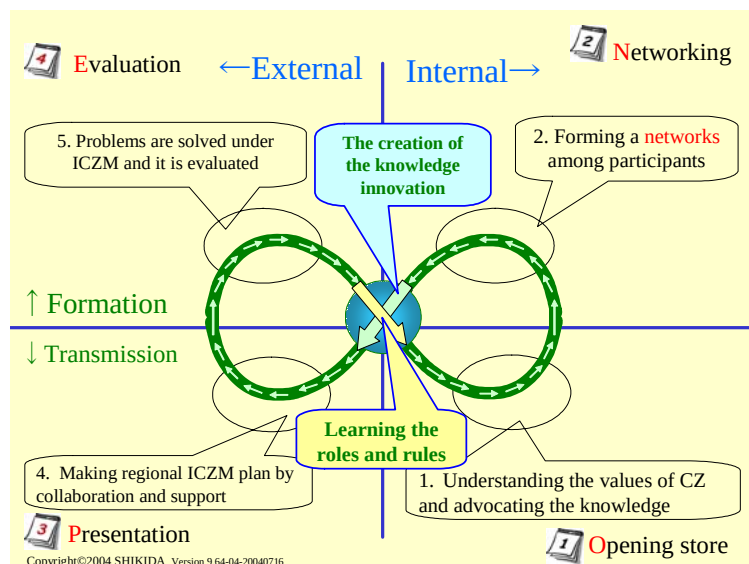


Figure 2. Application of the OPEN Circuit Model for coastal zone management

CONCLUSION

In this study, the author has demonstrated the OPEN Circuit Model for ICZM (Figure 2). It can show how to create new knowledge for better ICZM by focusing on autonomous knowledge creation. The model can provide a useful design for an adaptive ICZM by sharing this idea, utilizing and creating knowledge autonomously. Not surprisingly, the higher concentration of knowledge corresponds to more effective ICZM. The author believes that the model can be a unique and useful tool for designing a local ICZM system. This study may be the first to document a knowledge-based model for the ICZM. It is thought the OPEN Circuit Model presented here will receive wide application in the near future. The author hopes the result of this study will help contribute to the implementation of the ICZM program by providing a conceptual framework of its evolution.

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