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## **Sasi in Kei Island: Transformation of Coastal Resources Management by Community in Tanimbar Kei Island, Maluku, Indonesia**

**Anes D. Jayanti<sup>1\*</sup> and Katsuya Osozawa<sup>2</sup>**

<sup>1</sup>Fisheries Department Faculty of Agriculture, Gadjah Mada University

<sup>2</sup>Maritime Theory and Livelihood Laboratory Faculty of Agriculture, Ehime University

<sup>\*</sup>Correspondence author: anes\_thesi@yahoo.com

### **Abstract**

*Sasi* is a local Indonesian traditional resources management system, which manages responsibilities and marine tenure rights in Maluku. Dwellers have been using this system for over 400 years and it consists of spatial and temporal prohibitions on harvesting crops. *Sasi* was viewed as an appropriate method to achieve harmony between man and nature. It has been noted that *sasi* has been affected by many factors. These factors have allowed *sasi* to exist in some areas and become extinct in other areas, which are very essential indicators when considering how to effectively achieve sustainability. Studying the factors that transformed *sasi*, understanding villagers' perception and reaction to *sasi*'s transformation and how they planned to sustainably manage their natural resources will support the community based management model for eastern Indonesia. This research was conducted in Tanimbar Kei Island, which actively follows the rules of *sasi*. To determine the effectiveness of *sasi* in terms of social and environmental sustainability, demographic, social, politic and economic factors were studied. This study used the triangulation method, which consists of literature studies, area studies, in-depth interviews and questionnaires. The data was analyzed with qualitative analysis, institutional analysis and sustainability analysis. The results show a change in perceptions and community institutions. The dominant factor affecting *sasi* is the political aspect, especially concerning policy autonomy and assistance from NGOs. The community trust in *sasi* and other community members ensures that *sasi*'s transformation does not cause it to lose its identity and function.

**Keywords:** *Sasi*, community management, lola, customary law

### **Introduction**

Most of the world population (50-70) lives in coastal areas (Edgren, 1993). A high population puts a lot of pressure on coastal areas and leads to environmental degradation (Ferol, 2013). These activities directly impact for the people, who depend on coastal and marine resource. And in this study I focused on the small scales fisheries sector. Small-scale fisheries in coastal areas are dependent on the coastal environmental conditions (Urquhart, 2013). Communities who play a role in small-scale fisheries are the key factor in the sustainability of the coastal environment. Marine resource management in remote island locations assumes greater significance both for local stakeholders and conservation organizations. Protecting marine resource through community empowerment in community based resource management is necessary to support conservation. Understanding and implementing *sasi* may help conservation managers understand the local environmental and cultural context for the purpose of conservation (Berkes et al., 2000). Talking about conservation is not just about the resources, but

protecting the system that has been holding on for 400 years old and yet there are a lot of modification but the center of this culturally system is effective and efficient to be practiced in order to conserve nature and optimize livelihood. Tanimbar Kei is location that still holding on *sasi*, but in 7 years there is a changes in system, but it changes promoted by the community itself. Changes that makes the *sasi* is transform from local knowledge to scientific rational.

This research was conducted to gain information about the importance of *sasi* for communities in Tanimbar Kei and how Tanimbar Kei villagers adapted to the transformation, both positive and negative. In addition I sought gain more information about the factor that influence *sasi* in Tanimbar Kei Island, understanding villager's perception and reaction to *sasi*'s transformation. Finally I investigated to the changes happening around them, and how they planned to sustainably manage their natural resource. Studying the changing community values adopted for continuing scientific beliefs they have. Basing scientific values to strengthen what they believe. By studying the system and change as well as the interaction

between society and the changes in *sasi*, able to assist in making management pattern that help people and governance in conservation efforts to sustain their lives that depend on natural resources. With knowing what is the social and cultural impact of marine fishing on coastal communities and how approaches to valuing these impacts are developed can help the policy makers to integrate it into policy progress. This progress can be studied as comparison learning for policy maker to transmit this model of conservation to another coastal community's area, which has no local values, or losing their local values.

## Method

Research was conducted in Tanimbar Kei Island, West Kei Kecil District, Southeast Maluku Regency, Indonesia. Framework of this research is to define *sasi* in Tanimbar Kei transformation, and interaction between *sasi* and demographic, Economic, Social and Political Factors that has been chosen is based on McLeod (2009) with considering the importance factor and indicator that easy and transparent able to define. Method that had been used is triangulation, which is consisting of field observation, interview and study review or document analysis based on case study. Data was collected with distributing questionnaires to rural communities especially Tanimbar Kei villager's adulthood with a minimum age restriction of 20 years. Questionnaires were spread using a sample of 20% of the total adult population. The numbers of sample in total are 78 people. Each set of samples in different age groups. The following is a sample size of each age group. Data's collection has been toked with interview, questionnaire sampling, survey and review study. Interview and review study was conducted to gain the Tanimbar Kei history and *sasi* in Tanimbar Kei. Method also conducted to see *sasi* from Depth interview had been done to the Head of District Kei Kecil Barat, Tanimbar Kei Head of village, Elder of Tanimbar Kei village, Head of Conservation Division and Public Relation of Tanimbar Kei Village. From Fisheries and resource sector interviewed had been done to Head of Department of Fisheries in District *Tual*, LIPI, traders of *Iola* and Fisheries Ministries staff in and LMMA (Locally Managed Marine Area) a companion NGO of Tanimbar Kei village. The data was analyzed with qualitative analysis, institutional analysis (Ostrom 1990) and sustainability analysis (Valentine and Spanberg, 2004).

## Result

### *Sasi in Kei*

Compared to other area eastern Indonesia that practiced *sasi*, *sasi* in Tanimbar Kei is simpler than other's. In Tanimbar Kei only *sasi desa* (village *sasi*) and *sasi pribadi* or *marga* (private *sasi*) are based on the ownership of the property. *Sasi darat* can be managed as private *sasi* by individual, certain clan or commonly. *Sasi laut* is only managed commonly. For Tanimbar Kei villager, *Sasi* is not a system or activity, but it is a sign to show that an area can't be entered or harvested. *Sasi laut* is only for *sasi desa* or *commons sasi*. Village owns their territorial sea and the utilization of this common property is for everyone.

### *Group Size and Homogeneity*

Group size and homogeneity are the factors that influence the community with interaction, cooperation and coordination pattern and the total population of Tanimbar Kei is 589. A higher population makes cooperation among most community members difficult (Marut, 2004). Population is not the problem for Tanimbar Kei because it is sustainable develops their community without overusing the resource. Group size in Tanimbar Kei is keeping the system still the same. Small population is better to be organized than larger one. Based on the study, most of the villagers are Hindu, have the same income source, cultivating seagrass and small scale fisheries. Total population of Tanimbar Kei village is 598. There was an increase in immigrants from Kei Islands 12 years ago due to religious conflict between Christian and Moslem. Based on the survey, conducted 32, 6% are immigrants, 16,6% of immigrants are from Kei Islands. The immigrants moved to Tanimbar Kei because many of them had relatives on Tanimbar Kei. Tanimbar Kei was a desirable destination because it is natives are Hindus. Tanimbar Kei Island is seen as safe therefore the immigrants believed that the conflict wouldn't reach Tanimbar Kei Island.

Table 1 Period of stay of the respondent in Tanimbar Kei Island

Period of Stay in Tanimbar Kei Island	Male	
	Frequency	%
Since born	52	66,7
< 12 years	6	7,7
12-13 years	13	16,6
> 13 years	7	9
TOTAL	78	100

Migration effects community's homogeneity. Peoples that come from a different culture can influence the community systems. In this part, we can never define which part will be win. Acculturation about deferent way of thinking will be occurring in long term.

*Economic*

The economic system in Tanimbar Kei Island is based on the resources. There are big differences between 2000 and 2009 in income source. In 2000 most of their income source is from collecting sea cucumber and *lola*. In 2009, the cultivation of seaweed had been started for 4 years. Based on a report done by the NGO LMMA (Local Managed Marine Area), in three months, one seaweed farmer can get \$1.200. Collecting *lola*, sea cucumber and fishing is often not enough to fulfill the cash need of the community. In some cases, even if it meets their needs, it will cause unsustainability. Since seaweed cultivation become famous in Tanimbar Kei, income from items harvested under the *sasi* system are used for community projects. However individuals are able to earn money from seaweed. The pressure to harvest *lola* and sea cucumber is decreasing. In one year, *lolas* and sea cucumbers collection is prohibited (*tutup sasi*) except for one week (*buka sasi*).

*Sasi*, in this case, helps communities to protect their sea territory and gives *lolas* and sea cucumbers the chance to grow and do reproduce. The economic market of this village is based on the resources. Protecting their resources will help them to maintain their daily lives and livelihood. Respondent agreed that fish stocks are decreasing and becoming more hard to catch, but for *lola* and sea cucumber are increasing in number. *Lola* is listed as endangered species and in CITES. The trade and the harvesting of *lola* is monitored closely.

*Proximity to Market*

Tanimbar Kei is far from the main land and the district capital, as a result, Tanimbar Kei villagers can sufficiently provide for their basic needs and are not dependent on imported consumer goods. Looking at their consumption patterns, it is clear that Tanimbar Kei is a self-sufficient community. Tanimbar Kei villagers consume *hotong* (malt) or cassava while the minority consumes rice because Tanimbar Kei cannot produce rice.

*Social*

Tanimbar Kei's Community Perception of Sasi

Perception is often underlying people action. Tanimbar Kei villager's perception about *sasi* can be the clue or guideline of what they do and they will do in the future. In Tanimbar Kei there are natives and immigrant, who came to Tanimbar Kei in 1999. According to the respondent of the survey, there are multiple reasons why villagers obey *sasi* and continue to practice *sasi*. For natives, *sasi* is something that is inherited from ancestors and a custom that should be obeyed. For immigrants they are obey *sasi* because *sasi* is beneficial for the environment; they believe there are indirect benefits from obeying *sasi* and practicing *sasi*.

Villagers trust *sasi* and trust that everyone in the community will obey *sasi* because of *sasi* is considered sacred. The results of the survey show villagers that obey *sasi* because *sasi* is considered sacred. The perception about *sasi* is that it is inherited from one's ancestor and can magically bring bad luck to people who disobey it. In addition responders state that there are differences between how a community practice *sasi* and obey *sasi*. It is different motif to obey and keep to practice *sasi*. For the immigrants they keep the *sasi* practice because they believe that practicing *sasi*

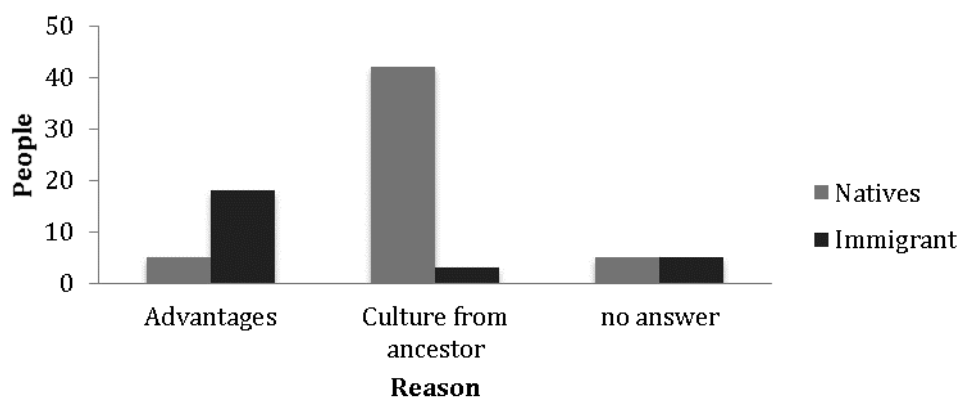


Figure 1 Villagers differing Reasons for Practicing Sasi

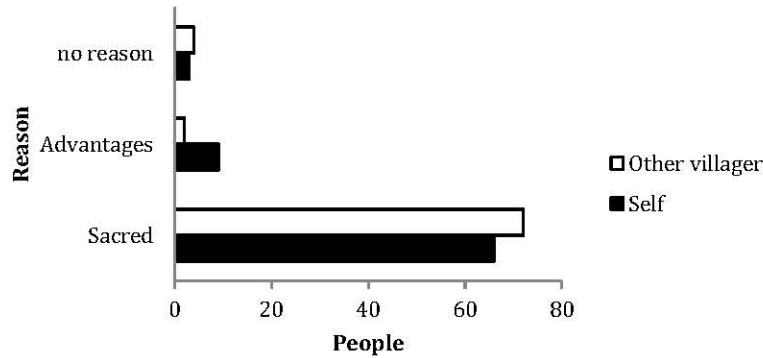


Figure 2 Opinions About Self and Other Villagers reason for Obeying Sasi

will give them environmental benefits and contribute to the income generated by seaweed cultivation and community earning from collecting *lola* and sea cucumber. The community obey *sasi* because they believe something spiritual in *sasi*'s practice. There is no differences between natives and immigrant why they obey *sasi*. They are obeying *sasi* because it is commons decision and sacred from ancestor.

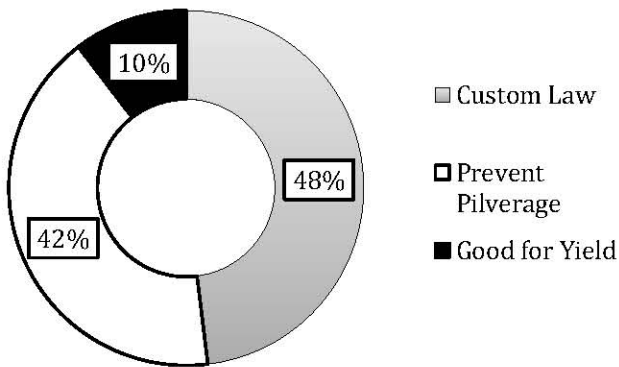


Figure 3 Reason for Obeying Sasi

All the respondents were state that they still obeying *sasi*. Additionally they also believe other villagers still obey *sasi*. And the reason why they obey *sasi* is because it is sacred. And the same reason for other villager, they believe other villager also obeying *sasi* because it is sacred. Trust system in Tanimbar Kei is interesting. Each villager trust fellow villagers in keeping and practicing. Trust is the foundation for maintaining communication and rules in a community. Cooperation among villagers is based on trust. Trust is also the capital for a community to solve their problems.

*“How people solve dilemma is their challenges their developing trust in one to another (Ostrom, 1990) “*

Villagers also believe that *sasi* is effective because *sasi* violations are very rare. According to the responders, in one year there are only 3 violations

cases and people who disobey *sasi* are outsiders or live in other villagers.

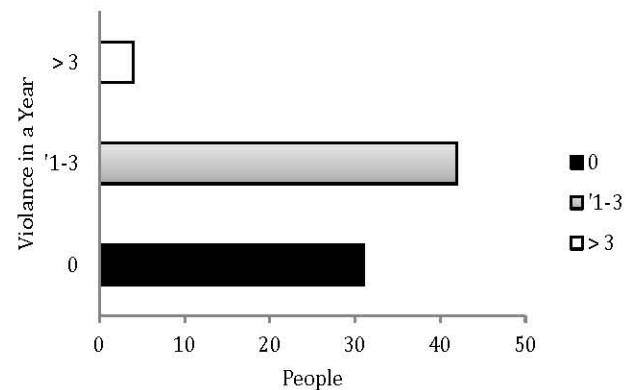


Figure 4 Violation of Sasi in last one year

**Religion**

Tanimbar Kei Religion is closed to animism. In Maluku, the main religion are Christianity, Catholicism or Islam. This differs from with Tanimbar Kei, they believe that their religion which is closed to animism or paganism. In Indonesia it is classified as Hindu. Based on personal interviews, artifacts and the architecture style of house and other buildings in Tanimbar Kei are also found in Bali. Those artifacts are from the 16 century. There is possibility that religion and beliefs were brought from Bali because villagers settled this island since the 16 century. There is also big possibility the way in which people contact their natural resources since the interaction with nature also came from Bali.

**Politics**

The Legitimacy of Local Authorities

Legitimation from Governance, central, province or district about *sasi* is supporting community to be proud of their inherit law. Build trust in a community and optimizing the implementation of *sasi* and institutional which covering *sasi*. These are some legitimation from Governance related to the *sasi*'s acknowledgement:

Table 2. Legitimation of *Sasi* and Customary Institution in Maluku

Issued Authority	Rules
Central Government's rule	Rules No 32/2004 Regional Autonomy
Maluku Province's Rule	Rules No 14/2004 Re-determination Negeri as customary law community as unitary in Maluku provincial Government Areas
Southeast Maluku District's Rules	Rules No 3/2009, No 4/2009, No 5/2009, No 6/2009, No 7/2009, No 8/2009, No 9/2009,
Village's Rule	Rules of PSDA No 1/2008

Table 3. LMMA Activities in Tanimbar Kei that Assist Villagers

Division	Activities
Resources and Conservation	Creating core zones Monitoring <i>lola</i> in core zones Monitoring coral reefs every 6 months Mapping
Community affair	Supporting villagers in presenting their work to gain the government's help Popularizing monitoring program of natural resources related to <i>sasi</i>
Institutional	Creating rules which support monitoring and conserving, and take a part in decision-making of practicing <i>sasi</i>

### Support from Governance

*Sasi* in Tanimbar Kei Island focuses on certain species to protect. Species that need to be protected are *lola* and sea cucumber. The fisheries department supports villagers by giving fund to cultivate seaweed. Within 2 years of starting this project, Seaweed cultivation became popular income source for Tanimbar Kei villagers. It is also beneficial because while *sasi* is being practiced, villagers have another income source. Since fishing is also hard to do because of the fish stocks are decreasing, so seaweed cultivation is the solution. *Lembaga Ilmu Pengetahuan* Indonesia (LIPI) or the Indonesia Research Centre in southeast Maluku supports villagers by giving them *lola* juveniles and barter it with brood stock of *lola* from the nature. The aims of this project by LIPI is to provide and trial to cultivate *lola* and providing *lola* juvenile to be released to the sea, or communal property.

Fisheries department in Kei Island is working together with LIPI to provide juveniles that will be released in communal sea areas. In conservation action, the department of fisheries cooperates with villages which still practicing on *sasi*, so that the conservation of certain species can be enhanced.

### Support from Non-Governmental Organization (NGO)

Non-governmental Organizations play an important role in awakening *sasi* in the Kei Islands and almost all of Maluku. In Tanimbar Kei, NGO assists in

documenting conservation activities related to *sasi*. One NGO that helps Tanimbar Kei is called LMMA (Local Managed Marine Area). Starting from 2006 LMMA has assisted *Ohoirenan* village in *Kei Besar* Island. LMMA is successful in working together with the community and helping the community to understand *sasi* in scientific way. Because of their prior success, Tanimbar Kei villagers ask to the Head of LMMA Indonesia to help their village. Since 2006 LMMA has assisted communities in enhancing community's capacity to monitor and document *sasi* and their natural resources, especially in sea resources' utilization. Tables below is show the activities of LMMA in order to developing capacity of villager

### Enforcement Capacity

Enforcement capacity is needed to gain trust and control free riders, in the community. The collection action of all member of community is important. If one person didn't cooperate, it will trigger another villagers to withdraw from communities' activities.

Enforcement capacity is written in law made by villagers with agreement in council. Before enforcement capacity is from custom punishment. It is effective but villagers need to record or document and write the sanctions for violations so they can control the communal properties and interest. The table below describes the rules related to enforcement.

Table 4. Breakdown of Village Rule No 1/2008

Article	Content
1	General Provisions
2	Natural Resource Tenures
3-14	Natural Resources Management (3-6), Inland Natural Resources Management (7-9), Coastal Natural Resources Management (10-12), Marine Natural Resources Management (13-14)
15-24	<i>Sasi</i> of Natural Resources (15), <i>Sasi</i> of Inland Natural Resources (16-19), <i>Sasi</i> of Coastal and Marine Natural Resources (20-24)
25-27	<i>Sasi's</i> Enforcement (25), Protection and Utilization Area of Inland resources (26), Protection and Utilization Area of Marine and Coastal Resource (27)
28-36	Protected Areas, Core Protected Areas (28-30), Limited Utilization Areas (buffering zone) (31-33), Open access Utilization Areas (34-36)
37-38	Natural Resource Management Institutions
39-44	Prohibitions and sanctions of Inland natural resources
45-50	Prohibitions and sanctions of Coastal and Marine natural resources
52-55	Surveillance and customs enforcement
56-58	Closing

*Peraturan Adat* or written Customary Law is agreed upon by *saniri* and implemented in 2008. Local Institution have *kewang* to do monitoring and protecting *sasi* area. The enforcement of conservation activities especially *sasi* as an effective tool to support conservation effort, the enforcement of *sasi* also involves social sanctions which are more humiliate than other sanctions. Clan structure Tanimbar Kei village has a big impact in social interaction. Every villager has pride in their family name and tries not to embarrass their family. One person in a family who commits a violation causes whole family to feel humiliated. This enforcement is effective in Tanimbar Kei Island because the community is not so large and there is strong family bond, which binds the community.

#### Institutional Analysis

Institutions are a product of evolution. Former studies show how people affective and cognitive styles become intimately entwined with their social institution (Cohen and Vandelo, 2001) because such complex traditions are so deeply ignored, they both slowly to emerge to decay. Many commons management institutions have considerable time depths (Ostrom, 1990).

Tanimbar Kei has unique institutions. Before rule number 5/1979 from Central Government of Indonesia, structure of institution in Tanimbar Kei Island and Kei Islands is in the *Ratsap* territory. *Ratshap* is a united community, which base on customary law and the history of the origin. *Ratshap's* function is to decide and to organize common law problems in this neighborhood and *Ohoi* in the range under *Ratshap*

coordination. *Ratshap* is lead by a *Rat* (king) and it's power is inheritable.

After rule number 15/979 is enforced, institutional systems has changed. Based on the rules, *Ratshap* and *Ohoi* were replaced by *Desa*. *Desa* (village) was adapted from Java culture and it's structure is uniform throughout Indonesia. After law number 5/1979 was implemented, the local political structures in the village was abolished. There are some aspect of this law that cannot accommodate *kewang*, *kapitan* and clan head function. What happened in Tanimbar Kei also occurred everywhere, trough Indonesia, but this uniform structure cannot completely replace the traditional ones. In Tanimbar Kei the traditional structure is irreplaceable, the uniform structure based on law number 5/1979 give a shock and an distraction to Tanimbar Kei villagers because the authoritative figures doubled.

After law number No 32/2004 concerning regional autonomy from central government, which is supported by Law, number No 14/2004 about the re-determination of *negeri* as a customary law community unitary in Maluku provincial government Areas. The traditional structure of institutions was re-established and there were some new traditional institution added.

The new village government structure accommodates the *rat* function and *Saniri* function. The conservation division is responsible for taking care of monitoring the *sasi* area. This division is related to NGO (LMMA) who supports this village. The authority of this division only gives suggestions to the *saniri* concerning when or where or how *sasi* to practice *sasi*. Division of

Table 5. Design Principles and Factual Condition in Tanimbar Kei

Principles	Ideals Explanation	Tanimbar Kei CPR Institutions
Clear Boundaries and membership	Individuals or households who have the rights to withdraw resource units from the CPR must be clearly defined, as must the boundaries of CPR itself	The Users of Commons Pool resource is Tanimbar Kei villager. Boundaries of CPR in the coastal and marine area is 4 mil from sea shore and is regulated by <i>saniri</i>
Congruent rules	Congruence between appropriation (the restriction time, place, technology and quantity of resource unit are related to local condition) and provision (labor, material, money) rules and local conditions	Restricting the time, place and technology for fishing, quantity or species of catch in <i>sasi</i> is congruent with the factual conditions. Setting rules based on monitoring of resources and the rules is disseminated to the public
Collective choices arenas	Most individual affected by the operational rules can participate in modifying the operational rules	Individuals that are active in <i>saniri</i> and considered as the elder or the officials of institutions is able to modify the rules. Modification of any rules needs to be deliberated in <i>saniri</i> forum.
Monitoring	Monitor who actively audit CPR condition and appropriator behavior are accountable to the appropriators or are the appropriators	Tanimbar Kei Institutions was a traditional institution. Resource, coral reefs and <i>lola</i> are monitored as they are protected resource.
Graduated sanction	Appropriators who violate operational rules are likely to be assessed graduated sanctions	Graduated sanction was explicitly described in Village rules no 1/2008
Conflict resolution mechanisms	Have rapid access to low cost local arenas to resolve conflicts among appropriators or between appropriators and official	Coastal and Marine Resources in Tanimbar Kei are communal property. There is no single appropriator, so the management is in Institution is right. There is minimum conflict related to the ownership.
Recognized rights to be organize	The rights of appropriator to devise their own institutions are not challenged by external governmental authorities	Villager recognition about the challenge that face tem related to sea resources, so the rules is initiated by villagers and assisted by NGO and supported by governance
Nested Units	Appropriation, provision, monitoring, enforcement, conflict resolution and governance activities are organized in multiple layers of an enterprise	The first 4 miles beyond the coastal line is district property. In Tanimbar Kei Island, those areas are under village authority
Institutional Performance		Local traditional institution in Tanimbar Kei is classified as strong institutional, considering, they are sufficient enough, and low conflict area

conservation is different with *kewang*. *Kewang* are also part of the division of conservation but *kewang* status is inherited. *Saniri* or villagers chooses the membership of the division of conservation. Division of Public affair has a responsible to announce to other villages or what village has do in order to continue practicing on *sasi*.

This new institution brought by Community or villager with customary based need to be analyzed. Design Principles illustrated by long enduring CPR institutions base on Ostrom (1990), is used for analyzing if an institution will endure or not. Boundaries, membership, congruent rules, collective choices, monitoring, graduated sanctions, conflict resolution mechanisms, recognized rights to be organize, nested units and institutional performances were the indicator of a long enduring of the institution.

#### Sustainability Development

Interlinkage between imperatives in four factors that often turns out to be closely linked to what is the most important field of policy making (Valentine and Spenberg, 2004). The interlinkage between imperatives among four factors create sustainability prism. These prism describing generally linkage of the factor. In this analysis, *Sasi* and it's transformation influences sustainability in Tanimbar Kei community. These are the goals and focus of each factor are shown below.

For these goals, *sasi* plays an important role. *Sasi* and the cultural values that are embedded within are the underlying systems in the community. People attempt to obey the rules that they agreed previously or that were inherited by the ancestors. *Sasi* includes hereditary values from ancestors that the community should value. In the case of Tanimbar Kei, *sasi* can strengthen the social bond of the community.

Table 6. Factor and Goal of Sustainability

Imperative Factor	Goal
1. Social Imperative	Obeying rules and collective agreement
2. Environmental Imperative	Protection of nature or natural resources
3. Economic Imperative	Increasing personal earning and community earnings
4. Institutional Imperative	Strengthening participation

The environmental imperatives goal is to protect nature or natural resources. Natural resources and renewable resources are limited. Nonrenewable resources also have the limitation of utilization. *Sasi* if implemented well like in Tanimbar Kei, can support and keep the extraction of resources sustainable. It is too early to say if resources are sustainable in Tanimbar Kei, but considering that the natural resources that protected by *sasi* are limited to certain species like *lola* or sea cucumber, *sasi* can maintain the value of these species and needs of the community. Since the people of Tanimbar Kei are not dependent on sea cucumber and *lola*, *sasi* is more effectively used for keep the *lola* and sea cucumber population from extinction not for the economic beneficial. *Lola* is listed in appendix II of CITES. Without *sasi* and the community's belief in *sasi*, *lola* will be extinct. Besides protecting *lola*, *sasi* also protects the coral reefs condition. A better coastal environment is related to the villagers earning. High quality and abundant of seaweed yield increases villager's earnings. With *sasi*, *lola* yield and seaweed yield can bring in better earnings. Increasing personal earning and community earnings is an economic imperative that can be reached with the implementation of *sasi*.

Villagers in Tanimbar Kei participate in institutional activities. They are involved in taking care and guarding *sasi* areas. With *sasi*, the community realizes that resources are really important for their livelihood and with *sasi* they can realize that their each community bond is strong. Village participation in *sasi* and other community activities, which are related to the common interest of supporting the sustainability of the community, is important. Villager's participation in the institutional system will help minimize free riders. They mutually supervise each other, either in the clan or village members in order to minimize free riders. Keeping an eye on each other's action is necessary and social responsibility to another. Every villager must contribute to the benefit from *sasi*, because they will get the benefit from *sasi*. So they should do something for *sasi*, either guarding or active in traditional institution of *sasi*. This called

collective benefit. Whenever one person cannot be excluded from benefit that's other provide, each person is motivated not to contribute in joint effort. (Ostrom, 1990).

### Discussion

Tanimbar Kei has strong social and human capital to sustain itself. Social capital is interlinked with the traditional institution, which is based on the family clan system. The homogenous community strengthens social capital. Similar views on how to protect resources and how to live help to solve problems with a majority vote. Every villager in the community actively participates in decision-making. Traditional institutions are strengthened by *sasi*. In Tanimbar Kei, *sasi* is a key factor in activities that involve the unification of the community. After 1980, *sasi* played a bigger role in community unification. *Sasi* is also a tool for the community to get support from the government, non-profit organization and other institutions, which are related to conservation or livelihood. However, residents of Tanimbar Kei simply think that *Sasi* is for protecting their livelihood. They still believe *sasi*, local institutions and customary laws can protect their village.

Community appreciation about their way of life concerning local values makes interaction among the villagers exclusive. This exclusiveness causes Tanimbar Kei villagers to put a low value on individuality and increase solidarity. Tanimbar Kei villagers' solidarity can have a sense of when they decide to harvest under the *sasi* system and the profit gained goes back into the community. This community awareness is the center of human capital in Tanimbar Kei. Interaction among the community is based on trust and the clan system. There are 3 main clan in Tanimbar Kei, Holan Hlean clan, Holan Mitu and Holan Awahan. These clans support the stability of community. These clans form a *saniri*, which is a village council consisting of the clan head or clan elder as a villager counselor. *Saniri* plays important role in keeping the community intact and keeping the same perception in the community. Communication



helps keep a community control and supervise itself. A community, which interacts closely and frequently, does not require external agencies (Marot, 2004); this makes Tanimbar Kei independent. Togetherness and collective action puts responsibility on each villager to protect their resources. This system and social bond prevent free riders and can prevent a person from getting benefits that others provide. As a result, everyone participates and no one is providing for others that do not take part in *sasi*. Individual action is not only influenced by the selfish behavior of rational individuals but is also influenced by the strength of the social forces. Social forces are embodied in social and moral norms. This bonds the community together (Baland & Plateu, 1997)

*Sasi* was designed to limit anthropogenic pressure on nature; it gives nature a chance to recover. *Sasi* can't protect natural resources from natural conditions. Climate change and global warming are critical issues that haunt researchers, scholars and environmental policy makers. A strong community and institutions in Tanimbar Kei effectively support *sasi*. *Sasi* has inter-linkages with communities and institutions. These inter-linkages look sustainable, but when nature changes, *sasi* can't be effective. Human capital and social capital adapt to this change but in the worst case villagers may leave the village in search of natural resources. Another possibility is that villagers may turn to the market to get more income instead of being dependent on resources.

## Conclusion

Villagers in Tanimbar Kei believe that *sasi* is sacred and has been passed down from their ancestors. If they follow it they won't lose their way of life. *Sasi* strengthens institutional structures in the village, maintains interaction in the village and gives each villager a role in maintaining communal property resources. Political and social factors transform *sasi* in Tanimbar Kei Island. Community perceptions about *sasi* and the scientific reasons for practicing *sasi* in their tenure are positive. The political factor is the main factor transformed *sasi*. NGOs, the government and other institutions see *sasi* as an effective way to conserve and utilize resources that affects villagers. They give villagers a chance to develop and transform *sasi* in a more scientific way and helps a community make informed decisions at community meetings.

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