

# Institutional resilience of pesantren in mangrove forest management in Kangean Island, East Java Province, Indonesia

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**Abstract.** The mangrove forest in Kangean Island is one of the natural resources that must be preserved. The government should involve many parties in the mangrove forest conservation program in Kangean Island, including institution of pesantren. Pesantren is a special education system that is full of transformative value that previously existed in religious territory and then expanded within social services. Institution of pesantren being one of the social capitals in Kangean Island has different characteristics. The condition of pesantren around the mangrove forest in Kangean Island could be measured by assessing the status of institutional resilience of pesantren using IDF analysis instrument. The aim of this research was to study the status of institutional resilience of pesantren around mangrove forest in Kangean Island, East Java Province. In this research, there are four pesantren which will be assessed as institutional resilience status: Pesantren Raudatul Amin, Pesantren Al-Ihsan, Pesantren Miftahul Huda, and Nurul Ulum Pesantren. The research was designed in Institutional Development Framework (IDF). There are six institutional indicators to be assessed: indicators of institutional and management resources, human resources, institutional external resources, financial resources, environmental/ecopesantren programs, and mangrove forest management indicators. The result indicates that Pesantren Raudlatul Amien including stage of mature/sustainable pesantren category (IDF value = 3.43), Pesantren Al-Ihsan including stage of stabilization category to mature stage (IDF value = 3.14), Pesantren Miftahul Huda including stage of stabilization (IDF value = 2.94), and Pesantren Nurul Ulum including stage of beginning stabilization (IDF value = 2.40). Therefore, the four of pesantren has a great opportunity to be a government partner in the mangrove forest conservation program on Kangean Island.

**Key Words:** ecopesantren, Institutional Development Framework (IDF), coastal ecosystems, social capital, natural resources.

**Introduction.** Mangrove forest is one of the renewable natural resources that must be preserved functional and sustainable, in order to support development and could be utilized optimally. Kangean Island is one of the largest islands in the Madura Islands of East Java Province. Kangean Island has an area of 446.78 km<sup>2</sup> (BPS 2015). Kangean Island has a large mangrove forest, covering 3,407.90 ha divided in two sub-districts; Arjasa 1,865.16 ha and Kangayan 1,542.74 ha (Muhsoni 2009).

The excessive pressure on mangrove forests in Kangean Island has affected the destruction of mangrove forests, and has an impact on the disruption of the sustainability of mangrove forest ecosystems. Pressure on mangrove forests is allegedly caused by poor understanding and awareness of the community and misperceptions about the importance of mangrove forest. The absence of regulations and institutions capable of mobilizing all stakeholders in managing mangrove forests in Kangean Island is also a factor that further exacerbates the destruction of mangrove forests in Kangean Island. Currently, mangrove forest management in Kangean Island is only implemented by the

government through State Forest Company (Perum Perhutani) KPH Madura. Unilaterally management caused Perum Perhutani to not been able to perform its functions in maintaining the sustainability of mangrove forests effectively. Some local institutions and local communities have not been optimally involved.

Roy (2014) explained that strictly and unilaterally mangrove forest management performed the government will have an impact on the low community commitment in mangrove forest conservation, so it is necessary extension of role access to society on mangrove resource conservation. In addition, according to Randy et al (2015) the implementation of good collaborative management between the private sector, local government and community empowerment in mangrove forest management is also an important factor determining the success of mangrove forest conservation. Therefore, the government should involve local institutions and communities in the management of mangrove forests in Kangean Island. Among the local institutions in Kangean Island that have a strong influence in the community is Pesantren.

Pesantren is the oldest educational institution in Indonesia that existed before the existence of modern education system. Pesantren is a very close institution and a reference for the local community. Abdurrahman (2006) reported that pesantren is an independent Islamic educational institution and has a role not only limited to religious activities but also in environmental conservation programs.

Kangean Island has several pesantrens located around the mangrove forest area, namely Pesantren Raudatul Amin, Pesantren Al-Ihsan, Pesantren Miftahul Huda, and Pesantren Nurul Ulum. Pesantren in Kangean Island has been constanly role model of society in daily life. The condition of religious community becomes its own potential that can be utilized by the government for the sustainability of mangrove forest management. However, the condition of all pesantrens in Kangean Island has different characteristics, both in the aspects of institutional and management resources, human resources, institutional external resources, financial resources, indicators of environmental ecopesantren program, and indicators of mangroves forest management.

Therefore, it is necessary to conduct a research to assess the status of resilience of pesantren in the around of mangrove forest in some aspects above, to understand the strength of pesantren institution in its development framework based on Institutional Development Framework (IDF) benchmarks developed from (Renzi 1996), Manullang (1999), Mangunjaya (2012), Harahab & Raymond (2011). Through this research, we will know the latest condition related to institutional development indicators and practices conducted by pesantren in managing their institutions, so it can be determined which pesantren is suitable to be a government partner in sustainable management of mangrove forests on Kangean Island.

This study aims to analyze the status of institutional resilience of pesantren in environmental conservation program, especially mangrove forests.

## **Material and Method**

**Study sites.** This research was conducted in June 2016 - June 2017 located at Kangean Island of Madura, Province of East Java Indonesia. Kangean Island is one of the largest islands in the islands of Madura. Kangean Island is located at 5°4'39"LU 114°36'5"BT.

**Approach and research methods.** The approach used in this research is case study approach. The methods used in this study were Institutional Development Framework (IDF) modified from Renzi (1996), Manullang (1999), Mangunjaya (2012), Harahab & Raymond (2011). IDF is used to assess the status of institutional development of pesantren in around of mangrove forests in Kangean Island. Based on the value of the IDF it can be seen the development of each indicator in the IDF, as a basis to determine how big the role of each pesantren in the maintenance and preservation of the environment, especially mangrove forests. IDF indicators used include: institutional and management resource indicators, human resources, institutional external resources, financial resources, environmental/ecopesantren program indicators, and mangrove forest management indicators.

**Data collection.** The technique of determining the pesantren to be the object of the research is purposive, based on the result of interview with the government (PT. Perhutani) as the mangrove forest manager in Kangean Island. Selected Pesantren are Pesantren Raudlatul Amien (Kangayan Village of Kangayan Sub-district), Pesantren Al-Ihsan (Kangayan Village of Kangayan Sub-district), Pesantren Miftahul Huda (Timur Janjang Village of Kangayan Sub-district) and Pesantren Nurul Ulum (Pajenangger Village of Arjasa Sub-District). Afterwards, an in-depth interview was conducted to the head of the pesantren in order to fill the IDF Form or Questionnaire, which consisted of several columns:

**1. Institutional indicators.** The institutional indicator is the first column in the IDF matrix that contains the key components to be weighted and graded. Institutional indicators consist of: indicators of institutional and management resources, human resources, institutional external resources, financial resources, environmental/ecopesantren program indicators, and mangrove forest management indicators.

**2. Weight.** The weight in question is the importance level of Pesantren to the key components. Weights range from 1 to 4 (Table 1).

Table 1

Weights based on level of importance (Manullang 1999)

<i>Level of importance</i>	<i>Priority</i>	<i>Weight</i>
Very important	Determining the life-and-death of the organization; very vital	4
Important	Requires special attention; can not be ignored	3
Quite important	Not a priority	2
Not important	May be important in the long period	1

**3. Level of institutional development.** The level of institutional development is a quantitative assessment of the current condition of Pesantren. The institutional development rate ranges from 0.25 to 4, as described in Table 2.

Table 2

Level of institutional development (Manullang 1999)

<i>Level of institutional development</i>	<i>Level of development</i>	<i>Value</i>
Beginning	The beginning of an organization	0.25, 0.50, 0.75, and 1.0
Growing	Organization growth	1.25, 1.50, 1.75, and 2.0
Stabilization	Expansion and consolidation	2.25, 2.50, 2.75, and 3.0
Mature / Sustainable	Organization is stable and sustainable	3.25, 3.50, 3.75, and 4.0

**Data analysis.** After each key component on the IDF form is filled, then the score of each key component and the value of Z can be calculated;

$$U(i) = X(i) \times Y(i) \text{ and } Z = \sum_{i=1}^n U(i)$$

Where:

X (i) : Weights of each key component

Y (i) : Level of institutional development each key component

U (i) : Score value of each key component

After that the value of its IDF Index can be calculated:

$$IDF = \frac{Z}{B}$$

Where:

- IDF : IDF index value  
Z : The sum of all key component scores  
B : The sum of all key component weights

## Results and Discussion

**Forms of pesantren development.** The institution of a pesantren is one of the important components that provide an overview of the status: institutional strength, maturity and the institutional capacity to move forward and sustain. In the study of institutional resilience in four pesantren (Raudatul Amin, Al-Ihsan, Miftahul Huda, and Nurul Ulum), has been done descriptive test using IDF method related to:

- a) Institutional and management resources;
- b) Human resources;
- c) Institutional external resources;
- d) Financial resources;
- e) Indicators of the ecopesantren program;
- f) Indicators of mangrove forest management.

Based on the measurement of institutional resilience related to the above six aspects, it can be seen the description of the readiness and toughness of Islamic education institutions (pesantren) in responding to the program and the availability of facilities and their preparation to become a pesantren as expected. Pesantren develops dynamically, changing with the development of global society, from a traditional institution that develops social function as religious broadcasting, into educational institutions that contribute to the environment preservation.

According to Azra (1997) functionally, pesantren cottage offers three functions: (1) transfer of Islamic sciences, (2) maintenance of Islamic tradition and (3) produce teacher (ulama). As an Islamic institution, the uniqueness of a pesantren is colored by tradition and efforts to transmit Islamic behavior, including spiritual piety both in the form of attitude and deeds. Noer (2001) describes five forms of pesantren institutional development pattern as follows:

1. Pesantren consisting of mosque and teacher's house (kiai). This pesantren is very simple where the kiai use mosque or his own house as a teaching place. The student (santri) comes from the area around the mosque and the teacher's house (kiai).
2. Pesantren consisting of mosque, teacher house (kiai), and dormitory. This pattern has complemented pesantren with dormitories that can accommodate students from other areas.
3. Pesantren consisting of mosque, teacher's house (kiai), dormitory and madrasah. This pesantren has been using a classical system. Students (santri) have been taught from the madrasah. Besides learning to study and follow the lessons given by teachers (kiai) in the dormitory.
4. Pesantren consisting of mosque, teacher's house (kiai), dormitory, madrasah, and place of skill. This pattern is complemented by work in accordance with the conditions of the region, such as agriculture, livestock, and other skills.
5. Pesantren consisting of mosques, teachers' houses (kiai), dormitory, madrassas, and skill sites, universities, conference halls, sports venues and public schools. This pattern can be regarded as an educational institution that has developed and can be regarded as a modern pesantren.

In this study, the four pesantren that became the object of study included in the institutional development pattern 3 and 4 in the above categories; Pesantren consisting

of mosque, teachers' house (kiai), dormitory and madrasah (Pesantren Al-Ihsan, Pesantren Miftahul Huda and Pesantren Nurul Ulum). While the pesantren consisting of mosques, teachers' house (kiai), dormitory, madrasah and center of skills, is Pesantren Raudatul Amin.

**Status of institutional resilience of pesantren.** The existence of pesantren around the mangrove forests in Kangean Island has helped the government in this case PT. Perhutani KPH Madura in the maintenance of mangrove forests. During this time, several conservation and protection activities of mangrove forests have involved several pesantren located around of mangrove forest. However, the involvement of pesantren is still limited to technical aspects only. The position and location of some pesantren around the mangrove forest on Kangean Island can be seen in Figure 1.

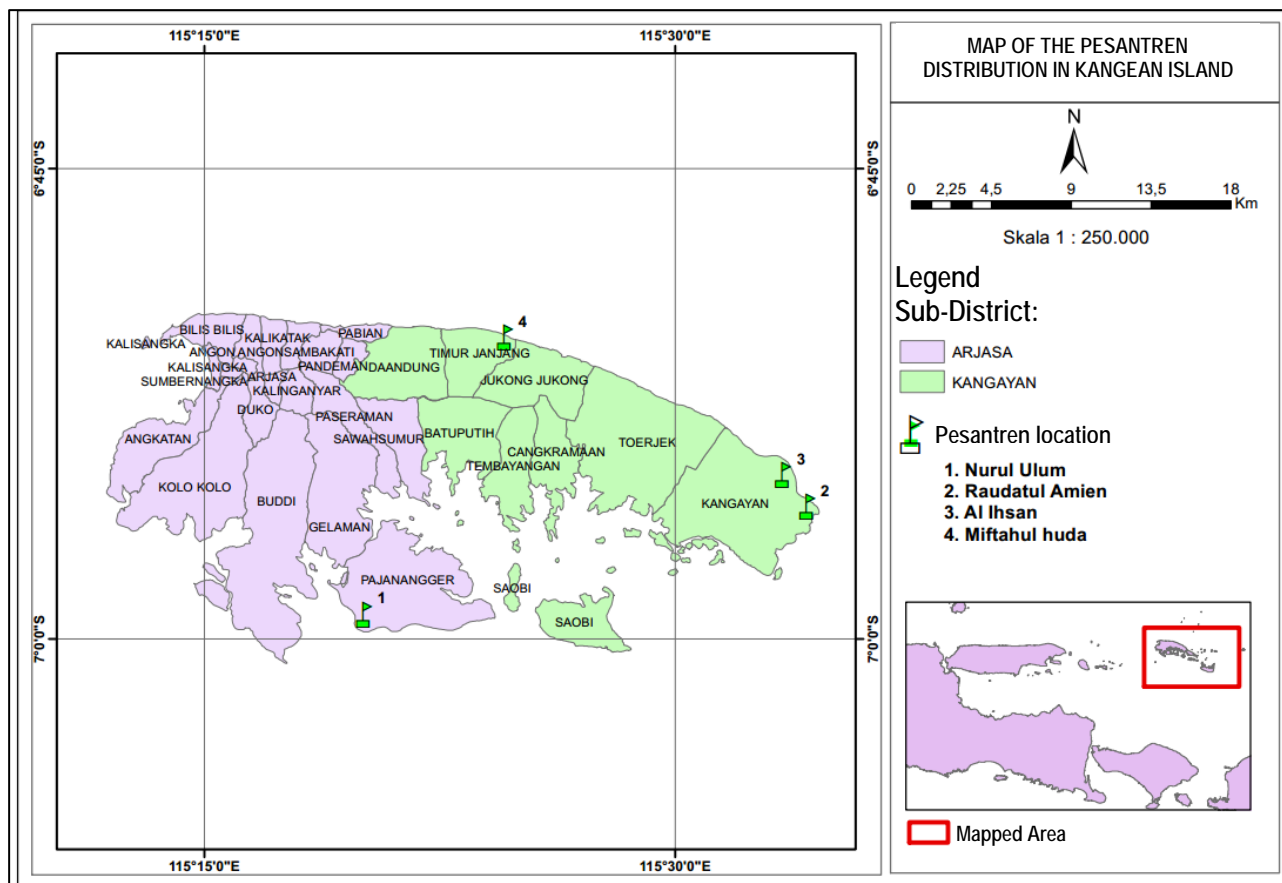


Figure 1. Location of pesantren around mangrove forest.

Based on the analysis of institutional development of pesantren through IDF method, it can be seen that although location of pesantren is equally adjacent to mangrove forest, there are differences of IDF value of each pesantren. For more details can be seen in Table 3 and Table 4.

Table 3  
Result of IDF assessment of pesantren on all indicators

Description	Raudlatul Amien	Al-Ihsan	Miftahul Huda	Nurul Ulum
Weight (B)	215	214	214	214
Score Total (Z)	737.25	671.5	629.75	514.25
IDF Value (Z/B)	3.43	3.14	2.94	2.40

Table 4

Status of institutional development of pesantren based on all IDF indicators

<i>No</i>	<i>Pesantren</i>	<i>Status</i>	<i>Description</i>
1	Raudlatul Amien	Stage of Mature / Sustainable	Organization is stable and sustainable
2	Al-Ihsan	Stage of Stabilization Toward Sustainable	Expansion and consolidation
3	Miftahul Huda	Stage of Stabilization	Expansion and consolidation
4	Nurul Ulum	Beginning of Stabilization Stage	Expansion and consolidation

Table 3 and 4, describe that there are differences in IDF values among pesantren. Pesantren Raudlatul Amien belongs to the mature/sustainable stage category (IDF value = 3.43), Pesantren Al-Ihsan belongs to the stage of stabilization toward sustainable (IDF value = 3.14), Pesantren Miftahul Huda belongs to the stage of stabilization category (IDF value = 2.94), and Pesantren Nurul Ulum belong to the Beginning of Stabilization Stage (IDF value = 2.40).

Based on IDF value, Raudlatul Amien is a pesantren with a stable and sustainable organization, because it is managed in a modern way and has a wider network than other pesantren. While the other three pesantrens are still in the stage of expansion and consolidation toward the establishment of a sustainable pesantren.

As a pesantren that is near to coastal and mangrove forests, the four pesantren have done several conservation activities for coastal environmental and cooperate with local government. Environmental conservation activities that have been carried out by pesantren need to be considered by the government which in this case perum perhutani to involve pesantren in mangrove forest management in more depth.

Table 5

The results of IDF assessment of pesantren on each institutional indicator

<i>No</i>	<i>Institutional Indicators</i>	<i>IDF value Raudlatul Amien</i>	<i>IDF value Al-Ihsan</i>	<i>IDF value Miftahul Huda</i>	<i>IDF value Nurul Ulum</i>
1	Institutional and management resource	3.64	3.49	3.16	3.12
2	Human resources	3.85	3.54	3.34	2.92
3	Institutional external resources	3.61	3.13	2.90	2.06
4	Financial resources	2.75	2.42	2.33	2.33
5	Ecopesantren program	3.38	3.14	2.85	1.89
6	Mangrove forest management	3.05	2.58	2.66	1.66

Based on Table 5, the condition of the four pesantren in indicator 1-4 indicates no significant difference. All pesantren are in the consolidation category - mature/sustainable. However, in the indicator 5 and 6, there are significant differences among the four pesantren, namely pesantren Raudlatul Amien still belong to the category of mature/sustainability stage, pesantren Al-Ihsan including the stage of stabilization stage to sustainable, pesantren Miftahul Huda including stabilization stage category, while the pesantren Nurul Ulum belongs to the category of growing stage.

In general, the four pesantren in this study have a good enough opportunity to be a partner by the government, especially Perum Perhutani as mangrove forest manager in Kangean Island. All pesantren have been involved in environmental management, especially mangrove forests around the pesantren. Based on physical aspect,

governance, education unit and various activities, the condition of the four pesantren is not much different from each other.

Physically, the four pesantren have an average land area of 5000-10,000 m<sup>2</sup>. Similar to governance, the four pesantren are managed traditionally - modern and have similar organizational structures: pesantren leaders (Kyai), secretary, finance, education and curriculum, da'wah sections, student affairs, and cooperation and development sections. In the aspect of the education unit, one pesantren has an education unit up to junior high school (Madrasah Tsanawiyah/Mts) (Pesantren Nurul Ulum), while the other three pesantren have education unit starting from kindergarten to senior high school (SMA/SMK). The four pesantren have a dormitory system (santri mukim). As for the types of activities, the four pesantren combine formal educational activities with informal educational activities.

Pesantren Raudatul Amien is more prominent in the development of environment based on participancy. This pesantren also often explains environmental issues in the recitation conducted by pesantren followers when they go to the community. In addition, the pesantren is also actively involved in securing the mangrove forest area around the pesantren and cooperating with the local government (Perum perhutani).

In general, as can be seen from the results of the above analysis can be said that the four pesantren in this study have good institutional resilience, so that the existence of pesantren institution can be functioned in sustainable mangrove forest management in Kangean Island.

**Conclusions.** Kangean Island has four pesantren located adjacent to coastal and mangrove forest: Pesantren Raudlatul Amien (Kangayan Village; Kangayan Sub-district), Pesantren Al-Ihsan (Kangayan Village; Kangayan Sub-district), Pesantren Miftahul Huda (Timur Janjang Village; Kangayan Sub-district) and Pesantren Nurul Ulum (Pajenanger Village; Arjasa Sub-District). Status of institutional development of pesantren; Pesantren Raudlatul Amien including stage of mature/sustainable pesantren category (IDF value = 3.43), Pesantren Al-Ihsan including stage of stabilization category toward mature stage (IDF value = 3.14), Pesantren Miftahul Huda including stage of stabilization (IDF value = 2.94), and Pesantren Nurul Ulum including stage of beginning stabilization (IDF value = 2.40). Therefore, four of pesantrens has a great opportunity to be a government partner (perum perhutani) in the mangrove forest conservation program on Kangean Island.

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