



EMPOWERING COASTAL COMMUNITIES: TRAINING ON MAKING FLOATING NETS

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Abstrak

Berdasarkan hasil acara kajian yang dibuat oleh komunitas Masyarakat Pesisir Pulau Kangean yang bertema: "Pengelolaan Kemaritiman Menuju Masyarakat Nelayan Sejahtera" pada Sabtu, 6 Februari 2021, maka diperlukan tindak lanjut riil. Dari sekian banyak masalah yang mengemuka dari kajian tersebut, maka masalah yang diangkat dalam pengabdian ini adalah minimnya pemberdayaan masyarakat pesisir sehingga mengakibatkan banyaknya potensi laut yang terbengkalai/terabaikan. Seperti potensi anggur laut, rumput laut, budidaya kepiting, kerapu dan lain-lain. Solusi dari masalah tersebut yang telah diberikan adalah melaksanakan pelatihan kepada masyarakat pesisir untuk meningkatkan kualitas Sumber Daya Manusia (SDM) dalam hal mengoptimalkan potensi yang masih terabaikan tersebut. Paket pelatihan yang telah disampaikan adalah; Pembuatan Keramba Apung untuk Budidaya Ikan di Laut (Kepiting, Kerapu, Tuna, dll.). Target yang telah dicapai adalah adanya keberanian dari peserta pelatihan untuk melakukan ujicoba realisasi dalam rangka mengimplementasikan hasil pelatihan. Satu paket pelatihan tersebut telah diberikan dalam bentuk tatap muka online dan tele-conference yakni peserta dikumpulkan dalam satu ruang. Silabus pelatihan meliputi; Persiapan Bahan, Set-up dan Pengukuran, Pembuatan Struktur Utama, Pemasangan Struktur Rangka Atas diatas Pengapung/Floater, Pemasangan Jalan diatas Struktur Rangka Atas, Peluncuran Keramba Jaring Apung (KJA) ke Laut, Penjangkarang, Pemasangan Jaring, dan Finishing untuk siap dilabuh benih. Pelaksanaan pelatihan telah berjalan selama se-hari kerja. Pelatihan juga diikuti secara online se-wilayah Jatim. Praktek pembuatan bagan atau prototype untuk budidaya ikan laut dan bagan untuk keramba apung budidaya Kepiting dan Kerapu telah dibuat oleh sekelompok nelayan yang ada di Kabupaten Bangkalan.

Kata kunci: keramba-jaring-apung, budi-daya, pemberdayaan, pesisir, Kangean

Abstract

Based on the results of the study program conducted by the Kangean Island Coastal Community with the theme: "Maritime Management Towards a Prosperous Fisherman Community" on Saturday, February 6, 2021, real follow-up is needed. Of the many problems that emerged from the study, the problem raised in this service was the lack of empowerment of coastal communities, resulting in a lot of neglected marine potential. Such as the potential of sea grapes, seaweed, crab cultivation, grouper and others. The solution to this problem that has been given is to carry out training for coastal communities to improve the quality of Human Resources (HR) in terms of optimizing the potential that is still neglected. The training packages that have been delivered are; Making Floating Cages for Fish Cultivation in the Sea (Crab, Grouper, Tuna, etc.). The target that has been achieved is the courage of the training participants to conduct a realization trial in order to implement the results of the training. One such training package has been given in the form of face-to-face online and tele-conference where participants are gathered in one room. This is because of the current shackles of the Covid-19 Pandemic. The training syllabus includes; Material Preparation, Set-up and Measurement, Construction of the Main Structure, Installation of the Upper Frame Structure on the Floater/Floater, Road Installation on the Upper Frame Structure, Launching of the Floating Net Cage (KJA) to the Sea, Anchoring, Installation of Nets, and Finishing to be ready for seed anchorage. The training was also followed online throughout the East Java region. The practice of making charts or prototypes for marine fish farming and charts for floating cages for Crab and Grouper cultivation have been made by a group of fishermen in Bangkalan Regency.

Keywords: floating-net cages, cultivation, empowerment, coastal, Kangean

A. INTRODUCTION

Coastal areas are transitional areas between terrestrial ecosystems and marine ecosystems; they have a wealth of renewable resources, such as capture fisheries, aquaculture, coral reefs, and mangroves [1]. In relation to aquaculture fishermen, aquaculture such as floating net cages (KJA) is an alternative solution to improve the welfare of coastal communities [2],[3]. for upgrade.

The Kangean Islands are a group of islands located on the eastern tip of Madura Island, in the Java Sea. The archipelago consists of at least 60 islands, with an area of 487 km² [3]. The largest of these islands are Kangean Island (188 km²), Paliat Island and Sapanjang Island. The Kangean Islands are administratively still included in Sumenep Regency, Madura Island, East Java Province [4], [5]. Figure 1 provides the location of Kangean Island.

The people of the Kangean Islands are known to be very friendly, polite, and religious. In addition, the community has a language and speech that varies between regions. The population in the Kangean Islands is already quite advanced. Many alumni from schools in these islands then continue their education to public and private universities in big cities on the island of Java. Kangean youth who continue their studies in Java generally have intellectuals that are not much different from Javanese society, where academically they are able to compete with Javanese people. It can be found that graduates of SMAN 1 Arjasa Kangean and other private high schools can continue to favorite universities such as UIN Sunan-Ampel, ITS, UB, ITB, and other state universities (https://id.wikipedia.org/wiki/Kejulan_Kangean, accessed on 24 -03-2021).

In Kangean there is one maritime-based organization, namely the Branch Manager of the Nahdlatul Ulama Maritime Agency (PC BKNU-Kangean). This organization is an administrator at the Branch level which is the organizational wing of the Kangean NU Branch Management. Less than two months ago (to be precise on

February 6, 2021), PC BKNU-Kangean organized a webinar for Maritime Reading with the theme: “Maritime Management Towards a Prosperous Fisherman Community”. Figure 2 provides a Flyer of the Ngaji Maritime event.



Figure 1. Location of Kangean Island

The second point from the minutes of the Ngaji Maritime event is: “The lack of empowerment of coastal communities has resulted in a lot of neglected/neglected marine potential (potential for sea grapes, seaweed, crab cultivation, grouper and others”.

This note is considered important so that it is used as a reference for making community service with the title as stated on the cover page. Departing from the Minutes of the results of the maritime recitation, the service provided a solution in the form of an effort to empower the Kangean coastal community by providing training, namely to improve the quality of Human Resources. The training package that has been delivered is the Making of Floating Cages within the framework of Fish Cultivation.

The purpose of this Service is to provide a Training Package; (1). Marine Fish Cultivation and (2). Making Floating Cages. The benefit of this training is that participants will be able to make start-up efforts to optimize Marine Fish Cultivation. Also improving the quality of Human Resources (HR) in the form of Making Floating Cages. Thus, the positive impact that has been obtained is that some people can improve the quality of their human resources and at the same time increase their efforts to increase the income of the Kangean coastal community as well as other communities who take part in the training event.

B. METODE

The method of implementation and the stages or steps in implementing the solution that has been given are in the form of a sequence of activities. In general, it is in the form of providing online materials and tele-conferences in the Kangean PCNU Hall. Furthermore, practice and assistance in making floating cages, and laying cages in selected locations. Figure 3 Sketch of a floating cage that has been trained.

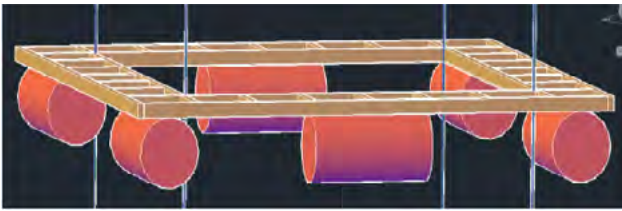


Figure 2. Sketch of a floating

The presentation of this community service activity is mostly presented in the form of images, namely Figures below. These images are not ceremonial forms of activity, but indeed the core of the service activity is the process of making KJA starting from the preparation of material selection to the condition that the seeds are ready to be planted.

While the syllabus for making floating cages includes;

- a. Material Preparation, including; Preparation of Bamboo and Wood Materials, Preparation of Floating Materials/Floaters, Preparation of Jankar-making materials, Preparation of Binder Materials. Preparation of nets and net weights. Figure 4, Figure 5, and up to Figure 6 each show the materials used in the manufacture of KJA. These materials include; bamboo, planks, drums, and ropes.



Figure 3. Material of floating

- b. Set-up and Measurement, including; Measurement of Distance between Bamboo, Arrangement of the upper frame structure.
- c. Construction of the main structure (connection between bamboo) includes; Initial binding, Tightening fastening, Joining of top and bottom bamboo frames, Repeat binding, Fastening of bindings, Making horizontal loops of ties, Locking ties, and Anchor making;

1. Initial binding (done on the bottom bamboo).
2. The connection of the upper and lower bamboo frames.
3. Repeated binding.
4. Fastening and fastening.
5. Making a horizontal circular bond (to strengthen the bond).
6. Horizontal circular bonds have been formed.
7. Bond locking (completed).



figure 4. Construction of the main structure

- d. Installation of the Upper Frame Structure on the Floater/Floater, including; Installation of the upper frame with float/Floater, Fastening of the upper frame with the float/Floater, Fastening of the tie, and Tie of the middle strap.

1. Installation of the upper frame with a

float.

2. Fastening of the upper frame with a float.



Figure 5. Installation of the Upper Frame Structure

e. Installation of the Road above the Upper Frame Structure, including; Installation of wooden pedestals as a pedestal for wooden boards for road people, Installation of wooden boards for road people, and Finishing assembly.

1. Installation of wooden pedestals as a support for wooden planks for road people.
2. Installation of wooden pedestals as a support for wooden planks for road people.
3. Installation of wooden planks for street people.
4. KJA assembly completed.
5. Carrying KJA into the sea.

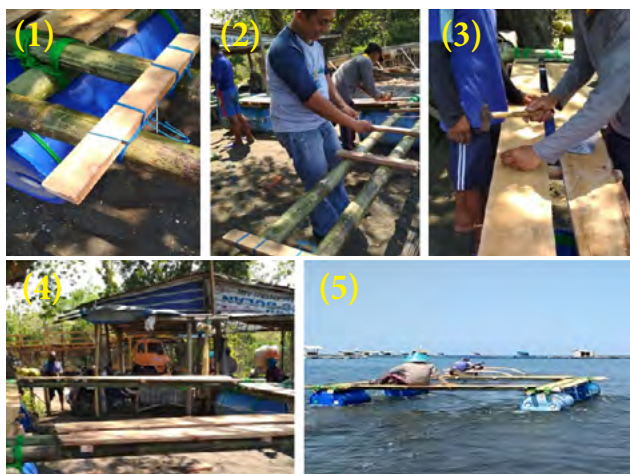


Figure 6. Installation of the Road above the Upper Frame Structure

f. Anchors, including; bring the anchor to the location, choose the right anchor position, and position the anchor.



Figure 7. Anchor

g. Installation of the Net, including; determine the position of the points of binding the net, laying the bases of the net in the position of the points of binding the net, tying and tightening it, installation of weights for the net.

1. Installation of the Net.
2. Connection model between networks.
3. Binding of KJA framework nets.
4. Binding of weights to the net (weight 3-5 kg).



Figure 8. Installation of the Net,

h. Finishing to be ready to be planted with seeds. At this stage, it is the readiness of the Bagan condition which is ready to be planted with this seed. This condition is the culmination or manifestation of the total work target of making floating cage charts that have been planned. The training and mentoring for charting has been completed.



Figure 9. KJA ready to be planted with fish seeds

C. RESULTS AND DISCUSSION

This Floating Net Cage (KJA) training is really the training that coastal communities have been waiting for, especially in this pandemic condition. BKNU is seriously investigating the real needs of the community through the Maritime Ngaji activity on February 6, 2021. Thus, this community service is real based on community demand, which is absorbed through packaged coastal community meetings that have been carried out previously in the form of the Maritime Ngaji. Public perception is needed in making decisions, including in determining the problems to be raised in decision making [1], [6]. Figures 3 provide documentation of the Maritime Ngaji activities which also provide evidence of the existence of these activities. Also Figure 10 and Figure 11 confirm the mass media coverage which was also enthusiastic during the last Ngaji Maritime.



Figure 10. Evidence of media coverage of the Ngaji Maritime Activities (Source: <https://www.antaranews.com/berita/1985632/bknu-jatim-sikapi-gunakan-alat-tangkap-ikan-di-kangean>).



Figure 11 Online and offline Hybrid Maritime Study activities (Source: <https://www.lensaIndonesia.com/tag/nelayan-kangean>)

In order to celebrate the 95th anniversary of NU, the Branch Manager of the Nahdhatul Ulama Maritime Agency (PC BKNU) Kangean is supported by the Regional Leadership of the BKNU East Java and in collaboration with Trunojoyo University (UTM) Bangkalan Madura held a Maritime Ngaji Saturday, February 6, 2021, with the theme Maritime Management Towards a Prosperous Fisherman Society. The background of the implementation of the Maritime Ngaji is based on the anxiety of the local fishing community in Kangean over the large number of outside fishermen who use purse seine fishing gear to catch fish in the waters of the islands in the Kangean area.

As stated by the chairman of the PC BKNU Kangean, Mihosen, S.Kel. that, "there have been reports from local fishermen, who are concerned that many migrant fishermen use purse seines to catch fish in the marine area around the islands in Kangean. Because the fishing gear of local fishermen is not so sophisticated with the fishing gear of the immigrant fishermen, they are worried that it will reduce their fish catch, especially at this time with frequent winds and big waves, it is difficult to get adequate catches".

Together with the regional leadership of the BKNU East Java, the implementation of the first Maritime Ngaji aims to obtain information from the field to the fishing community directly on their problems and complaints with the presence of migrant fishermen who use the purse seine type of fishing gear in Kangean. In addition, the Ministry of Marine Affairs and Fisheries in 2020 has issued Minister of Marine Affairs and Fisheries Regulation No. 59 of 2020 as a replacement for the previous Minister of Marine Affairs and Fisheries Regulation No. 71 of 2016, concerning Paths and Placement of Fishing Equipment and Fishing Aids in WPPNRI and the High Seas.

Chairman of PW BKNU East Java, Drs. Mahmud Mustain, MSc.PhD as well as a lecturer from the Department of Marine Engineering ITS Surabaya, said that, "PW BKNU East Java is very concerned about the Kangean fishermen's

complaints. This is in accordance with the purpose of the formation of the BKNU by PW NU East Java two years ago, where the formation of the East Java BKNU other than as a mandate from the NU Congress in Lirboyo aims to realize Maritime Affairs for the Welfare and Benefit of the Ummah, especially coastal communities and small islands which are dominated by residents. Nahdiyin". Mahmud Mustain, added that the implementation of the Ngaji Kemaritimann was also a program implementation of one of the missions of the East Java BKNU, which was to strengthen the role of the Jam'iyah Nahdlatul Ulama community on the coast and small islands in order to be prosperous, independent and dignified.

It is known that Kangean is a fish barn from East Java Province which has been the mainstay of capture fisheries production from various types of pelagic and demersal fish [7]. In addition, the potential of the Kangean Sea is very large, especially for non-fish products such as seaweed. Coral reefs in Kangean are also indicated to have quite a number of types, although now they are mostly damaged. Even the East Java Provincial Government during the time of the Governor Pakde Karwo had designated the Kangean water area as a regional marine conservation area. Dr. Apri Arisandi, S.Pi, M.Si, coordinator of the Natural Resources Study Program, UTM Faculty of Agricultural Science and Technology and also a lecturer in the Department of Marine Sciences at UTM who is also one of the speakers in the Maritime Study, regretted the widespread destructive fishing activities, namely fishing activities. fish by using materials, tools, or methods that damage fish resources and the environment, such as using explosives, toxic materials, electric shocks, and other fishing gear that are not environmentally friendly. So that this will threaten the sustainability of fish resources and other marine biota, which in the long term will have an impact on ecosystem changes and community welfare.

Another speaker in this Maritime Study, Murdjito, MSc.Eng, a lecturer from Marine Engineering ITS Surabaya and also the deputy

secretary of the PW BKNU East Java, in his material highlighted that although the potential of Kangean fish is quite large, even the catch of fish in Sumenep Regency is always number two in Java. East after Lamongan Regency, but fishing fleets in Sumenep in general and Kangean in particular consist of small-scale fishermen, using small motorized and non-motorized boats up to 10 gross tons (GT) in size, almost 80% of the population of similar fishing vessels in East Java. In addition, based on 2018 data, it is known that in Kangean there is no fish landing port (PPI) as a landing place for fish catches, compared to Lamongan Regency, for example, which has seven PPI and one PPN. With the issuance of the Minister of Marine Affairs and Fisheries Regulation No. 59 of 2020, where some of the fishing gear that was previously prohibited by the Minister of Agriculture is now permitted, it is possible to cause problems in the field, if not properly socialized and followed by strict supervision in the field and through adequate academic studies of effectiveness, efficiency and impact of the fishing gear. Murdjito added, besides the fact that the high rate of marine accidents on fishing vessels and weak law enforcement in the future will also become serious homework to create safe and sustainable fishing activities.

The PCBKNU Kangean Maritime Study resulted in the formulation of recommendations to stakeholders that it is necessary to standardize fishing gear that is adapted to the location, such as setting the mesh size (net mesh), to be selective for fish species, the need for socialization to fishermen and strict supervision, so that fishermen make accurate catching more environmentally friendly such as the size of fish suitable for catching and so that the fishing gear used is selective for the species of fish caught. In addition, it is also suggested that the regulation of fishing areas (zoning) can not only be based on the size of the vessel, but rather on the characteristics of each area and the type of fish caught and the fishing route.

The most important point as a reference for this community service is that it is recommended for Kangean fishermen to provide adequate

fish landing infrastructure and fish processing businesses, improve the quality of fisheries human resources and diversify fishery businesses as well as a paradigm shift in fishing from hunting culture to aquaculture culture. This is an effort to improve the welfare of fishermen and coastal communities in Kangean and create environmentally friendly and sustainable fishing. Scientifically, the Ngaji Maritime activity is the first step to investigate the potential and problems faced by the Kangean coastal community.

From the results of the investigation, it has been continued to make plans, one of which is in the form of training activities as reported as a solution. When the training was completed, it was clear that information and a sense of how coastal communities responded enthusiastically were also implemented by making pilot projects or demonstrations and demonstrations of building a floating cage chart as written in the training syllabus. This is being planned to be carried out as well as assistance and demonstrations on how to operate and maintain the chart, while waiting for confirmation that it is safe from the pandemic. The writing of this paper that is being written is in order to provide a report on the implementation of the training as well as a plan for making a chart as a pilot. The important thing in this paper is the analysis and discussion of the implementation of the training activities. So that it can become an official scientific document which then acts as a reference or reference for similar activities, even opening opportunities for replication in other coastal areas.

In addition to the output in the form of a paper that is being published/published in a national journal, this community service activity will also be published in relevant online or print media. It should be noted that the devotees do not need to look for the media to publish, but even the media themselves who are enthusiastic to cover. This is nothing but because the media crew saw that this activity was very interesting. This community service activity will also make activity reports in accordance with Abmasy 2021 guidelines. This is important as formal documentation of implementing activities for

DRPM ITS and DTK and at the same time for personnel implementing activities.

Alhamdulillah, in general the training went smoothly and was greeted by the residents of the Kangean coast with enthusiasm. Figure 12 and Figure 13 both provide evidence of the large number of participants in both the Tele-conference at PCNU Kangean and online. The information media are also enthusiastic to cover both internal and external NU. From NU media such as Harian Aula and NU-online, while from outside NU the lens of Indonesia, East Java, etc.



Figure 12. The implementation of the training which was given a speech by the chairman of the East Java PWNU KH Marzuqi Mustamar. file:///C:/Users/Toshiba/Downloads/Harian%20AULA%207%20September%202021%20(1).pdf.



Figure 13. Trainee with Tele-Conference at PCNU Kangean. <https://jatim.indonesiasatu.co.id/masyarakat-nelayan-pulau-kangean-ikuti-pelatihan-dan-pendampingan-kja-di-kantor-pcnu-kangean-secara-virtual>.



Figure 14. youtube greeting from the chairman of PWNU KH Marzuki Mustamar East Java at the training event for making KJA



Figure 15. Flyer of KJA Making Training event.

Now a miniature or prototype of the KJA with a scale of a quarter or so is being made and displayed at the BKNU PC office so that it becomes a real example. There have also been reports that

the Bangkalan BKNU PC has tried to make a 1:1 scale as in the training but has not reported any progress. Enthusiasm from the BKNU PC, which also looks a lot, is seen as a Zoom participant on the monitor in Figure 14.

The implications of this training are clearly prospective to be an attractive alternative in developing aquaculture business. This makes a lot of sense because with a relatively low cost of around Rp. 10 million, it can be a promising job. God willing, in the future we can be helped to develop SMEs in order to get easy capital for the manufacture of the KJA.

D. CONCLUSION

Alhamdulillah, the training for making KJA was completed well. The key is to precisely investigate the problem at hand. Through Ngaji Maritime, the needs for KJA training are clearly obtained, so that during the training, the enthusiasm of the participants was really encouraging. Including the participation of the media crew to cover which also started from the Ngaji Maritime event. With a relatively low cost of Rp. 10 million, it can create jobs, especially during the pandemic season. KJA opens wide doors for cultivation where the paradigm is that fishermen do not have to go to sea for days and days with various kinds of risks.

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