

A stylized graphic of a person's head and shoulders, composed of white and yellow lines. The person's arms are outstretched, and the lines extend upwards and outwards, resembling a circuit board or a network diagram. The background is dark blue with a subtle pattern of white dots and lines.

# EMBRACING SOCIETY 5.0 WITH HUMANITY

Editor: Diah Karmiyati

 **Bildung**

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## Embracing Society 5.0 with Humanity

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***Embracing Society 5.0  
with Humanity***

## ***Embracing Society 5.0 with Humanity***

Society 5.0 is a concept presented by the Japanese as a core concept of their economic system. They believed that technology should not surpass the intelligent of men. As such, in society 5.0 the Japanese government would like to ensure that all technological things are designed to be a human-centered design. In fact, their ministry of education in 2018 has also been readily prepared the future generation through a change in their education system. For example, the minister explains that in Japan, or many parts of the world, university entrance are divided into two main concentrations, which are science and social science. The minister thought of changing the system, as society 5.0 is about creating a technology that is human centered. For instance, they gave an example on designer babies. If, people from hard science learn about philosophy, ethics, and humanities, they won't face such ethical concern when developing a product. This is what is being envision by the Japanese government for their younger generation. Collaboration between science and social science is necessary to build a better environment for our future children. Another example is the companies in Japan, such as Hitachi and Fujitsu has already been implementing this 5.0 by designing product that relied fully on technology but puts human at its center (Hitachi, 2017).

Likewise, it is currently a hot topic in Indonesia. Indonesia as a country with the 4<sup>th</sup> largest population in the world has not been implemented this concept. Our country is still on the industry 4.0. Yet, with the rising interest in AI, Blockchain, NFT, number of unicorn start-up. and all recent technological changes, our country are ready to compete with any other countries in Southeast Asia. Society 5.0 is coming, and we need to embrace it. To prepare with the society 5.0, It is not only the technological side. It is necessary for us to have a strong principle at hearts that based on our belief system. We, as an Indonesian have known to be religious that most of us believed in God. We also commonly practice our religion and tend to be kind to people because we know God would love our good deeds. I personally think that this will help us to move forward and live together with advanced technology.

Technology begets a very important leap in human's life journey. It is important to keep valued of the benefit but it's more important to look out for the human itself. As its purpose is smarter than us, to help us, it will be very ideal if we embrace the technology using our ability to be kind.

Malang, 21 Maret 2022

**Diah Karmiyati**

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# **Locally Community Institutional Sustainability in Environmental Isolation Faced Pandemic becomes Endemic**

Maharani, Marlinda Irwanti, Anita Ristianingrum

## **Introduction**

The Covid-19 pandemic is a test of the global health system and others system that hit Indonesia as well as the world. At the global level, the World Health Organization (WHO) notes that it is coordinating global laboratory surveillance of COVID-19 variants modeled on the established Global Influenza Surveillance and Response System (GISRS) [1]. GISRS is the system of Laboratory standards for detecting Respiratory syncytial virus (RSV) by real time Polymerase Chain Reaction (RT-PCR).

Global influenza surveillance has been conducted through WHO of GISRS since 1952. GISRS is a system fostering global confidence and trust for over half a century, through effective collaboration and sharing of viruses, data and benefits based on Member States' commitment to a global public health model. The mission of GISRS is to protect people from the threat of influenza by continuously functioning as: (i) global mechanism of surveillance, (ii) preparedness and response for seasonal, (iii) pandemic and zoonotic influenza; (iv) global platform for monitoring influenza epidemiology and disease; and (v) global alert for novel influenza viruses and other respiratory pathogens.

COVID-19 and its shelter-in-place orders have brought a welcome relief in many places from air pollution and the worsening environment. The Trends of climate change, habitat destruction, and urban pollution are still be hard to prove their role in COVID-19's spread. But there are some theories linking them. According Aaron Bernstein, MD, director of the Center for Climate, Health, and the Global Environment at Harvard, said in a conversation posted on the university's website, that this rapid dismantling of life on earth owes primarily to habitat loss, which occurs mostly from growing crops and raising livestock for people. There are losing species at a rate unknown since the dinosaurs, along with half of life on earth, went extinct 65 million years ago [2]. Aaron Bernstein's statement, MD, and the description in the Baduy region that has a local culture of environmental isolation are true.

According to [3] said that there were zero case of Covid-19 in Baduy from 20 of March 2020 to 30 of June 2021. Baduy tribe lives in a protected forest area in the village of Kenekes District Leuwidamar Lebak Banten Province, Indonesia. Baduy or Kanekes tribe is an ethnic group of indigenous peoples.



**Figure 1. The government provides counseling on the Covid-19 pandemic in Baduy region**

Baduy community is one of the tribes that isolate themselves from the outside world. In addition they also have taboo beliefs to document, especially the inhabitants of the Inner Baduy region. The amount of Baduy community are 26,000 people, representing 3,395 households who live in an area of 5.136,58 hectares in the mountainous region of South Banten [4, 5]

Nevertheless, the pandemic situation significantly improves air quality in different cities across the world, reduces GHGs emission, lessens water pollution and noise, and reduces the pressure on the tourist destinations, which may assist with the restoration of the ecological system. In addition, there are also some negative consequences of COVID-19, such as increase of medical waste, haphazard use and disposal of disinfectants, mask, and gloves; and burden of untreated wastes continuously endangering the environment [6]. This paper aims to formulate Locally Community Based Institutional Sustainability Model in Environmental Isolation to dealing with the Covid-19 pandemic and others pandemic

### **Baduy Community**

Baduy community live in Mount Kendeng in Kenekes Village, Leuwidamar District, Lebak Regency, the location is 173 km from

Jakarta. Ciboleger village is the final frontier of "modern" civilization village, and Kadu Ketug Village, is the first village of Baduy tribe. In Kadu Ketug Village, there is the white monument, which is the boundary of baduy village. The clothes worn by the Baduy tribe of men wore black clothing, black pants and dark blue headbands, or white clothing and black pants and white headbands (Figure 1). Entering the Baduy village, we will find warning boards with various prohibitions, such as: prohibited to carry weapons, prohibited to carry illegal drugs, picking fruit, prohibited to throw garbage carelessly, prohibited to use soap to bathe or wash, and other warnings.



**Figure 2. Baduy Community**

The Baduy community is divided into two groups namely Inner Baduy and Outer Baduy. The Inner Baduy are considered saints and clean. Their cleanliness and purity are considered to be directly related to the Creator. The sacred ceremony performed annually is



only followed by the inner Baduy figure. They are considered as saints who are ascetic to keep the earth, read the signs of nature and the signs of the times to maintain harmony and balance of nature. Baduy community live in the hamlets of Cibeo, Cikeusik and Cikartawana. The Baduy community in this always wear white black pants and white headbands. Baduy community in less associating with others community.

The outer Baduy community live in kaduketug, Cikadu, Kadukolot, Cisagu, Gajeboh, and others. Kampung Kaduketug is the outermost Baduy village bordering the non-Baduy village. The outer Baduy community are slightly different from the inner Baduy, they have often hung out with the outside community. They have listened to the radio, even have mobile phones. The clothes of the outer Baduy community are pants and black shirts while the headband is dark blue. There is another group, which is often called "Baduy Dangka", namely the inner Baduy community and the outer Baduy live in a village, but they live outside the village of Kenekes. Currently they live in Padawaras (Cibengkung) and Sirahdayeuh (Cihandam) Hamlets. This community served as buffers for Baduy in the influence of outside cultures.

### **Institutional Structure of Local Communities**

Baduy community have the locally institutional structure that has been lived from generation to generation. Locally Baduy community institutional adheres to the system of "Kekolotan" based on Sunda Wiwitan teachings, the system that respects "Kasepuhan" or "Kakolot" and "Karuhan" or ancestors [7], Baduy people proved to be very obedient to verbal agreements. The social structure of Baduy society is as follows:

"Puun" is the supreme leader of the Baduy community, chosen by customary deliberations, derived from the Inner Baduy tribe (from the village: Cibeo, Cikartawarna, Cikeusik). Puun in addition to the supreme leader, is also in charge of leading, mastering and implementing customs and teaching teachers "Sunda Wiwitan".

Puun was assisted by "Girang Seurat" who ran "kepuunan", especially the management of Huma Serang, (puun farm) and attended meetings with government officials when Puun was unable to attend. Baresan Salapan, Puun's maid in charge of maintaining security and order. The number in each village of Baduy as many as 9 people. Jaro adat (Jaro Tangtu), is the person chosen to handle social interests. Jaro Warega is the person chosen to handle the religion that

carries out the obligations of the Baduy community and represents it to control the state of the customary forest and the deposit forest outside Baduy. Jaro Pamerintahan is a village head-level position tasked with carrying out government duties, equivalent to the head of a village outside Baduy.

Kakolotan overtime is the person who is considered the most obedient to the teachings of religion and customs. Kakolotan overtime became a teacher and community advisor to sunda Wiwitan teachings. He also mastered the science of alternative and traditional medicine. Kokolotan is a person who was chosen because of his customary obedience and knowledge above average and became an advisor to Tangkesan. Jaro Tanggungan 12 is the person chosen by Kokolot Lembur, Kokolotan, Tangkesan, and Puun. This person is tasked with providing legal protection to the entire Baduy community for behavior inside or outside the Baduy area that can harm others or harm others. In addition, he is tasked with providing guidance to maintain reasonable attitudes and behaviors in social life.

Tangkesan (Bapak. Kolot) is a person who is authorized to give advice to Puun. Tangkesan is a person who has the right to marry a couple who are married to baduy custom. The village head is the one chosen to lead and mobilize the entire village population in every gotong royong activity. Building physical as well as religious activities. Other positions that exist and are in the form of baduy community are the Chairman of youth who is responsible for leading the youth and Palewari who was chosen to help all activities held in the village.

The process of selecting existing positions is through a process of deliberation with various levels. In this election process, no one is allowed to run for any office. Each selected person is required to accept the duties charged to him. The deadline for this customary position is not determined by the year but there is determined by the authority of Puun, the authority of deliberation and the state of health given office or death. The customary positions are highly appreciated by the Baduy people.

To maintain order and law enforcement in the Baduy community the sanction is given to anyone who violates customary law. Light sanction in the form of advice and reprimand is given until severe punishment in the form of isolation until removed from the baduy area. The Baduy community also provides prisoners to punish Baduy people who violate rather severe mistakes.

This prisoner is a house apart from the other house. The convicted person continues to carry out daily activities but is always

supervised and advised by Jaro 12. At the end of the sentence, the convicted will be asked if he will still live in the Baduy region or opt out. If the convicted choose to remain in the Baduy region, then he must promise not to violate again. The firm stance of baduy leadership also happened in the modern country of Singapore. According Indonesian Ambassador Suryo Pratomo state, that Singapore imposes strict rules for its non-compliant citizens facing Covid-9, will be barred from entering Singapore again for life) (now exemplified by Singapore in the face of Covid-19).

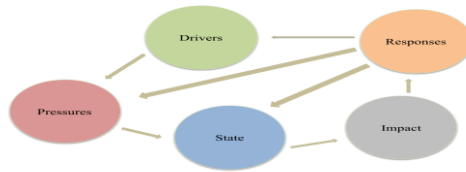
### Methodology

The research was conducted in 2019, and continued from 2020 to February 2021, and research location in Kanekes Village, Leuwidamar Sub-District, Lebak District, Banten Province.



**Picture 3. Research Location**

Identification and Inventory of indicators related to the authority, duties, functions, of institutional roles. The analysis used is the Driver-Pressure-State-Impact-Response (DPSIR) framework model (Picture 3).



**Picture 4. Driver-Pressure-State-Impact-Response (DPSIR) framework model**

The Driver-Pressure-State-Impact-Response (DPSIR) framework model has been used for integrated environmental reporting and assessment, developed by the European Environment Agency (EEA) in 1999. DPSIR has been used in environmentally related analysis in various studies [8, 9,10, 11, 12]. The output of DPSIR is indicators of the role of the Locally Community-Based Institutional in Environmental Isolation program.

Analyzing sustainability of the indicators of the role locally community-based institutional in manage of environmental isolation program. We used with Multidimensional Scaling (MDS) through Rap-Baduy software (modified Rapfish software), leverage analysis, Monte Carlo analysis. MDS method has been implemented for several studies [13, 14, 15, 16]. MDS method, is the mapping of perception relying on Euclidian Distance, with the formula:

$$d_{1,2} = \sqrt{(X_1 - X_2)^2 + (Y_1 - Y_2)^2 + (Z_1 - Z_2)^2 + \dots}$$

Description:

$d_{1,2}$  = Euclidian distance

X, Y, Z = Attributes

$_{1,2}$  = Observation

Two-dimensional euclidian distance regression formula ( $\hat{D}_{1,2}$ ):

$$\hat{D}_{1,2} = a + b D_{1,2} + c$$

Description:

a = intercept

b = slope

c = error

Data is sourced from the indicators of role The Locally Community-Based Institutional in Environmental Isolation (stage 1). Output in the form of index and sustainability status of role the Locally Community-Based Institutional in Environmental Isolation, and leveraged attributes. The same two points or objects are mapped in one point adjacent to each other using the ALSCAL FORTRAN algorithm techniques available in statistical devices. Rap-Baduy software in principle makes iteration, the regression process is such that it gets the smallest stress value and tries to force the intercept on the equation equals 0. For attributes as much as m, then stress is formulated in the equation:

$$stress = \sqrt{\frac{1}{m} \sum_{k=1}^m \left( \frac{\sum_i \sum_j (D_{ijk}^2 - d_{ijk}^2)^2}{\sum_i \sum_j d_{ijk}^2} \right)}$$

The magnitude of the stress value is shown in Table 1.

**Table 1. Stress values**

Number	Stress value	Conformity
1	20%	Bad
2	(10-20)%	Enough
3	(5-10)%	Good
4	(2.5-5)%	Excellent

Source: Patricia Kavanagh and Tony J. Pitcher (2004) [17]

Through the rotation method, the position of the sustainability point can be described through the horizontal and vertical axes with the sustainability index values rated 0 percent (bad) and 100 percent (good). If the system studied has a sustainability index value of > or = 50 percent, then the system is said to be sustainable, and unsustainable if the index value < 50 percent.

Formulating structural model of the role locally community-based institutional in environmental isolation, to dealing with the Covid-19 pandemic and others pandemic. We used Interpretative Structural Modeling (ISM) analysis. Interpretive structural modelling (ISM) was used to determine any mutual influences among the locally community-based institutional. Further, the ISM methodology was able to establish the level of the institutional element and determine their driving power (DP) and dependence (D). ISM methods have been widely conducted in studies such as [18, 19].

Saxena (1994) states that ISM techniques are related to the interpretation of a whole object, or system representation through

systematic and iterative application of graphic theory. ISM is a process that transforms an unlit and weak mental model into a visible system model and is clearly defined and beneficial for a variety of purposes. ISM technique is a systematic analysis of a program, so as to provide valuable value for the community in meeting the needs of the present and future. ISM methodology and techniques are divided into two parts, namely Hierarchy Preparation and Sub-element Classification. The basic principle is the identification of structures in the system that provide high value benefits in order to formulate the system effectively and for better decision making.

**Result and Discussion**  
**Indicators analysis**

DPSIR (Drivers, Pressures, State, Impact and Response) model of intervention) is a causal framework for describing the interactions between society and the environment. Human impact on the environment and vice versa because of the interdependence of the components. As the first step, data and information on all the different elements in the DPSIR chain is collected. Then possible connections between these different elements are postulated. Through the use of the DPSIR modelling framework, it is possible to gauge the effectiveness of responses put into place (Table 2)

**Table 2. Results of identification and inventory indicators**

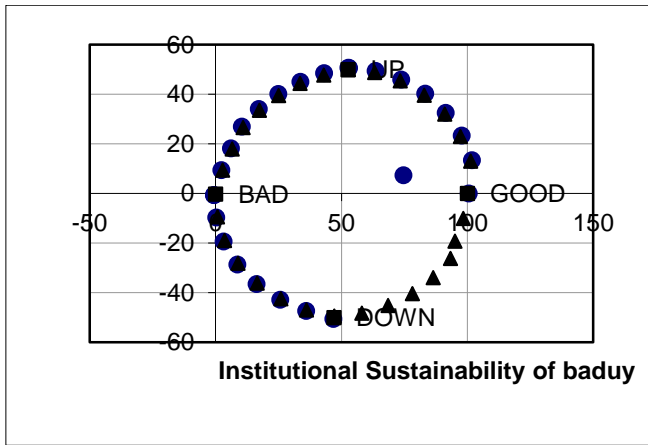
Number	Indicator	Indicator Category
1	Growing crops	Driver
2	Raising chicken	Driver
3	Fish farming	
4	Weaving (from the bark of a tree called “koja” or “jarog”)	Driver
5	Habitat loss	Pressure
6	Land waste	Pressure
7	Land emission	Pressure
8	-	State
9	Potential decrease in soil carrying capacity	Impact
10	Potential decline in soil fertility	Impact
11	Socio-economic harmonization	Response
12	Socio-ecological harmonization	Response
13	ecological-economic harmonization	Response

14	Improving of social-ecological-system (SESSs) or ecological-social-system (ESSs)	Response
15	Improving concept of ecological-economy system	Response
16	Improving of social-ecological-economy (sustainability)	Response
17	Competency improvement of Local Official Resources	Response
18	Increasing social interaction to others communities	Response
19	Practice of nature conservation	Response
20	To forest protection	Response
21	To maintain the continuation of the land	Response
22	The traditional agreements or traditional "laws"	Response
23	Forbidden to destroy the land	Response
24	Forbidden to deflect the flow of water	Response
25	The seeds must be from their own crops	Response

Furthermore, the response indicators of DPSIR framework model results are analyzed sustainability by MDS method, leverage analysis, and Monte Carlo analysis.

### **Sustainability Analysis**

Multidimensional scaling (MDS) the multivariate method, aims to represent input proximities among objects, such as indicators or persons, by means of fitted distances in a low-dimensional space (Figure 2). In recent years, MDS has mostly been used as a tool for analyzing proximity data of all kinds (e.g., correlations, similarity ratings, co-occurrence data). Most of all, MDS serves to visualize such data. Expert consultation results from 15 response indicators to be continue in MDS analysis,



Picture 5. Rap-Baduy Analysis Results

The results of sustainability analysis using Rap-Baduy software are 74.55% (fairly or fairly sustainable) (Table 3). Validation of Rap-Baduy simulation results shows that the coefficient of Squared Correlation (RSQ) has a high enough value of 0.96 (15 attributes included have a considerable role in explaining the diversity of locally community-based institutional). The value of S stress is 0.13 or < 0.25 which means the accuracy of the configuration of the points (goodness of fit) model built for the sustainability of locally community-based institutional

**Table 3. Index categories and sustainability status**

Number	Index Value	Category
1	00.00-24.99	Bad (unsustainable)
2	25.00-49.99	Less (less sustainable)
3	50.00-74.99	Fairly (fairly sustainable)
4	75.00-100.00	Good (sustainable)

Source: Kavanagh and Pitcher [20]

### Leverage analysis

Leverage analysis to determine the effect of stability if one of the attributes is omitted during ordination. Leverage analysis will show percent change in root mean square of each attribute (Table 4). The attributes that have the highest percentage are the most sustainability sensitive attributes [20].

**Table 4. Attributes and Values Root Mean Square (RMS)**

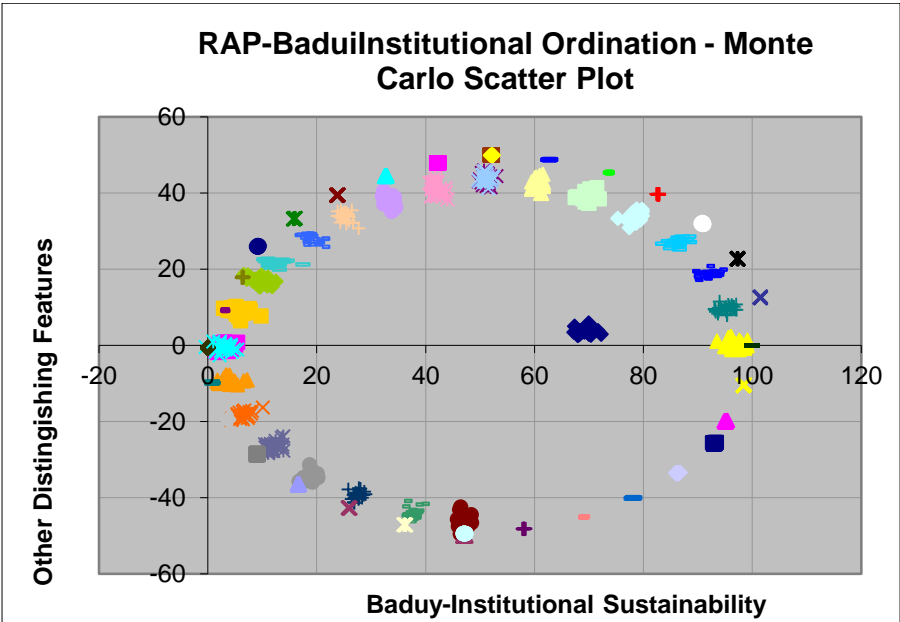


Number	Attributes	Root Mean Square
1	The seeds must be from their own crops	3.92
2	Improving of-ecological-economy system	3.97
3	The traditional agreements or traditional "laws"	3.50
4	Practice of nature conservation	3.60
5	Socio-ecological harmonization	3.30
6	Socio-economic harmonization	3.13
7	To maintain the continuation of the land	2.90
8	ecological-economic harmonization	2.84
8	Improving of social-ecological-economy (sustainability)	3.00
10	Forbidden to deflect the flow of water	3.33
11	To forest protection	3.52
12	Forbidden to destroy the land	3.93
13	Increasing social interaction to others communities	4.26
14	Competency improvement of Local Official Resources (Girang Seurat, Puun)	4.51
15	Improving concept of ecological-economy system	3.99

The attributes that have the highest percentage are the most sustainability sensitive attributes [20].

### Monte Carlo Analysis

To evaluate the effect of errors on the estimation of ordination values is used Monte Carlo analysis, which is a statistical simulation method to evaluate the effect of random error on the guessing process, as well as to evaluate the actual value.



Picture 6. Monte Carlo Analysis Results

The difference in the value of MDS calculations with relatively small Monte Carlo analysis results is 0.30 ( $< 1$ ) indicates that MDS calculation results can reflect high levels of precision [20]. Formulating structural model of the role locally community-based institutional. The program, which is being studied for its structure, is divided into elements where each element is further broken down into sub-elements. For each element is done division into a number of sub-elements until it is considered adequate. Each element consists of sub-elements that have contextual relationships with each other that are defined according to the implementation in the field. According to Saxena (1992) the program can be divided into 9 elements, with its contextual relationship (Table 5).

Table 5. Elements and Contextual Relationships in ISM techniques

Number	Element	Contextual Relationships
1	Institutions involved with the implementation of the	its role supporting
2	Affected sectors of society	its role supporting
3	The needs of the program	support

4	Constraint	cause	
5	Program objectives	contribute to the	
6	Benchmarks for assessing objectives	achievement of influence on the	
7	Activities needed for work planning	affect	
8	Possible changes	Cause	
9	Activity size to evaluate results achieved	influence on the	

---

Based on table 4, to formulate the structural model of institutional role in environmental isolation programs, we only examine institutional elements. The results of identification and inventory of institutional elements were found as many as 14 institutional sub-elements.

The 14 institutional sub-elements consist of: (i) "Puun", is the supreme leader of Baduy society, as a teacher of teaching "Sunda-Wiwitan", tasked with leading, mastering and carrying out customs; (ii) "Tangkesan", is a person who is authorized to give advice to "Puun"; (iii) "Baresan Salapan", is "Puun" maid who is in charge of maintaining security in every village; (iv) "Girang Seurat", is Puun's Maid, runs "Kepuunan", and attends meetings with Government Officials (when "Puun" is not present); (v) "Jaro Tangtu", is the person chosen to handle social interests; (vi) "Jaro Tanggungan-12" is is tasked with providing legal protection, for behavior inside or outside the Baduy area that can harm others. In addition, he is tasked with providing guidance to maintain reasonable attitudes and behaviors in social life; (vii) "Jaro Warega", is a Baduy who was chosen to handle the religion, to control the state of the customary forest and the deposit forest outside Baduy; (viii) "Jaro Danka", is Jaro Tanggungan-12's assistant; (ix) "Kakolotan Lembur", is a person who was chosen because of his adherence to customs and has above average knowledge and became an advisor to "Tangkesan"; (x) "Jaro Danka", is Jaro Tanggungan-12's assistant; (xi) "Panghulu", is Tangkesan maid, in terms of manage couples who are married to Baduy customs; (xii) "Pangwa", is Jaro Pamarentah's assistant; (xiii) "Kokolot", is Jaro Pamarentah's assistant; and (xiv) "Carik", is Jaro Pamarentah's assistant.

Based on contextual relationship considerations, the Structural Self-Interaction Matrix (SSIM) is compiled, using the symbols V, A, X and O (Table 6).

**Table 6. Aggregation results of five experts on contextual relationships between institutional elements of environmental isolation programs**

	E2	E3	E4	E5	E6	E7	E8	E9	E10	E11	E12	E13	E14
E1	A	V	A	V	V	V	V	V	V	V	V	V	V
E2		V	A	V	V	V	V	A	V	V	V	V	V
E3			A	V	V	V	V	A	V	V	V	V	V
E4				V	V	V	V	A	V	V	V	V	V
E5					V	V	V	A	V	V	V	V	V
E6						V	V	A	V	V	V	V	V
E7							V	A	V	V	V	V	V
E8								A	V	V	V	V	V
E9									V	V	V	V	V
E10										V	V	V	V
E11											V	V	V
E12												V	V
E13													V
E14													

After the SSIM is formed, the Reachability Matrix table is then created by changing V, A, X and O to the number 0 or 1.

**Table 7. Aggregation results of four VAXO ISM processing experts reachibility of institutional sub-elements**

	E	E	E	E	E	E	E	E	E	E	E1	E1	E1	E1
	1	2	3	4	5	6	7	8	9	0	1	2	3	4
E1	1	0	1	0	1	1	1	1	1	1	1	1	1	1
E2	1	1	1	0	1	1	1	1	0	1	1	1	1	1
E3	0	0	1	0	1	1	1	1	0	1	1	1	1	1
E4	1	1	1	1	1	1	1	1	0	1	1	1	1	1
E5	0	0	0	0	1	1	1	1	0	1	1	1	1	1
E6	0	0	0	0	0	1	1	1	0	1	1	1	1	1
E7	0	0	0	0	0	0	1	1	0	1	1	1	1	1
E8	0	0	0	0	0	0	0	1	0	1	1	1	1	1
E9	0	1	1	1	1	1	1	1	1	1	1	1	1	1
E1	0	0	0	0	0	0	0	0	0	1	1	1	1	1
0														
E1	0	0	0	0	0	0	0	0	0	0	1	1	1	1
1														

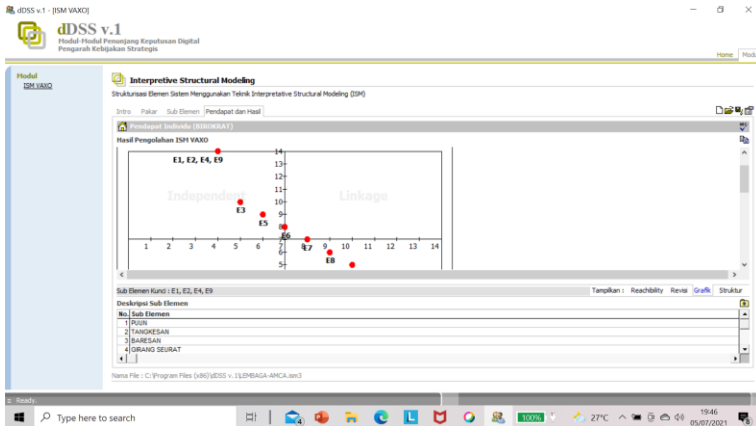
<sup>1</sup> E <sub>1</sub>	0	0	0	0	0	0	0	0	0	0	0	1	1	1
<sup>2</sup> E <sub>1</sub>	0	0	0	0	0	0	0	0	0	0	0	0	1	1
<sup>3</sup> E <sub>1</sub>	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<sup>4</sup>														

Furthermore, calculations are performed according to transitivity where corrections are made to the SSIM until a closed matrix occurs.

**Table 8. Aggregation results of four experts reachability of the final matrix of institutional elements**

	E <sub>1</sub>	E <sub>2</sub>	E <sub>3</sub>	E <sub>4</sub>	E <sub>5</sub>	E <sub>6</sub>	E <sub>7</sub>	E <sub>8</sub>	E <sub>9</sub>	E <sub>10</sub>	E <sub>11</sub>	E <sub>12</sub>	E <sub>13</sub>	E <sub>14</sub>	Drv
E <sub>1</sub>	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14
E <sub>2</sub>	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14
E <sub>3</sub>	0	0	1	0	1	1	1	1	0	1	1	1	1	1	10
E <sub>4</sub>	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14
E <sub>5</sub>	0	0	0	0	1	1	1	1	0	1	1	1	1	1	9
E <sub>6</sub>	0	0	0	0	0	1	1	1	0	1	1	1	1	1	8
E <sub>7</sub>	0	0	0	0	0	0	1	1	0	1	1	1	1	1	7
E <sub>8</sub>	0	0	0	0	0	0	0	1	0	1	1	1	1	1	6
E <sub>9</sub>	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14
E <sub>10</sub>	0	0	0	0	0	0	0	0	0	1	1	1	1	1	5
E <sub>11</sub>	0	0	0	0	0	0	0	0	0	0	1	1	1	1	4
E <sub>12</sub>	0	0	0	0	0	0	0	0	0	0	0	1	1	1	3
E <sub>13</sub>	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2
E <sub>14</sub>	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Dev	4	4	5	4	6	7	8	9	4	10	11	12	13	14	

Consistency of expert opinion by 97 percent (> 80 percent) means that the results of expert opinion are considered good. Further processing of reachability revision matrix that has fulfilled transitivity rules is the determination of level partition (Figure 6).



**Figure 7. The relationship of driver power and dependence to institutional elements in their role isolating the environment**

#### Description

- E<sub>1</sub> : “Puun”, is the supreme leader of Baduy society, as a teacher of teaching "Sunda-Wiwitan", tasked with leading, mastering and carrying out customs
- E<sub>2</sub> : “Tangkesan”, is a person who is authorized to give advice to “Puun”.
- E<sub>3</sub> : “Baresan Salapan”, is “Puun” maid who is in charge of maintaining security in every village.
- E<sub>4</sub> : “Girang Seurat”, is Puun's Maid, runs "Kepuunan", and attends meetings with Government Officials (when "Puun" is not present).
- E<sub>5</sub> : “Jaro Tangtu”, is the person chosen to handle social interests.
- E<sub>6</sub> : “Jaro Tanggungan-12” is is tasked with providing legal protection, for behavior inside or outside the Baduy area that can harm others. In addition, he is tasked with providing guidance to maintain reasonable attitudes and behaviors in social life.
- E<sub>7</sub> : “Jaro Warega”, is a Baduy who was chosen to handle the religion, to control the state of the customary forest and the deposit forest outside Baduy.
- E<sub>8</sub> : “Jaro Danka”, is Jaro Tanggungan-12's assistant
- E<sub>9</sub> : “Kakolotan Lembur”, is a person who was chosen because of his adherence to customs and has above average knowledge and became an advisor to

- “Tangkesan”
- E<sub>10</sub> : “Jaro Danka”, is Jaro Tanggungan-12's assistant
- E<sub>11</sub> : “Panghulu”, is Tangkesan maid, in terms of manage couples who are married to Baduy customs
- E<sub>12</sub> : “Pangwa”, is Jaro Pamarentah's assistant
- E<sub>13</sub> : “Kokolot”, is Jaro Pamarentah's assistant
- E<sub>14</sub> : “Carik”, is Jaro Pamarentah's assistant

The results of the ISM analysis show that the institutions that are in the independent classification are: (i) Puun, is the supreme leader of Baduy society, as a teacher of teaching "Sunda-Wiwitan", tasked with leading, mastering and carrying out customs (E<sub>1</sub>); (ii) Tangkesan, is a person who is authorized to give advice to “Puun” (E<sub>2</sub>); (iii) Girang Seurat, is Puun's Maid, runs "Kepuunan", and attends meetings with Government Officials (when "Puun" is not present) (E<sub>4</sub>); and (iv) Kakolotan Lembur, is a person who was chosen because of his adherence to customs and has above average knowledge and became an advisor to Tangkesan (E<sub>9</sub>). These 4 institutions have the highest driving power (DP) of 14 and the lowest dependency (D) of 4, so it is referred to as a key institution. Other institutions are: Baresan Salapan is "Puun" maid who is in charge of maintaining security in every village (E<sub>3</sub>); Jaro Tangtu, is the person chosen to handle social interests (E<sub>5</sub>); Jaro Tanggungan-12 is tasked with providing legal protection, for behavior inside or outside the Baduy area that can harm others. In addition, he is tasked with providing guidance to maintain reasonable attitudes and behaviors in social life (E<sub>6</sub>).

The institutions included in the dependent classification include: The institutions included in the dependent classification include: (i) Jaro Warega is a Baduy who was chosen to handle the religion, to control the state of the customary forest and the deposit forest outside Baduy (E<sub>7</sub>); Jaro Danka, is Jaro Tanggungan-12's assistant (E<sub>8</sub>); Jaro Pamarentah, is a village head-level position in charge of carrying out government duties, (the village head) (E<sub>10</sub>); Panghulu, is Tangkesan maid, in terms of managing couples who are married to Baduy customs (E<sub>11</sub>); Pangwa, is Jaro Pamarentah's assistant (E<sub>12</sub>); Kokolot, is Jaro Pamarentah's assistant (E<sub>13</sub>); and Carik, is Jaro Pamarentah's assistant (E<sub>14</sub>).

## Conclusions

The analysing of sustainability of the role of locally community-based institutional is 74.55 % (sustainable). The attribute of leverage is Baduy Human Resources capability improvement (Girang Seurat, Puun)

The formulate of locally community-based institutional structural model in environmental isolation, to dealing with the Covid-19 pandemic sustainable are: (i) The key of Institutional (The Supreme Leader, his Maid, his Advisor, and Advisor of the Supreme Leader's Advisor) have highest Driver Power and lowest Dependence; (ii) There is no institutional found on: The linkage classification, meaning that institutional Baduy society is stable; The Autonomous classification, which means that the institutional Baduy society all function in accordance with their respective authorities, duties and functions.

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