Contextual progressive: study of fisheries practices and consequences to the environment

M Lampe¹, H Muni¹ and A F Adam²

¹Anthropology Department, Faculty of Social Sciences and Political Sciences, Universitas Hasanuddin, Makassar, Indonesia
²Department of State Administration Science, Faculty of Social Science & Political Science, Universitas Musamus, Merauke Indonesia

E-mail: munsilampe257@gmail.com

Abstract. This article aims to explain how to apply the approach to action and consequences with a progressive contextual explanation mode in the study of marine fisheries resource use practices in fishing communities. This approach is part of an effort to develop a critical study of human ecology. The approach with an explanation mode would like to explain empirically and progressively the patterns of fishing practices and the environmental and resource consequences of marine fisheries caused (positive, negative) in the context of their internal and external and historical socio-cultural influences. The approach with explanation mode rejects assumptions from various perspectives of previous anthropological theories which tend to be ideal, essentialist, general and abstract, totalist, and a priori, which are not or less able to see the phenomenon of variation, the role of individuals and parts, processes, openness system, change, temporal and context. Through the application of the approaches and explanatory modes, the complexity of the practices of the various fishing categories of Pulau Sembilan (Sinjai) which are used as illustrations can be understood empirically, contextually, and holistically as they are.

1. Introduction

The approach to action and consequences in the mode of progressive contextual explanation is one of the new approaches in human ecology/ecological anthropology that was first introduced by Andrew P. Vayda through several works, including “Action and Consequences As Objects of Explanation in Human Ecology” (1988) and “Studying Human Actions and Their Environmental Consequences” (1992) [1,2]. The development of this approach was mostly carried out by Vayda in his study of the behavior of forest resource users (migratory cultivators, pepper farmers, timber producers, gatherers of forest products) in East Kalimantan in 1989 and 1996. This approach emphasizing the empirical contextual mode of explanation was a development of "hazard approach" built by him in the mid-1970s. This approach emerged as a reaction to criticism of various theoretical perspectives such as the method of cultural ecology from Steward (1976) which used environmental variables to explain the selective nature of socio-cultural and economic lifestyles of hunter and gatherer communities in the land and sea; ecosystemic neo-fungusionalism from Rappaport (1968; 1971) [3,4]. Vayda and Rappaport (1968) [2] with assumptions of "balance" (equilibria), "closed system", "self-regulating system" (reification); cultural materialism with the assumption of a balance of cost-benefit considerations from Marvin Harris (1987) [5]; the ecology of Darwinism with the assumption of "optimizing fitness in
response/adaptation to survival [6]; and ideal views of cognitivism and symbolism without empirical evidence. Vayda’s assumptions from various perspectives are more ideal, essentialist, general and abstract, totalist, and a priori, who are not or less able to see the phenomenon of variation, individual roles and parts, processes, system openness, change, temporal and the context according to Vayda (in Borofsky (1994) is actually real and fundamental. [7–9])

For studies of the exploitation of marine resources, especially fisheries resources associated with coral reef ecosystems and the consequences of the environment they cause, the approach to actions and consequences in a mode of progressive contextual explanation is considered more appropriate than new perspectives or approaches in other human ecologies. The advantages of this approach are not only in terms of empirical assumptions and models, but also because they provide many places and opportunities for the adoption of certain appropriate assumptions and concepts from other approaches in human ecology.

Various assumptions, concepts or thoughts that are appropriate and can complement the approach to action and consequences with modes of progressive contextual explanation such as imbalance, deterioration of resources and environmental degradation, changes in patterns of resource exploitation behavior as a response/problem solving danger approach from Vayda and McCay (1975) [2], and the process of adopting modern exploitation technological innovations approach to the history of cultural ecology from Harm (1987) [10]. Many phenomena are explained by the approach of action and consequences such as the type of capitalist fisheries, the influence of export market forces, open exploitation of fisheries resources, overfishing of species of high economic value are characteristic of the orientalist paradigm (one of the three constructionist paradigm: orientalist, paternalist, communist from Palsson (1999) [11]. The involvement of external parties (governments, scientists, big businessmen, funding agencies, non-governmental organizations) that predominantly influence resource exploitation practices and their consequences (focus on the study of political ecology in Sutton and Anderson (2001) and approaches to practical environmental problems from Milton in Osseweijer (2001) is an external context of the explanation of exploitation behavior of fisheries resources and their consequences [12,13]. Assumptions about culture as a guideline for behavior contextualist and cognitivism perspectives approach to environmental practical problems are internal contexts in the model of analysis of actions and consequences. The assumption of "engagement" the deconstructionist perspective of Tim Ingold (1991) can be used as a reference for tracking the history of the emergence of new systems of ideas, knowledge, beliefs, and values that serve as a frame of reference for the practices of exploitation and discovery of the new fishery zones [14].

The action and consequences approach in a mode of progressive contextual explanation with conclusions of other appropriate assumptions and concepts is not only at the approach level, but also in the basis of the theoretical perspective. Anthropology, especially human ecology, according to Sutton and Anderson (2013) [12], is indeed selective and combines thinking (eclectic). At the perspective level of the grand theory as suggested by Barnard in advance

2. Action approaches and environmental consequences with contextual progressive explanation procedures

The approach to action and consequence, on the one hand, essentially proposes to make human actions and consequences expected or unexpected (intended and unintended consequences) as the right object of explanation, and in other aspects, to explain it in a mode that referred to by Vayda as "contextual mode of explanation". Explanation mode with the assumptions the procedure is as follows. First, contextualize actions and consequences without an a priori demarcation of context. This is intended to place actions and their consequences, influence factors, time, place and process together in a contextual explanation, all of which are based on concrete facts on the findings of the field. So, it is not a predefined demarcation of context which is considered to be generally accepted such as the use of an ecosystem context in understanding the responses (behaviors) of living units, especially humans in their interactions with a particular ecosystem environment [4]; or using the context of social institutions (religion, kinship, politics) that have been determined before field research is carried out in
explaining the economic behavior of a society, as done by substantiveists in economic anthropology including K. (1957) and Dalton (1961) [15,16].

Second, the contextual factors (explanantia) include not only the internal social cultural context (institutions, desires, intentions / objectives, knowledge, beliefs, ideas, values, norms) of the actors (individuals, groups, communities), demographics, and physical and natural resource conditions, but also external contexts such as market influences (regional, national, global), bureaucracy through government policies, interventions among researchers from scientific institutions and universities, NGOs, funding institutions), become the object of explanation.

To understand exploitation behaviors that significantly bring changes in environmental conditions and natural resources, the history of the process must emerge and the use of types of technology and ideas that reject the model exploitation practices in variation and diversity must be tracked. How far backward (in time) and outward (in space) are researchers tracking threads of contextual influence? That depends on how far the historical link and the contingency chain are connected to the action and consequently, it can provide an empirical explanation, so that it can provide academic satisfaction for the researcher. There is a historical context of behavior that needs to be traced far back, but its external context does not cross far out the physical and social cultural boundaries, and vice versa.

With action and consequences approach in a mode of progressive contextual explanation, Vayda also warns researchers to carefully distinguish between unexpected consequences of practice and ideal values with unexpected consequences. The sustainability of a forest area which is an unexpected/intended consequence of a community's ritual practice or government policy is different from the condition of the abundance of population resources of certain species of fish because most fishermen are concentrated in the capture of species that increase their market demand as an unexpected consequence. If a researcher does not do it, he is likely to fall into the trap of essentialism and dogmatic idealism. On the contrary, in the application and development of approaches to action and consequences in the mode of progressive contextual explanations, certain assumptions from Vayda that are considered extreme such as "version of the method of individualism" that enable researchers to be trapped in a priori attitudes, as well as fatalism or pessimistic attitudes towards the functioning of systems traditional management of the environment and resources should be rejected.

3. Internal Context of Action and Environmental Consequences

The material that is often used as a case or illustration in this paper is the behavior of Bugis and Bajo fishermen on Pulau Sembilan (Sinjai District), Bugis and Bajo fishermen in the Takabonerate Region (Selayar Regency) which can be compared with the behavior of Makassar fishermen in Spermonde Island (Pangkep Regency and Makassar City) South Sulawesi which began to be investigated with ethnographic methods since 1997 until recently [17–19]. Most of them are sea cucumber seekers, shellfish, fish and shrimp or lobster with fishing gear in the form of gas cylinders and compressors (for sea cucumbers and shellfish), bombs (fish), anesthesia (fish and shrimp/lobster), bubu or fish trap (fish), crowbar (seven eye shells), bagang (fish). These fishing gear are included in the category of the main and dominant fishing facilities that affect the environmental damage of coral reefs (taka) and the deterioration of the population of species of marine biota that they catch.

Regarding the case of sea cucumber capture and its consequences for the condition of the sea cucumber population itself is explained in the context of the physical environment, production technology, and the number of fishermen involved in fishing activities. Population abundance of various sea cucumber species, especially species of high economic value, until the mid-1980s enabled sea cucumber businesses attract the largest portion of the fishermen of the two islands. Diving activities can be carried out intensively made possible by the condition of the western part of Bone Bay which is safe from the influence of the western season because it is protected by the mainland island of South Sulawesi (physical/natural factors). The technology type factor of resource exploitation can explain that the condition of sea cucumber populations until the 1970s is a positive consequence of natural diving with the use of traditional fishing techniques in the form of ladung (a type of skewer); while the symptoms of the declining population of sea cucumbers from the early
1980s or the late 1970s were a negative consequence of diving techniques using a diving device such as gas cylinders, which were changed again with compressors (including masks, glasses, frog shoes, gloves) and by picking sea cucumbers directly (by hand) collected into the basket that each diver brings. The increasing number of divers also accelerates the decline in the population of each species of sea cucumber which has a high market value [18].

The behavior of exploitation of marine resources by user groups such as fishermen (direct stakeholders) must also be explained in the context of local institutions such as the Ponggawa-Sawi group of Bugis, Makassar, Mandar and Bajo fishermen and sailors in South Sulawesi [20]. In the case of sea cucumber divers from Sembilan Islands, the structure and roles and norms in the Ponggawa-Sawi group of organizations outline: who is the owner and manager of the business and capital, who are the workers, leaders and members, what types of production technology are used, which species are exploited and how much is cultivated, where and when and how long it is carried out, etc. The common property right / open use also causes a location, such as the Taka Island of Sembilan area, not only to be exploited by local fishermen, but also by fishing groups in the coastal villages of Teluk Bone (Sinjai, Bone, Luwu, Bulukumba Timur), island fishermen from Kodya Makassar, Pangkep, Takalar, sea cucumber and pearl divers from Selayar since long ago, ornamental fish fishermen and turtle hunters from Bali in the 1990s, seven seashellers from Buton (Southeast Sulawesi) and sea cucumber divers from Madura since 2000/2001 until now [17,18].

The context of desires, intentions/objectives, knowledge and beliefs, ideas and values can explain behavior in a hierarchy from below (bottom-up). An empirical explanation model like this begins with the desire of sea cucumber fishermen to use diving equipment such as gas cylinders or compressors. Behind this desire there is the intention of the fishermen to be able to hold diving and look for longer at the bottom. Behind these desires and intentions is the knowledge and confidence that can get as much as possible the results of high-value sea cucumbers. From the abundant yields, the fishermen also believe that they are able to meet various kinds of needs (subsistence, replacing operational costs, paying debts, developing business capital, social needs). So behind behavior (with the use of modern diving technology) and desires and intentions are practical values that control. The marine knowledge system (about the classification of types of biota and non-biota resources of economic value, behavior of fish, breeding, places of fish, sea conditions, seasons and weather conditions, etc.) clearly becomes one part of the context of influence or causual context) for choice actions by fishermen. The system of belief in the power and greatness of God, risk or blessings, trials or catastrophes, or economic disadvantages that function as guidelines for action can be traced -a kind of experimental experiment (mental experiment)- in attitudes and practices as proof of mere conversation. The ceremony of praying, meditation and surrender, courage and perseverance to work, exploiting sacred locations and the danger of being rich in species of high economic value marine life (sea cucumbers and pearls) with prayers and mantras by a juragang or sawi are experimental objects mental, because mental phenomena/ideational/cognitive material -follow the terms Vayda, Barth and Keesing (in Borofsky, 1994)- embedded and embodied in individual or collective practice. If the approach starts from the top (top-down) cognitive level, then the cognitive components discussed, the behavior and consequences observed, can be more intentionally aimed at the mere ideal (predefined) than reality.

4. External Context of Action and Environmental Consequences

Explanation or analysis of marine resource utilization behavior (such as diving sea cucumbers by Bugis, Bajo and Makassar fishermen from South Sulawesi) is not only sufficient in the context of local socio-culture, but also in external contexts, because field findings do show such phenomena. Knowledge and practice of diving looking for sea cucumbers for Bugis, Makassar and Bajo fishermen is not a new phenomenon, but an old phenomenon that can be traced to decades or even centuries backward (in time) and trace its outward in space to beyond national borders to export markets such as Singapore, Hong Kong, Taiwan, China, Korea and Japan. At first, the fishermen did not know much about the sea cucumber species because they did not have economic value. This biota began to be sought when Chinese merchant ships that were anchored in the Port of the City of Somba Opu (the
center of the royal city of Makassar that prospered until the 17th century) in the 17th century, it sought export commodities, including sea products such as sea cucumbers, agar-agar, shark fins, swallow nests, sea turtles, which are usually exchanged directly with junk items: clothing, pottery, porcelain, candles, see, among others, Macknight (1976) and Sutherland (1987) [21, 22]. Although local names are used for these species, it is the market demand conditions that contribute to enrichment to reach no less than 40 types of sea cucumbers. Likewise Chinese traders, according to Sutherland, taught the sorting of sea cucumbers according to the exchange rate from the highest to the lowest. The introduction of fishermen in the behavior and habitat of sea cucumbers, the activation of the functions of traditional fishing facilities, the formation of new variants in the structure of fisherman working groups, production relations (in and out), distribution, and profit sharing rules, all of these were the initial contributions of relations with the outside world, with Chinese traders. These foreign traders are actually driven by a system of knowledge about the selling value of sea cucumbers that are said to be for Chinese as well as fine food, as well as medicinal ingredients for health, nutrition, vitality, prolonging life, and increasing male strength [23].

The increasing number of consumers, traders and neighboring countries involved in the commodity market network influences the increase in market demand and prices of marine commodities. This in turn led to the adoption of innovative diving equipment such as gas cylinders practiced by divers from Sembilan Islands since the beginning of the 1980s, which was increased again in the early 1990s by replacing gas cylinders with compressors [18]. In the beginning, according to Lampe, Chinese businessmen from Makassar brought direct diving coaches who then recruited two or three local helpers who were skilled at using this modern diving equipment. Along with the process of adopting modern diving facilities is the modernization of fishing boats with the installation of outboard motors, then an increase in the load capacity of the boat and the strength of the engine mounted on the inside of the boat body (inboard motor). The adoption of technological innovations and increasing boat loading capacity which means an increase in the scale of business investment has a consequence of the process of capitalism penetration, the transformation of the structure of the mustard group and the drastic decline of sea cucumber populations of various species and shellfish taken from the Taka Pulau region Nine. Thus the two factors of the market situation that are still improving, which condition the drainage of marine resources in and around the waters of Pulau Sembilan, in the end forced the aggression groups to expand the fishing area (fishing gruonds) to other places in South Sulawesi and various other provinces, especially in Eastern Indonesia, even visiting Australia in the late 1980s until the first half of the 1990s. When the commodities of lobster and live fish (suni/grouper or napoleon) are salable in the export market (Hong Kong and Singapore), the majority of diver fishermen return to Sembilan Islands to switch to the business of lobster and live fish. From here begin the history of exploitation of lobsters and live fish in the locations of coral reefs with anesthesia (cyanide, potassium). How do the two commodities that were initially abundant in the islands of Nine Islands? It is because they do not have an exchange value and are only slightly eaten because most islanders feel that they are disgusting or assume to cause lazy habits when eaten- in the end only need about seven in just a year the population of these species dropped dramatically because most of the local fishermen and migrants caught him. The increasing demand for lobsters and live fish in the export market is actually caused by a change in the pattern of eating elite consumer classes in importing countries from consuming fresh seafood that has been served at the Sea-food restaurant table to new models where visitors first fishing for live fish or lobsters from shelter ponds and then processing and serving the servants according to the tastes of each visitor. New diets in Chinese restaurants are also related to the enjoyment of food, as well as this can strengthen the social status of consumers [23].

The context of bureaucracy through the implementation of government policies also contributes to changes in ideas, making decisions, attitudes, and behavior of fishermen in responding to opportunities from outside. In South Sulawesi, motorization of boats and adoption of gae (Bugis term) or rengge (Makassar term) a kind of purse seine for catching pelagic fish in groups, especially layang (Decapterus), was actually first introduced by the government in the 1970s. Conversely, various fishermen's strategies to maintain illegal activities such as bombing and sedating or the cessation of
some fishermen from illegal activities are much influenced by the implementation of legal regulations. Which system actually fosters collusive practices between fishermen and security personnel in several places, which in turn has an impact on the damage to coral reef habitat in the large coral areas of South Sulawesi [19]. The policy of protecting coral reef ecosystems along the coastal waters of South Sulawesi, among others, is regulated in the Regional Government Regulation of TK. I South Sulawesi No. 7 of 1987. Exploitation of various marine species for export commodities such as sea cucumbers, shellfish (pearls, lola), seaweed, shark fins, fish eggs, fish (fresh and live), lobsters (fresh and live) is possible by trade cooperation between countries with issuance of Fisheries Business License (SIUP). For small fishing businesses, it is regulated, among others, in the Amendment to Regulation of the Director General of Fisheries No. HK. 330 / DJ. 8259/95 regarding the scale, location and procedure of capturing napoleon wrasse.

Various government policies in the form of regulations and provisions for the implementation of economic development in fishing communities, contents and formulations refer to the recommendations of researchers from various fields of science related to environmental and socio-economic problems of fishing communities. For example, in Batanglampe Hamlet (Sembilan Island sub-district) several fisherman families first tried to practice seaweed farming, sea cucumbers, pearl oysters, enlargement of groupers and lobsters in cages because they were motivated by marine cultivation practices socialized by researchers and practitioners from Unhas, seaweed cultivation by PKL from the Level II Fisheries Service, and empowerment activities by several NGOs, in addition to their own initiative.

Explanation of behavior and position of the socio-cultural dynamics of fishing communities is more or less contextualized in the presence of various NGOs there. The 1990s were a period of widespread involvement of various NGOs in coastal fishing villages and islands in Indonesia, including in South Sulawesi. NGOs with a paradigm of partiality to the interests of the people carry a vision and mission on improving socio-economic well-being, increasing human resources and resident skills, preserving socio-cultural and physical environments, usually accommodating the aspirations of local communities, ideas from academics and insight into the global environment. In the Taka Bonerate area which is one of the national marine parks, several NGOs such as Lapeksdam, Yasindo, and even world NGOs such as WWF (World Wild Life) have conducted community empowerment focused on strengthening environmental awareness.

Each type of technology and ideas that model and direct fishermen's behavior can only be understood as the origin of its existence and the environmental consequences caused by tracing the history of its origin back and forth. For example, looking for sea cucumbers and the idea behind them with traditional techniques (ordinary diving and using ladung spears) have existed since colonial times, even according to historical records starting in the 17th century. The idea and behavior of the exploitation of sea cucumbers first emerged from Chinese traders. It was only at the end of the 1970s that fishermen began to adopt modern diving facilities in the form of gas cylinders and masks that were replaced with compressors (air engines) and masks in the early 1990s. The two modern dive facilities were introduced by Chinese businessmen from China and Hong Kong in response to increase demand and market prices. The practice of assembling and using bombs to catch fish was carried out on a large scale by Japanese soldiers during the occupation period which was quickly socialized to local fishermen. Another case is poisonous anesthesia (cyanide, potassium) which, although newly adopted by fishermen at the end of the 1980s or early 1990s, it has a major impact on coral reef ecosystems and fish population decline. There is also the historical context of the practice of exploitation of marine resources that needs to be traced far back, but its origins are not far from the geographical boundaries and even some appear through hereditary inheritance, such as the use of traditional fishing equipment in the form of fishing rods, traditional trawls and nets.

Regarding the network limits of utilization and marketing of fishermen's catches out also vary. Sea cucumbers, clams, sea plants (sea root or Antipathes Sp, sea rattan), fresh lobster, lobster and live fish (groupers, napoleon), all of which are mostly exported to China and Hong Kong. Fresh and dried fish of various types only reach regional and inter-island markets and consumers.
By looking carefully at the context of any behavior exploiting resources associated with coral reefs, it is possible to find unexpected and unexpected environmental consequences in the waters of Pulau Sembilan. For the first, it can be illustrated in the traditional system of the Liang-Liang fishing community (Sembilan Islands) which has long been specialized in catching reef fish, especially *sunu*, groupers and *katamba* (*Lethrinidae* *Sp.*) to be dried and sold in fresh conditions, and then marketed in living conditions to Hong Kong. Traditionally fishermen go to locations with small boats and use fishing rods on certain fish houses in *taka-taka* (coral locations) called *batu* (rock) because they visit the *taka* selectively/intended so that the fuel costs are not spent much. Knowledge of the location of stones/fish houses in secret and the practice of catching up with efficient costs and energy are inherited from generation to generation. As a consequence of this environmentally wise traditional practice, the condition of fishermen's catches continued until the early 1990s. This severe threat to the traditional system has occurred since the second half of the 1990s, namely when the anesthetists began to know cognitive maps of Liang-liang fishermen and carried out practices of destructive and illegal fishing. Since then the utilization system has traditionally been sustainable and environmental wise has begun to erode.

Unexpected impacts of a behavior can be exemplified in the continued abundance of lobsters (all species) until the end of the 1970s and seven eye snails until the end of the 1990s in *taka* (coral reef) cluster of Sembilan Islands. This condition is not a function of an institution that is maintained extensively by the fishing community, but because the species of marine life in the long term have not yet had market demand in Makassar. It was evident when foreign traders visited Pulau Sembilan directly asking that the two types of export commodities cause this commodity to be exploited intensively, which in turn experienced a drastic decline in population and damage to coral reefs. Some text.

5. Conclusion
The application and development of action and consequence approaches in the contextual explanations in the study of the behavior of complex resource uses such as these provide meaningful contributions both to the development of human ecology and anthropological studies. Although the approach of action and consequences in the context of explanatory mode is in contact with the major premise of world system theory from sociologist Wallerstein (1979) who sees the periphery as an object of mere exploitation, the approach and mode of explanation emphasizes local existence and subjectivity by looking at the history of cultural knowledge back and source of external contributions [24]. With this approach, researchers will be sensitive to the internal and external factors and uniqueness other than the political and economic forces of the world.

For studies of marine resource management, especially coral reef resources, this approach warns that the concept of ecosystems must include human components, at least understood as socio-cultural systems that interact continuously with coral reef ecosystems which are crucial for major changes from the ecosystem. The following management should be emphasized on the mental/cognitive (cultural) aspects and human behavior rather than the natural resources themselves.

References
[1] Vayda A P 1983 Progressive contextualization: methods for research in human ecology *Hum. Ecol.* 11 265–81
[2] Vayda A P and McCay B J 1975 New directions in ecology and ecological anthropology *Annu. Rev. Anthropol.* 4 293–306
[3] Steward 1979 *Theory of Culture Change*. (Chicago: University of Illionis Press Urbana)
[4] Rappaport R A 2000 *Pigs for the ancestors: Ritual in the ecology of a New Guinea people* (Waveland Press)
[5] R H and Marvin 1968 *The Rise of Anthropologi Theory* (Crowell: New York)
[6] Joichim M A 2013 *Strategies for survival: Cultural behavior in an ecological context* (Elsevier)
[7] Barth F 1994 *A personal view of present tasks and priorities in cultural and social anthropology*
[8] Moore S F 1994 The Ethnography of the Present and the Analysis of Process” dalam Robert Borofsky (ed), Assessing Cultural Anthropology.

[9] Vayda and Andrew 1994 Actions, Variations, and Change: Emerging Anti Essentialist View in Anthropology”. In R.Borofsky (ed), Assessing Cultural Anthropology. McGraw Hill, Inc (New York.: Louis).

[10] R H 1987 Games Against Nature: An Eco-Cultural History of the Nunu of Equatorial Africa. (Cambridge: Cambridge University Press).

[11] Pálsson G 2003 Human-environmental relations: orientalism, paternalism and communalism Nature and society (Routledge) p 73–91.

[12] Sutton M Q and Anderson E N 2013 Introduction to cultural ecology (Rowman & Littlefield).

[13] Osseweijer M 2001 Taken at the Flood: Marine Resource Use and Management in the Aru Islands (Malaku, Eastern Indonesia).

[14] Ingold T 2002 Culture and the perception of the environment Bush base, forest farm (Routledge) p 51–68.

[15] K P 1968 Societies and Economic System”. In George Dalton (ed). Primitive, Archaic and Modern Economie (Boston: Essays of Karl Polanyie, Beacon Press).

[16] Dalton G 1961 Economic Theory and Primitive Society 1 Am. Anthropol. 63 1–25.

[17] Lampe and Munsi 2010 Management of the Fishery Resource Exploitation of Takabonere Coral Reef Zone viewed from Constructionist perspective the International Seminar Sail Banda (Ambon: Sail Banda) pp 59–74.

[18] Lampe and Munsi 2009 Heterogeneous and Homogeneous in Productive Practices of the Sembilan Island Fishermen: An Processual-Contextual Explanation Indones. J. Soc. Cult. Anthropol. 59–74.

[19] Lampe M, Demmalino E B, Neil M and Jompa J 2017 Main Drivers And Alternative Solutions For Destructive Fishing In South Sulawesi-Indonesia: Lessons Learned From Spermonde Archipelago, Taka Bonerate, And Sembilan Island Sci.Int.Lahore 29 159–67.

[20] Indar N and Lampe 2002 Sistem-sistem Tradisional Sebagai Institusi Dalam Pengelolaan Pemanfaatan Sumberdaya di Wilayah Pesisir (Dirjen Kelembagaan Departemen Perikanan dan Kelautan RI).

[21] Macknight 1976 The Voyage to Marege; Macassan Trepangers in Northern Australia (Melbourne: Melbourne University Press).

[22] Sutherland H A 1987 Tri pang and wangkang: the China trade of eighteenth century Makassar, 1720s-1820s (Royal Institute of Linguistics and Anthropology).

[23] Akimichi and Tomoya 1991 Coastal Foragers in Transition (Senri Ethnological Studies: National Museum of Ethnology).

[24] Wallerstein and Immanuel 1979 The Capital World-Economy: Essays (Cambridge: Cambridge University Press).