

Environmental Issues in the Literary Works in Malaysia: Preliminary Study of Sarawak Novel Writers

*Maharam Mamat, Johari Talib, Zulkifli Mohamad

*Novels that are produced by Sarawak writers are rich in features, elements and issues related to the environment. This research covers two main environmental issues namely the impact of land use on the environment and degradation of environmental quality as a result of pollution as portrayed in the novels of Sarawak writers. Impact of land use on the environment is analysed based on the effects left by agricultural activities, construction of dams, logging and development that ultimately contribute to the deterioration of the quality of the environment. The deterioration of the environmental quality is highlighted through water, air and sound pollution. Several novels will be analysed such as *Pindah*, *Gugurnya Langit Hijau Nanga Tiga*, *Suara dari Rimba*, *Anak Ruma' Kadang*, *Ngayau Air* and others. Although these two issues are viewed separately, nevertheless they are interrelated and affect each other. Claims on resources and necessities of life leads to the emergence of excessive land use, thus leaving the impact that has to be borne by humans in the form of the degradation of the environment quality, measured based on the level of pollution.*

Key words: Novel, environmental issues, analysis

1. Introduction

Malaysia is made up of thirteen states, eleven in Malay Peninsula and two states (Sabah and Sarawak) in Northern Borneo. The land area is 329,700 square kilometres and is home of 28 million people. The ethnic make up of the population is approximately 67 percent indigenous Malays, 23 percent Chinese and 7 percent Indians (Malaysia, 2010). Malaysia is therefore a multicultural state comprising of three main ethnics. The country has experienced significant economic growth and in the beginning a large part of it came from its forest industry. The country rapid rate of development has put it far ahead from its neighbors such as Indonesia, Philippine and Indo Chinese states. This has been largely part of its rich natural resources such as tin, natural gas and petroleum. For at least two decades after independence, the country's economy has been depended on timber, tin production and rubber industry. In the 1960s and 1970s Malaysian government encouraged investors planting other cash crops to diversify its economy sources when natural rubber and tin prices plunged due to lower demand from buyers. Traditional natural rubber buyers such U.S.A and Japan preferred synthetic rubber which was cheaper. The new cash crop introduced was oil palm. Rubber estates gave way to oil palm plantations. In 1961 FELDA (Federal Land Development Authority) first oil palm settlement has been opened with only 3.75 kilometres and by year of 2000, 76 percent of FELDA programs was given to oil palm. In 2008, FELDA resettlement broadened with 112, 635 families work on 8533.13

*Maharam Mamat (maharam@ukm.my) is currently lecturing at Universiti Kebangsaan Malaysia/National University of Malaysia.

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kilometres of agricultural land throughout Malaysia. Although the country oil palm industry grow rapidly the country has relatively high forest coverage percentage, about 59.9 percent of the total area is still covered by forest (Lee, 2009). However, forest conservation should be given consideration to avoid uncontrol deforestation which could affect environemt quality as a whole.

Similar to other developing countries, massive agricultural development, logging activities and urbanisation process in Malaysia have affected environment in general namely : air pollution, river and water pollution, industrial and agricultural waste pollution, and pollution origins from deforestation (Japanese, 2009). One of the state in Malaysia that has becomes enviromentalists' focus in terms of pollution and deforestation is the state of Sarawak, the biggest state in Malaysia. The state of Sarawak is about 48,000 square miles, mostly covered by forest. It is Malaysia's rich state, with huge oil and coal reserve lie offshore and has largest oil palm plantations. Three of Sarawak's biggest exports are petroleum, gas and timber (Tsuruoka, 1994). The state becomes target of nature conserve activists when the federal government decided to built the biggest dam in South East Asia – The Bakun Dam Project. Once it is successfully built the dam will flood an area as big as Singapore Island (69. 640 hectares). The Malaysian government has estimated that the project will cost RM 15 billion. The dam which is 205 metre high would generate 2,400 MW and 1350 kilometre-long transmission electricity generated from Sarawak to Malay Peninsula (Lee, 2009).

The financial gain from the dam is huge but its effects to people who live in the area needed serious consideration. Once the dam is successfully built about fifteen communities , consisting 9,500 indigenuous people including the Kenyah, Kayan, Kajang, Ukit and Penan will be relocated. The people livelihood will be badly affected, their dependency on forest will be totally stopped becuse the great majority of them are subsistence farmers who practice shifting cultivation. They also will loose their source of meat from hunting and fishing and natural vegetables from jungles around them (Rousseau, 1994). Another sad thing happen to these people is that, they will loose their traditional land ownership, ancient burial ground and their traditonal way of life. Meanwhile, thousand of people living down stream whose livelihood depend on the same source will be badly affected (Bawe, 1996). The forest area around Bakun Valley also is home of 100 endangered species of fauna , such as the great leaf monkey, Borneo Gibbon and orang utan. The dam will also damage about 1.5 million hectares catchment area one of biggest in Sarawak, mainly primary forest about which is 1-2 million years old. Moreover, the state will loose another economic resource, that is timber, about 17 percent Sarawak timber production comes from this area. Once the project successfully bulit, out of 170,000 acres of jungle will be cleared. In all in long term effects of the Bakun Dam Project is devastating to nature and people livelihood. The present article focuses on Sarawak writers' cries about the the environmental issues in their state which include deforestation, water and river pollution and pollution originated from logging activities and massive agricultural development.

2. Review of Literature

This study is conducted using ecocriticism theory suggested by Glotfelty & Fromm (1996) and Buel (1998). Glotfelty & Fromm (1996) define that, ecocriticism is the study of the relationship between literature and the physical environment. In this sense, writers report or write what happening to environment from their observation and experience in a critical manner. This theory suggests that writers should have strong commitment or responsibility towards environment. The ecocriticism writers investigate issues related to the environment such as ecological issues, explain the meaning of nature, their perception of wilderness, pollution, deforestation, environment conservation, and how all these issues have changed throughout history in many decades. A part of their responsibility writers also must ascertain these issues are accurately written or mentioned in popular media including academic books, popular novel or magazine. For example, an Australian writer Sandra Starbridge, commented by Brin (2000) depict clearly about environmental issues in her novels: *Staride Rising*, *The Postman*, *Soylent Green* and *Silent Running*. In her novels she warns readers about dangers of pollution, overpopulation and resource depletion. All issues she mentioned are global issues that can help people understand that nature conservation is everybody responsibility. Her novels also are used in school as part of effort to inculcate insight awareness among young children the importance of protecting environment. Although ecocriticism approach is quite new, this theory is appropriate with the present global issues related to environmental problems such as global warming, rising of sea water level, deforestation, draught, famine, and all kind of pollutions. Writers therefore play important part to disseminate knowledge in an interesting approach, that is through fictions, something that people love to read without realising that the strong message on environment will be inculcated deep in the readers thought.

The ecocriticism movement is quite new. Although it has been started in 1960s and 1970s the movement was quite slow because nobody made effort to organize the works and ideas. As results of this slow movement, earlier works on ecocriticism were scattered around and categorized under different subject headings such as pastoralism, human ecology, regionalism, and functional theory. One good example is *The Country and the City* written by Raymond Williams in 1973. This book is a seminal critique partoral literature which had given strong influence on leftist suspicion of the ideological evasions of the genre in 1970s. In 1974, another early ecocritical book by Joseph Meeker title *The Comedy of Survival* was published. This book highlighted the importance of giving consideration on ecocriticism and gives reasons the rationale of using the approach. In his mind the environmental crisis is caused by a cultural tradition in the West, which separated culture tradition from nature and also elevation of the culture tradition to moral predominance. Both William and Meeker are two writers who showed strong concerns and commitment on environment. In their books they also depict clearly and give reason that mistakes on damaging environment in the past should not be repeated again. He suggests that environment protection and consevation are everybody tasks. In 1989 the Western Literature Association urged its members officially to use the term of 'ecocriticism' instead of using the old terminology, 'the study of nature writing'. Since then the term 'ecocriticism' has bloomed in usage and at the same time wirters' works become more organized under the auspices of

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Western Literature Association, In 1990, Glotfelty became the first person to hold position as Professor of Literature and the Environment at the University of Nevada, Reno. From late 1990s, ecocriticism movement spreads its wings throughout the world such as UK, Japan, Korea, Australia and New Zealand. This movement has encouraged more writer taking part and get themselves involved in producing ecocriticism works.

The ecocriticism movement in Malaysia is still new and not much mentioned or discussed by any literature association. However, written works about writers' concerns on environmental issues had been published since 1960an. Environmental issues are global issues which have attracted the attention of writers to be presented in their work. Shahnun Ahmad in *Ranjau Sepanjang Jalan* (1966) has presented the close relationship between humans and the environment through the conflicts that exist between the two. The conflicts of interest between these two species have been presented successfully in this novel, and is recognised by scholars. Zakaria Ali through the novel *Empangan* (1991) also tries to invite his readers to think about the interconnection between humans and the environment that requires a harmonious relationship. Construction of dams has various conflicts with the environment such as the threat of extinction of the flora and fauna and the natural environment while at the same time has positive effects like the increase of the economic status of the population from the energy that is generated or the development of the tourism industry. Presently, issues related to the environment increasingly have a place in the writing of novels that can be seen in novels like *Desir Angin di Pergunungan* (2007) that applies sustainable development in today's life and development, *Transgenesis* (2008) about the violation of the ethics of biotechnology, *Igau* (2008) related to the story of the Penans who are faced with the challenges of the present day and so on (Maharam, 2009a) .

3. Methodology

This research is conducted using qualitative approach. For the purpose of this study, twelve novels written by Sarawak writers are selected as sample of the study. Novels are all written in Bahasa Melayu (Malay Language) and they are: *Suara dari Rimba* (2008), *Gugurnya Langit Hijau Nanga Tiga* (1990), *Pindah* (1998), *Jagung Pulut Pusaka Moyang* (2001), *Katarsis Perjuangan* (2007), *Sumpah Anak Bumi* (2008), *Bara yang Menyala* (2008), *Naluri Hidayah* (2008), *Anak Ruma' Kadang* (2007), *Libau Rentap Rimba* (2008), *Sempadan Dendam* (2002) and *Pemberontakan* (1994). All twelve novels are written using ecocriticism approach produced by native people of Sarawak. Their cries, ideas, arguments, reasons are all authentic because they live in the environment depicted in their works. What they have written are based on their experience, observation, listened, argued and felt.

All books or sample are read by researcher and data of the study are gathered from the books following content analysis approach (Krippendorff, 2004; Altheide, 1996, Titcher et al. 2000). The initial step involves(i) reading all novels to get general ideas, (ii) rereading novels sentence by sentence, in analytical manner and sorting the the content into themes, issues, comments and suggestions, (iii) categorizing and organizing ideas, (iv) interpretaion of ideas and making conclusion. Following the same approach, data of this study are divided into three categories namely the impact of land

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use on the environment based on land use for agriculture, construction of dams and logging. For the purpose of data validity, the researcher provides each main point with evidences gathered from the content of the novels. Lastly, researcher will draw conclusion on each ideas and give relevant suggestions as part of the solution of the issues. In the discussion chapter all main findings will be highlighted again and at this point researcher will make interpretation how serious the issues are.

4. Data Analysis

This study will only examine two issues that have been put forth in the novels of Sarawak writers. The issues involved are the impact of land use on the environment and the degradation of the quality of the environment due to pollution. Several novels produced by Sarawak writers will be analysed in this study, among which the novels are *Suara dari Rimba* (2008), *Gugurnya Langit Hijau Nanga Tiga* (1990), *Pindah* (1998), *Jagung Pulut Pusaka Moyang* (2001), *Katarsis Perjuangan* (2007), *Sumpah Anak Bumi* (2008), *Bara yang Menyala* (2008), *Naluri Hidayah* (2008), *Anak Ruma' Kadang* (2007), *Libau Rentap Rimba* (2008), *Sempadan Dendam* (2002) and *Pemberontakan* (1994).

4.1 Impact of Land Use on the Environment in Novels

The impact of land use on the environment in the novels studied can be seen based on land use for agriculture, construction of dams and logging.

4.1.1 Agriculture

The impact of land use on the environment in the novels that involve agricultural activities can only be detected in one novel *Jagung Pulut Pusaka Moyang*. Jais Sahok in this novel describes how a young man tries to bring progress in the field of agriculture to his hometown when he successfully set foot in university. He brings home knowledge in the field of agriculture, high quality seeds and applies for various assistance and information from the Agriculture Department in their area. He tries to overcome the crop problems often faced by the village community like the ones faced by his mother;

Mother's paddy is ruined attacked by diseases. Various diseases came. After the ones that can be seen, the ones that cannot be seen. Rats were also rampant. If in the dry paddy on the hill, there are not as many rats. If there are, only one or two which are lost looking for refuge in the hut of the hill paddy. But in the paddy fields, the rats are incapable of being rid of anymore.

In the end, mother's paddy field is ruined. Not a stalk goes up to the house. It is for free that she slogged and toiled in exhaustion in the paddy feel that she's so proud of.

Padi emak habis diserang penyakit. Bermacam-macam penyakit datang. Lepas yang nampak, yang tak nampak pula. Tikus pun bermaharajalela juga. Kalau di huma, di bukit, mana ada tikus sebanyak itu. Kalau ada pun seekor dua yang sesat mencari perlindungan di dangau huma itu sahaja. Tapi di sawah, tikusnya tidak terhalau lagi. Tidak terburu. Tidak terbunuh.

Akhirnya habis padi sawah emak. Setangkai pun tidak naik ke rumah. Percuma tulang uratnya membanting kelelahan di sawah yang dibangga-banggakan itu.

(Jais Sahok, 2001; 108)

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He is ambitious in developing the agricultural industry in his area until he successfully increased their economic achievements. However, his dream is slow to be achieved because the local community is still ignorant about the science of agriculture, too much influenced by animistic beliefs and practices that considered they would be scolded by jubata if they practised modern agricultural patterns, misused the subsidised assistance granted, even not confident that the field of agriculture could give them good returns for their life. His hope is described as in the following excerpt;

Let the peppers in my garden on the hillside at the foot of Mount Gading be verdantly lush. If the time has come, bear fruits in abundance. Enough fertilizers. Its care is good enough. Let the fruits hang like heavy rain. When ripe, let them be like chillies hanging in the Chinese shop. Red at the tip of each stalk. Then the fruits will be harvested, go into the basket, into the sack, selected more or less, soaked in the sack for about three weeks, then washed, become white pepper. Those not suitable as white pepper, just dry them, become black pepper. Still get money. Hah!

Biarlah lada di kebunku di lereng bukit di kaki Gunung Gading itu menghijau subur. Kalau masanya sudah tiba, berbuahlah lebat-lebat. Baja cukup. Penjagaannya cukup baik. Biarlah buahnya bergantung macam hujan lebat. Apabila masak, biarlah macam cili bergantung di kedai Cina. Merah di setiap hujung tangkai. Kemudian buah itu akan dipanen, masuk ke dalam bakul, ke dalam guni, dipilih lebih kurang, direndam di dalam guni kira-kira tiga minggu, kemudian dicuci, jadilah lada putih. Yang tidak begitu sesuai untuk lada putih, jemur sahaja, jadilah lada hitam. Dapat duit juga. Hah!

(Jais Sahok, 2001; 92)

He also seeks the help and advice from the officers at the Agriculture Department to help his village community. The right planting pattern not only successfully maximize agricultural production, but also at the same time benefits the environment. The following excerpt explains this;

"If the peppers are planted in an area such as the hillside..." He remembered the words of advice from the agricultural officer that came to his village. "Make terraces. We have shown before. Terraces, like the steps, certainly gentlemen you still remember. The terrace has many purposes. First, it prevents soil erosion. Then the fertilisers scattered around the base will not be washed away by the rain. We know very well the weather, not that we can predict when it is going to rain. Not that the rain is going to speak to us to tell us when it is coming. We are the ones who should adapt to the situation. Then only would the peppers grow flourishingly. If the peppers are planted on the hillside, no terrace is hoed to begin with, don't only say that no fertilisers scattered will be washed away by water, its base may also be uprooted," said the officer while smiling sheepishly.

"Kalau lada itu ditanam di kawasan seperti lereng bukit..." Dia teringat kata-kata nasihat pegawai pertanian yang datang ke kampungnya. "Buatlah teres. Kami sudah tunjukkan dulu. Teres, macam anak tangga tu, tentulah tuan-tuan masih ingat. Teres itu banyak tujuannya. Pertama, mencegah hakisan tanah. Kemudian baja yang ditabur sekeliling perdunya tidak akan dihanyutkan oleh air hujan. Maklumlah cuaca, bukan kita dapat ramal bila hari nak hujan. Bukan hujan bercakap pada kita untuk memberitahu bila dia nak datang. Kita yang patut menyesuaikan keadaan. Barulah lada dapat tumbuh dengan subur. Kalau lada ditanam di lereng bukit, tidak ada teres yang dicangkul terlebih dahulu, jangan dikata tidak ada baja yang ditabur akan dihanyutkan air, perdunya pun mungkin tercabut," kata pegawai itu sambil tersenyum sumbing.

(Jais Sahok, 2001; 91)

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The impact of the agricultural field on the environment in this novel is only expressed explicitly to the readers from the social angle, rather than the biological or physical environment. The depiction of the social impact is expressed through the frustration of the character *Jasi* who held on strongly to the ancestral beliefs. He adamantly defends the traditional glutinous corn cultivation because he does not want reprimanding from Jubata, compared to planting of quality sweetcorn of which the seeds are brought home by his brother who is studying at university. Although the glutinous corn that he cultivates thrived and yields good produce, he does not get a lot of money from its sale because buyers prefer the sweetcorn. He regretted because he did not follow his brother's advice.

4.1.2 Construction of dams

In the novel *Pindah (1988)*, dams are constructed to obtain hydro-electric power resulting in thousands of hectares of forest land being submerged. This novel revolves around the conflict that happens to Ungging when their settlement, the Kampung Tenggelam long house area, is acquired for the construction of the dams. Residents of the longhouse need to move out because their long house will be completely submerged when the dam is completed and water is released. Tuai Rumah becomes the mediator of the talks between the residents and the government. Ungging does not agree and insists on not surrendering his land and his part of the settlement, even wanting to continue staying in their longhouse. He opposes the construction of the dams (Maharam, 2009a) based on several reasons, namely;

- i. The dam is built by the Japanese. Ungging had horrific experiences during the Japanese occupation in Sarawak because all his family members were killed brutally. This made him bear a grudge against Japan. When the dam is being built in the nearby areas, Ungging sees that Japanese workers are also involved in the construction of the dams. The long house and the land that they own is the hard work and labour that is done from generation to generation. He feels responsible to defend it.
- ii. The customs, beliefs and culture of their ancestors are being forgotten slowly. The modern way of life is beginning to be absorbed into their community. There are some changes which are disfavoured by Ungging such as being physically rough with each other just because of inability to settle debts. They begin to be materialistic. The changes in the living standard also cause many of them to be involved in gambling and liquor.
- iii. Love of nature and the traditional life that he has undergone all this while. Ungging does not want to lose the sentimental value of life he has undergone all this while. The forest is a pride and a comfortable way of life for him. If the dam is built, the forest will be submerged. The flora, fauna settlement and various archeological artifacts in the area will be buried, swallowed by the dam.

He is very upset when he finds out that Belawai has signed an agreement to allow the ancestral land to be taken away, accepted the compensation and subsequently followed along to move to the new settlement. The act is like a betrayal for him. Whether he wants it or not, Ungging eventually is forced to accept the fact that he is the only one

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who does not want to move. He is the only one still holding on strongly to the values and beliefs about the environment that is the resource and guide in life. The forest and nature not only affects his way of life, but also influences his values, beliefs and norms. For him, the forest is not only occupied by animals and humans, but also other creatures that can affect their lives (Ma'rof Redzuan dan Zahid Emby, 2008).

Ungging cannot accept the fact that Tuai Rumah has conspired with his son, Belawai. When all his children and wife moved to their new house, Ungging insisted on staying in the traditional long house even though alone. However, when the people returned to tear down the house to get quality construction wood for their long house, Ungging felt very angry.

The government has set aside a new settlement that is more organised and modern, equipped with a variety of infrastructure compared to the long house occupied by the indigenous people before this. This area is supplied with clean water, electricity, roads and schools, while their traditional longhouses have been built with modern concrete construction that is more sturdy (page 6, 16 & 31). The indigenous community who agrees to surrender and move from their village areas for the construction of the dams will receive compensation in the form of money, a new long house and land for agriculture.

Their move to the new settlement area also opens up employment opportunities in the dam construction project area for the youths. Their standard of living begins to change when they gain employment and fixed salary compared to living in the forest where they had to rely completely on nature to provide them with the necessities of life. Before having the job and getting the fixed salary every month, they had to struggle to get to the nearest town to sell the products of the forest and to exchange them with daily necessities. Their living pattern begins to change. The custom of building a new home is no longer practised (Maharam, 2009a). Their old life has been left behind, new culture begins to pervade rapidly. Television and radio has taken over the Berenong tradition and the Ngajat dance. In fact, they have made gambling as a new tradition by making huge bets. There are also people who begin to get drunk and not concerned with the good relationship among each other because of those changes in their life. Ungging has been assaulted, insulted and humiliated in public because he cannot afford to settle his debts yet.

The available forest resource has made Ungging very confident that he is able to live alone even without the longhouse community, including his wife and family. The richness of the forest where they live provides food source for the lives of the whole family before this. Every time Ungging goes into the forest, he never comes home empty handed. He can hunt deer, mousedeer or wild boar if hunting at night time, or bring home leaf monkeys, monkeys, empuna birds, segayan birds or imbok birds if hunting during the day (page 75). Ungging is confident that he will not die of hunger because there are many forest resources that can support his life. All this while he has been relying on the forest, so, he is confident that the forest is still able to give him life as before. This confidence is expressed in the dialogue "*I can live on my own. I know in this green forest, it is not only me who is alive. I am not alone. There are bird. Lleaf*

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monkeys, monkeys, kera are aplenty in the forest..." (Jong Chian Lai, 1988; 7) [*Aku boleh hidup seorang diri. Aku tahu di hutan hijau ni, bukan aku saja masih hidup. Aku tidak seorang. Burung ada. Lotong, monyet, kera banyak di hutan...*" (Jong Chian Lai, 1988; 7)]. This belief further strengthens his stubbornness to continue living in their traditional longhouse even though all the other people have moved.

The construction of the dam has changed and restructured the shape of nature including diverting the river flow. This change has resulted in changes to the structure of the natural environment. The river flow that has been diverted from its original flow causes water in the other parts of the river to be reduced or dried out. This also causes the aquatic life such as the fish to die. The animals have also been moving further and further into the forest avoiding the dam areas where the trees have been felled, the land cleared and the terrain restructured according to the requirement of the construction of the dams. Ungging who has aged is no longer capable of performing the hunting activities in the thick forest.

The lack of wild game and fish in the river causes Ungging's life to be very difficult. He is only able to survive by eating forest plants, while without sufficient source of protein, he is not getting enough energy. These difficulties caused Ungging to have to sacrifice Labang, his own dog. He has to eat the meat of his own dog to survive. Even at this moment, Ungging still hangs on to his ego to survive in the longhouse and not moving to the house of his wife and children.

His resoluteness in defending his longhouse is likened to defending the rights of the environment that has been violated simply because of the need for hydro-electric energy. The destruction of the biodiversity due to the construction of the Batang Ai dam is irreplaceable, similar to that of Ungging losing his family, the people of the longhouse, ancestral land, heritage and beliefs of their ancestors. Although there are other forest areas that are untouched, however, not all the richness of the flora and fauna as well as the archeological treasures found in the dam area can be obtained in other areas.

Ungging died when his longhouse submerged the moment water is released. The death of Ungging portrays the death of all the treasures of nature together with the strong current of the dams that have been successfully constructed. The death also signifies the failure of Ungging's efforts to defend the environment and the cultural rights owned by his people since his forefathers. The death also denotes that the struggle to defend the environment has also ended.

4.1.3 Logging

Logging activities are highlighted by the writers in the novel *Suara dari Rimba* (2008), *Gugurnya Langit Hijau Nanga Tiga* (1990), and *Anak Ruma' Kadang* (2007). The novels explore about logging and the effects that need to be faced by the surrounding society when logging and illegal logging are actively carried out in their area. Logging in these novels caused the destruction of the forest, pollution and hardship of life to the Orang Ulu community including the Penans.

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The understanding of the indigineous community about the importance of the forest is abundantly presented in these novels. In short, they already know that nature in which they dwell in is their source of life. Destroying nature means they are destroying their own life. This image can be seen as in the following excerpt;

“This forest...our house, the food store, the multipurpose store, and our hospital. If we have headaches, fever, sores or snake bites, the doctor is always in this forest. Like in the city also. *Nyak kapak awak* like *buhau getimang, telikud dan tanan ga*. If you want to destroy this forest, might as well destroy your hospital and your shop at the same time.”

“Hutan ni....rumah kami, stor makanan, stor pelbagai dan hospital kami. Kalau kami sakit kepala, demam, luka atau dipatuk ular, doktor sentiasa ada dalam hutan ni. Macam di bandar juga. *Nyak kapak awak* seperti *buhau getimang, telikud dan tanan ga*. Kalau nak musnahkan hutan ni, baik juga musnahkan hospital dan kedai kamu pada masa yang sama .”

(Jong Chian Lai, 2008; 346)

This land is also created by God and does not know how to speak to humans. Animals are like that too, cannot talk amongst themselves and we do not understand animal language. If the trees are felled, there is sap coming out; that is its blood. This land is like our father and mother. If the order gives authority to the company to invade this area, might as well our heads are decapitated. If the tractor destroys this land, no matter whether you see blood and bones they still can't talk. There are labourers whose heads are broken, bones fractured. You surely understand. This land is angry. It screams, “Don't kill me!” James Rich is quick to change the finished cassette with a new one.

Tanah ni juga dicipta Tuhan dan tak tahu bercakap dengan manusia. Binatang pun begitu, tak boleh bercakap sesama sendiri dan kami tak faham bahasa binatang itu. Kalau pokok ditumbang, ada getah keluar; itu darahnya. Tanah ni macam mak dan bapak kami. Kalau perintah bagi kuasa pada kompeni untuk menceroboh kawasan ni, baik saja kepala kami dipancung. Kalau traktor musnahkan tanah ni, awak nampak darah dan tulang-temulangnya sekalipun ia tak boleh bercakap. Ada kuli yang pecah kepala, patah tulang. Awak tentu faham. Tanah ni yang marah. Ia menjerit, “Jangan bunuh aku!” James Rich begitu pantas menukar kaset yang habis yang habis dengan yang baharu.

(Jong Chian Lai, 2008; 343)

The novel *Anak Ruma' Kadang* also makes the issue of illegal logging as one of the conflicts that must be addressed by the longhouse community (p. 231). When the forest is cleared through logging, little by little changes in the forest structure occurred. Logging changes the biodiversity of the forest, destroys the flora and causes the fauna to move further into the jungle/thick forest. This will also change the lifestyle of the Orang Ulu community inhabiting in the area until it affects their source of food. This difficulty is also depicted in the novel *Gugurnya Langit Hijau Nanga Tiga* such as the following;

“Tuai don't understand. This forest land, has become our game field. We look for food here. Where else would we trap birds? Where do we snare? Shoot wild boars, mousedeer, deer and porcupines and squirrels. From where else would we get the leaf monkeys, monkeys and keras to eat? If not all from this green forest. How could Tuai ask the trader to log in this forest. Destroy the forest, the forest and river of our ancestors. How could Tuai do that to our own ancestors. Why don't Tuai try to think carefully. Don't

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take the easy way out. We lose out now it's okay. But if later we see the Nanga Tiga people cry bloody tears because the land is like the dessert. What else do we do?

"Tuai tak faham. Tanah hutan ni, sudah jadi medan buruan kita. Kita cari makan di sini. Ke mana lagi nak menjebak burung? Di mana kita nak menjerat? Menembak babi hutan, pelanduk, rusa dan landak serta tupai. Dari mana lagi kita nak dapatkan lotong itu, monyet dan kera untuk makan? Kalau tidak semuanya di hutan hijau ini. Sampai hati Tuai hendak suruh tauke tu membalak di hutan ni. Musnahkan hutan, hutan dan sungai nenek moyang kita. Sampai hati Tuai buat gitu dengan atuk dan moyang sendiri. Cuba Tuai fikirkan masak-masak sikit. Jangan buat jalan senang. Kita rugi sekarang tak apa. Tapi kalau kemudiannya kita lihat orang-orang Nanga Tiga menangis keluar darah kerana tanah macam padang pasir. Apa kita nak buat lagi?"

(Jong Chian Lai, 1990; 32)

The issue of logging has also been made as one of the sensitive issues that Western environmentalists use to discredit the name of Malaysia in the eyes of the world because of high quality timber. The character of Bruno Manser, a Switzerland citizen who had lived together with the Penans in Sarawak has been inserted in this novel. The writer describes the character as follows;

Then he spreads the declaration of claim of the Penan tribes to the World Wildlife Fund. Did he not want to politicise the discussion in the life of the Penans. He was not there to do research and study about the wildlife, culture, language, beliefs, medicine from the forest resource, handicrafts but as a spy of the Western NGO.

Kemudian dia menyebarkan deklarasi tuntutan puak-puak Penan kepada Tabung Kehidupan Liar Sedunia. Bukankah dia mahu mempolitikkan perbincangan dalam kehidupan kaum Penan. Dia bukannya mahu melakukan penyelidikan dan kajian tentang hidupan liar, budaya, bahasa, kepercayaan, perubatan hasil dari rimba, kraftangan tetapi sebagai pengintip kepada NGO Barat.

(Jong Chian Lai, 2008; 251)

The writer denied the shallow allegation through the debate that happens between James Rich and Bruno Manser. The denial among others appears in the excerpt below;

Timber is as hot as politics. They want forest, we give them 12,000 hectares of forest reserve for the Penans...52,000 hectares in Mulu Park. With this the second generation already has a modern look. The forest reserve still stays." James Rich himself attempts to investigate in what desired way the type of thinking that will be formed by Brueno Mansel.

Balak sama panasnya dengan politik. Mereka mahu hutan, kita bagi 12,000 hektar hutan simpan untuk orang Penan...52,000 hektar di Taman Mulu. Dengan ini generasi kedua dah berwajah moden. Hutan simpan itu masih kekal." James Rich sendiri cuba menyelidik bagaimana mahunya jenis pemikiran yang bakal dibentuk Brueno Mansel.

(Jong Chian Lai, 2008; 154)

"You exaggerate a stone in the sand. You don't know anything about forests in Malaysia. You don't read much. The economic magazine published in London, concluded that the forests of the world in Switzerland only left with 24%, UK 8%, USA 21%, Denmark 11% and in Germany critical. So how do you know what percentage is the forest in Malaysia?" John Barden did not respond.

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“Awak gembar-gemburkan sebutir batu dalam pasir. Awak tak tahu apa-apa tentang hutan di Malaysia. Awak kurang membaca. Majalah ekonomi yang diterbitkan di London, merumuskan hutan di dunia Switzerland hanya tinggal 24%, UK 8%, USA 21%, Denmark 11% dan Jerman kritikal. Jadi berapa awak tahu berapa peratus hutan di Malaysia?” John Barden tidak menyahut.

“74%...John, about 23 million hectares of areas in Malaysia is covered in forests...and Sarawak...80%. You think that is not enough for the Penans.” James Rich’s eyes gazed at John Barden’s wild eyes. Its shine is muted, turning to the direction of Wee Salau.

“74%.....John, kira-kira 23 juta hektar kawasannya di Malaysia ditumbuhi hutan...dan Sarawak....80%. Awak fikir itu tak cukup bagi Penan.” Mata James Rich menatap mata liar John Barden. Sinarnya redup, berpaling ke arah Wee Salau.

(Jong Chian Lai, 2008; 229)

The author also portrays a form of logging that is characteristically sustainable with the environment, that is performing the activities of logging as one of the economic source, but at the same time still maintaining environmental sustainability. The forest that has been felled and its timber taken needs to be replanted with new trees as replacement. This can ensure the forest area will grow back with new trees and can be logged again after a certain period. This method of logging has long been practised in Western countries that have previously lost their forest. This is depicted in pages 149 and 150 in the novel *Suara dari Rimba*.

Overall, logging has become one of the prolific issues depicted by Sarawak writers when involving the impact of land use on the environment in the novels. Jong Chian Lai made the issue of logging and the effects that need to be faced by the surrounding community and nature the dominant issue in three of his novels, that is analysed in depth in comparison to other novels.

4.2 Degradation of the Quality of the Environment Due to Pollution in the Novels

The degradation of the quality of the environment due to pollution in the novels will be analysed based on water, air and sound pollution.

4.2.1 Water Pollution

Water pollution in the novels written by the writers of Sarawak can be traced in four novels, namely *Gugurnya Langit Hijau Nanga Tiga*, *Pindah*, *Suara dari Rimba* and *Ngayau Air*. There are many factors that contribute to the degradation of the quality of the environment as a result of water pollution such as excessive use of pesticides in agricultural areas, industrial waste, chemicals, toxic waste, sewage disruption of water catchment areas and the forest, and so forth. The novel *Ngayau Air* depicts among the factors that cause water pollution;

“I have made my decision. You can stay here as long as you want. Here you will be safe. Batang Lupar is no longer the ground for your hermitage. More so in the middle of the development era that is proliferating now. Each day the timber mills, the wood processing mills and small and heavy industrial factories have sprouted like mushrooms along the river banks. Nah! Pollution is happening everywhere. The jungle is cleared

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blindly. The river is contaminated with chemicals and toxic waste without control. That is not yet calculating the tuba posion, water bombs and many more disasters. It's clear. Nowadays the river is no longer a safe place for reptiles of your type.

“Aku telah pun membuat keputusan. Kau boleh menetap di sini selagi kau mahu. Di sini kau lebih selamat. Batang Lumar bukan lagi medan untukmu bertapa. Lebih-lebih lagi di tengah era pembangunan yang sedang pesat sekarang. Saban waktu kilang balak, kilang memproses papan dan kilang industri ringan dan berat semakin tumbuh bak cendawan sepanjang tebingan sungai itu. Nah! Berlaku pencemaran merata-rata. Hutan rimba diteroka dengan membabi buta. Sungai pula tercemar oleh bahan kimia dan sisa toksik tanpa kawalan. Belum lagi dikira racun tuba, bom air dan macam-macam lagi bencana. Jelas. Zaman sekarang sungai bukan lagi tempat yang amat selamat untuk reptilia sejenismu.”

(Hamlin Bolhi. 2001; 114)

Water pollution will be more intense when there are groups that do not have awareness on keeping the continuity of the rivers. They use poisonous plant (tuba) or electric bombs to get the fish, releasing toxins into the water source and so forth. The use of these poisons, tuba or electric bombs will cause all the aquatic life to be threatened, even though the main target is the fish only. All other river wildlife also suffer and die, while the water source is contaminated as explained by Hamlin Bolhi (p. 342).

The degradation of the environment caused by water pollution can be seen based on the physical structure of the river. The river that is polluted can be detected based on the saturated molecules suspended in the river, until it changes its physical structure in terms of colour, taste and smell. Revelation of the environmental degradation from the aspect of the physical structure of the river water takes place when the polluted river is portrayed by Jong Chian Lai a few times in the novel *Suara dari Rimba* (2008). The writer often compares clean rivers and polluted rivers. Nature that is still well preserved is portrayed as very beautiful, green, fresh and gives positive effects on the soul, while destruction of nature caused by development activities is given the opposite description. The quality of river water that before this is clear, clean and safe to be used, has changed in its physical and chemical structure can be found in the novels *Gugurnya Langit Hijau Nanga Tiga, Pindah, Suara dari Rimba* and *Ngayau Air*. In the novel *Gugurnya Langit Hijau Nanga Tiga, Pindah* and *Suara dari Rimba*, Jong Chian Lai depicts illegal logging that has become the contributor of the degradation of the quality of river water. Felled logs has caused the original area to be cleared and encouraged erosion. The logging area that is cleared without limits causes the soil in the area to be exposed to the sun that dries it. Wind and water flows during rain will bring these soil molecules to other areas, then entering the stream. This depiction can be seen as follows;

The beauty of the green forest calms his heart. Upon entering the interior, the hills become towering. From a distance, the mountains can be seen covered in white clouds. The green forest, hills and rivers are an integral part of the beauty. James Rich tries to interpret the 'voices' of the Penans dealing with the logging. If humans can fell a tree, the hills will be bald and the river dirty. He looks from the top, the area that is logged, the hills are bare and the river yellowish.

Keindahan kehijauan hutan mendamaikan hatinya. Apabila memasuki kawasan pedalaman, bukit-bukau semakin meninggi. Dari kejauhan kelihatan gunung yang diselaputi awan putih. Hutan hijau, bukit dan sungai keindahan tidak terpisahkan. James

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Rich cuba mentafsirkan tentang 'suara-suara' orang Penan menangani pembalakan. Kalau manusia menumbangkan pokok, bukit akan botak dan mengotorkan sungai. Dia melihat dari atas, kawasan yang dibalok, bukitnya, gondol dan air sungai kekuningan.

(Jong Chian Lai, 2008; 159)

The same matter is analysed by this writer at length in page 81. The Penan community is upset with the deterioration of the river water quality that is becoming more polluted because of logging that has been associated with noise pollution as well. The peacefulness of their lives all this while has been threatened. Timber that is very valuable and that is the source of the state's economy is still exploited even though the environmental impact that occurs must be borne by the Penan community. The river that is their source of drinking water and daily needs is deteriorating in its quality. Their lives are becoming increasingly desperate because the supply of clean water and source of protein are diminishing. In line with changes in water quality, this is also giving an impact on the consumers and the aquatic life in the river. Aquatic life like fish and crocodiles (Ngayau Air) have to deal with the pollution without any choice. The sufferings of the aquatic life is detailed in the novel *Nganyau Air* in pages 201, 235 and 236 as in the following excerpt;

For days I suffered anguish. My stomach is in gripping pain. Aching. Stinging. Painful. My body is itchy, feels like being burnt to a cinder, then soreness, numbness, feels like being shredded, and God knows what else. One or two baby crocodiles lie sprawled lifeless slumped in the mud by the bank of Batang Lumar. The aquatic life floats lifeless; there are those with its stomach bloated, those with disintegrated bodies, all horrifying.

Berhari-hari aku menghidap azab. Perutku memulas-mulas. Pedih. Bisa. Sakit. Badanku terasa gatal, rasanya bagai dibakar hangus, kemudian sengal, kebas, rasa disiat-siat, dan entah apa lagi. Seekor dua anak buaya tergelimpang longlai menyembam lumpur tebing Batang Lumar. Hidupan air terapung-apung kaku; ada yang megelembung perut, ada yang terburai badan, semuanya menyeramkan.

(Hamlin Bolhi, 2001; 201)

Fighting water pollution because of human negligence by a crocodile highlights the opposition against immoral activities on the environment. The attitude of humans that like to deface the environment needs to be changed to ensure continuity of life in the future because sustainable and ethical use of nature really helps the life of the earth. The awareness to protect and sustainably use the resources need to be improved. Jong Chian Lai uses simple dialogues as a depiction of the presence of concern towards the environment through the dialogue "The centipede continues to fell the fruit trees, chase away the animals and dirty the river. Who can wait and see. His finger points to one direction. (*"Lipan terus tumbangkan pokok buah, halau binatang dan kotorkan sungai. Siapa yang boleh tunggu dan tengok." Jarinya menuding ke satu arah.*) (Jong Chian Lai, 2008; 100)" and "What do we do with that centipede? The fruit trees are destroyed. The animals have run further into the forest. The river is murky. What can you do?" in a tone so tense, there are people who feel challenged and all this while were quiet, begin to voice their protest. (*"Apa yang perlu kami buat dengan lipan tu? Pokok buah dah musnah. Binatang lari jauh ke dalam hutan. Sungai jadi keruh. Apa awak boleh buat?" dalam nada tegang begitu, ada orang yang terasa dicabar dan selama ini mendiamkan diri, mula bersuara membantah.*) (Jong Chian Lai, 2008; 90). These two dialogues are

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spoken by the Penan that is aware impairment is happening to the quality of the river water in their area.

They start to question about the relevant parties called “orders’ who approved the logging license based purely on economic factors. The lives of the local community in the areas involved especially the Penans are not taken into consideration, but ignored, whereas the direct effects need to be faced by them when the impact of the logging occurs. They begin to be aware of the existence of the causal relationship between one natural resource with other natural resources, including the relationship of all those with the destruction of the environment. The awareness to take care of the sustainability of the resources such as the forest and water resources causes them to be willing to carry out oppositions through various ways such as conducting a restriction, sending in a declaration and memorandum to the leaders even threatening to hurt the loggers using weapons (blowpipe). The indigenous community cannot be patient with the changes in the environmental quality in the area because this situation is also affecting their everyday life. Logging has given the opportunity to the irresponsible parties to invade the forest area by carrying out illegal logging, and some even have destroyed the burial site. Protest in a sarcastic note is depicted in the following excerpt;

“The fish died because the river is dirty. Animals run away. Why doesn’t the order discuss and teach them? The government should revoke their license. Why didn’t they help us? If we do not hold them back, who else wants to listen? That is why I want to stop the company. But the big guns should not send the police and arrest us. It would be good if the Prime Minister came to see me. We did not kill him! I asked him to knock down *uwut*, pare his skin...

“Ikan mati kerana sungai kotor. Binatang lari. Kenapa pemerintah tak bincangkan dan ajar mereka? Kerajaan patut tarik balik lesen mereka. Kenapa dia tak bantu kami? Kalau kami tak sekat, siapa lagi mahu dengar? Sebab tu saya mahu halang kompeni. Tapi orang atas tak patut hantar polis dan tangkap kami. Baik benar kalau Perdana Menteri datang untuk ketemu saya. Kami tak bunuh dia! Saya suruh dia tumbangkan *uwut*, mengupas kulithnya...

(Jong Chian Lai, 2008; 349)

The water pollution that occurs gives impact on the local community especially in meeting their daily needs as a source for drinking water and clean water, as well as protein source. The degradation of the quality of water source also means the decline of health and protein source.

4.2.2 Air Pollution

Based on the novels studied, the degradation of the quality of the environment due to air pollution can only be detected in the novel *Gugurnya Langit hijau Nanga Tiga* (1990). Jong Chian Lai in this novel highlights the voracity of the logging activities including the illegal loggers who exploited the timber resources greedily without thinking about the sustainability of nature. These illegal logging activities not only cause the deterioration of the timber resources, but also contribute to the degradation of the quality of the environment due to noise, water and air pollution. The degradation of the quality of the environment as a result of air pollution due to the illegal logging activities is expressed by the write in one brief paragraph as below:

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Billows of black smoke climb the clear sky. Then the billows of smoke that come out of the Kaling hill disappear. Soon stuck in the nostril, snot is mixed with black dirt. Eyes will be itchy. The air of Nanga Tiga is no longer pure like before. Nose will be sore smelling the smell of smoke. Sure they are aware. His words before are true. Devastation will come brought by the change.

Kepulan asap hitam memanjat langit yang cerah. Kemudian keputan asap yang keluar dari bukit Kaling itu menghilang. Tidak lama lagi terlekat dalam lubang hidung, tahi hidung bercampur dengan kotoran hitam. Mata pasti gatal-gatal. Udara Nanga Tiga tidak lagi sesuci dahulu. Hidung akan sakit mencium bau asap. Pasti mereka sadar. Kata-katanya dahulu itu benar. Malapetaka akan datang dibawa perubahan itu.

(Jong Chian Lai, 1990; 159)

The black smoke that billows as depicted in the above excerpt comes from the heavy Mitsubishi machineries that are used to dig the earth for the construction of the logging road. The construction of this road allows the timber that has been felled to be brought out. Apart from producing very loud sound for the forest area that has all this while been desolate, the heavy vehicles that used diesel as their source of power has resulted in the black smoke. The forest area that has been silent, quiet, peaceful and safe has changed with the loud noise and billows of black smoke.

4.2.3 Noise pollution

The analysis that has been done on the novels studied found that only the novel *Gugurnya Langit Hijau Nanga Tiga* (1990) inserted about the degradation of the environment as a result of noise pollution that happened in Bukit Kaling due to illegal logging. The environmental problems are interrelated problems and react to each other. Air pollution is induced by the machineries that are carrying out the construction of the logging road which also produce noise pollution while operating. This means, sourced from the machines only, there are two forms of pollution which have been produced. The sentence “The machines in Bukit Kaling have not even stopped roaring since dawn. The men who worked also did not feel tired. Bukit Kaling is always filled with the noise of the machineries” (page 163) (Ayat “*Jentera di bukit Kaling tidak langsung berhenti mengaum sejak subuh tadi. Manusia yang bekerja pun tidak merasa penat. Bukit Kaling sentiasa terisi dengan bunyi bising jentera itu*” gives a depiction about the serious noise pollution that is happening in the area. The original quiet atmosphere all this while has changed. This obvious change becomes a disturbance to the indigenous people as in the excerpt below;

The sound of machineries in Bukit Kaling is becoming louder in their roar. The black smoke that comes out from their funnels has already been seen. The screams of the labourers there sometimes speak of the stupidity of the people of Nanga Tiga. He is aware that disaster is starting to creep to the soil and the green forest. The people of Nanga Tiga are not yet awake from their daylight dreams. Apai Icut does not know the trader's intent. The only thing he knows – there is a human who is willing to help, so the human becomes his companion to eat and drink together. If possible, sleeping also together. What is the use of him having a heated argument if Apai Icut's earlobe has been insulated with soil. Jabau's restlessness increases even more.

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Bunyi jentera di Bukit Kaling semakin kuat ngaumannya. Asap-asap hitam yang keluar dari serombongnya sudah kelihatan. Jeritan kuli-kuli di situ kadang-kadang memperkatakan kebodohan orang Nanga Tiga. Dia sedar malapetaka mula menjalar masuk ke tanah dan hutan hijau itu. Orang Nanga Tiga belum sedar lagi dari mimpi siangnya. Apai lcut belum tahu hati budi tauke itu. Yang dia tahu—ada manusia yang sanggup menolong, jadilah manusia itu temannya untuk sama-sama makan dan minum. Kalau boleh tidur pun bersama. Apa gunanya dia bertegang urat kalau cuping telinga Apai lcut sudah bertebat tanah? Resah Jabau semakin menjadi.

The sound of machineries pushing the soil is deafening. Jabau looks up at Bukit Kaling. Bukit Kaling appears a bit spacious. Soon the hill will be bald. His heart is really angered with the devilish thing that is moving. In the early morning, it has menaced. Already causing pandemonium to the tranquility. The metal bodied machines work ceaselessly from daylight to dusk. If it stops, it is only when the sun is gone.

Bunyi jentera menolak tanah membingitkan. Jabau mendongak bukit Kaling. Bukit Kaling kelihatan lapang sedikit. Tidak lama lagi bukit itu botak. Hatinya panas benar dengan benda jahanam yang bergerak-gerak itu. Subuh-subuh lagi sudah mengacau. Sudah menghiruk-pikukkan ketenangan. Jentera berbadan besi tidak henti-henti bekerja siang ke senjanya. Kalau berhenti pun bila matahari sudah hilang.

(Jong Chian Lai, 1990; 159)

Changes from the state of quiet and calm to the deafening, noisy and pandemonic atmosphere also disturbed Jabau who is not only anxious with the ugly possibility that would befall their village area, but also uneasy with the impending changes. The forest and hilly areas will be logged ravenously. Noise that occurs for a long time (from dusk till dawn) can cause emotional distress. In this case, the disturbance that happens to Jabau is because of him opposing the felling of the forest in his area and being disturbed by the noise pollution.

Jabau often compares between the two situations, that is the atmosphere of peace that exists when the sound of engines is turned off. The difference that exists in these two situations gives a depiction to the reader of the effect that needs to be endured when disregarding the environment as described in this situation;

The roaring sound of the machines entered his earlobes. His heart is uneasy with the contamination of the peacefulness. The people here are used to the quiet situation every day, accustomed to the voice of the crickets and cicadas as well as the cry of the night birds and owls at night. And during the day, only the whistles of the birds, screams of the leaf monkeys and howlings of naughty kids. Maybe the people here are tired of the peace. They too make noise. They do not value peace anymore.

Bunyi ngauman jentera masuk ke cuping telinganya. Hatinya tidak senang dengan pencemaran ketenteraman itu. Orang di sini biasa dengan keadaan sepi saban hari, biasa dengan suara cengkerik dan riang-riang serta sahutan burung malam dan burung hantu waktu malam. Dan siangnya hanya suara siulan burung, jeritan lotong dan lolongan budak-budak nakal. Mungkin orang di sini sudah bosan dengan ketenangan. Mereka turut membising. Mereka tidak pentingkan ketenteraman lagi.

(Jong Chian Lai, 1990; 167)

Changes in the environmental quality includes the degradation of the quality of the environment that is detected through air, water and sound pollution, the loss of certain species in an ecology and others because of the activities of land development such as

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agriculture, the development of new areas, construction of dams, logging, construction of infrastructures and many others. Every process that takes place in the environment is interrelated and interacting with each other. The activities of logging itself are capable of leaving a huge effect on the environment such as water, air, sound pollution and cause the degradation of the soil content. This land area that is cleared by loggers will subsequently experience soil erosion after the soil cuticle that is exposed to the sun is blown away by the wind or carried by the flow of surface run off when it rains. This will also cause the silt to settle on the riverbed. The river not only becomes shallow but changes to a murky colour and filled with suspended materials. The excessive foreign substance content causes the river to be subjected to pollution.

5. Conclusion

Sarawak novelists often make the environment as their source of inspiration. Many environmental issues have been raised in their novels. Logging is dominant in its existence when studying the impact of land use on the environment in the novels studied. Logging and forest encroachment has led to loss of biodiversity, local archeology values, destruction of agricultural areas and cemetery land, and even results in the degradation of the quality of the environment when water, air and sound pollution occur. All these impacts are mutually related between one environmental factor to another.

Water pollution has been discussed extensively in several of Jong Chian Lai 's novels due to a variety of factors, in particular logging. In the novel *Nganyau Air*, the river becomes contaminated because of the dumping of toxic wastes into the river, especially from industrial factories. In the end, the polluted rivers have an impact on the consumers either because the water is contaminated physically or chemically. In sum, writers of the novels really concerns with their environment and making suggestion that the development of the state must also taking serious consideration on environmental conservation to maintain healthy livelihood of people.

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