CHAPTER V

DISCUSSION

5.1. Theory of Constraints Analysis

The objective of this paper will be focused on constructing the logic trees and find the possibility to answer solution of "What to change?", What to change to?", and What to cause the change? In climate change mitigation from industry side. To accomplish the solution for climate change mitigation from industry side, the logical thinking process tree consist of: Current Reality Tree (CRT), Evaporating Cloud (EC)/ Conflict Resolution Diagram (CRD) and Future Reality Tree (FRT) are constructed and analyzed.

5.2. Current Reality Tree (CRT)

The Current Reality Tree explains the limitation and hinderance of industry to achieve SDG 13 targets. The CRT will show all undesirable effects in achieving them and find the core problem or root cause of it. From total of 46 UDEs gathered from journal, 14 of them are constructed into CRT as major problem. Constructed CRT then will show there are 5 core problems or root causes that need to be prioritized to solve. These 5 core problems or root causes are: First, lack implementation of green growth and sustainability development policies. Second, insufficient integrated policy model to assess the 3E dimension of material efficiency strategy. Third, many environment impact assessment methods are still expensive for SME. Fourth, dependency of industry toward fossil fuel. And fifth, consumer demand is becoming important contributor of CO2.

There is connection between the core problem or root cause with the negative UDEs. First, lack implementation of green growth and sustainability development policies by government could lead into unstable application of 3E policies. If this continues, it could slow down the process of climate change mitigation because of improper application of these policies.

Second, insufficient integrated policy in material efficiency also has impact towards unstable 3E policies which also effect the slowdown of the mitigation process. Another impact is, it will indicate that material efficiency is not fully understood by stakeholder. The consequence is, it spoils the potential of material efficiency to reduce the amount of emission from material extraction, production and energy usage.

Third, the overpriced environment impact assessment is too expensive for Small Medium Enterprise (SME) indicates the material efficiency that is not fully fulfill its full potential. Contribution of emission from SME is not as dominant as the major industry. But to accomplish the target of emission efficiency, material efficiency strategy application of SME will help considerably.

Fourth, huge dependency of industry towards fossil fuel as energy source. The consumption and production of fossil fuel is known as the major emission contributor. In order to mitigate this, conversion and alteration industry sector towards utilizing renewable and clean energy should be considered as important.

Fifth, the indirect impact of growing consumer demand conjointly increases the burden of industry production. The living standard of richer family requires higher demand burden for industry. Report from the latest IPCC summary stated that, 3,5 billion people is contributing total of 10% emission to environment, while top 10% richest people contribute more than 50% emission to the environment.

5.3. Evaporating Clouds

The identified five root causes then expanded into its possible resolution to achieve emission efficiency in industry. If the root cause has conflicted resolution from its possible resolution, then Evaporating clouds is needed to determine which alternative or action needed to take.

In order to have green growth and sustainability development policies fully supported, the stakeholder must set suitable frameworks of green growth and sustainability development policies and provide infrastructure that supports green growth and sustainability development. With the assumption of people would think that implementing both of this is only for the ambition and ambiguous project from stakeholder then the injection is to give information and knowledge about the importance of green growth and sustainability in mitigating the climate change.

In order for industry to able shift the dependency toward renewable and green energy we must support the development of clean renewable energy technology and support the stakeholder to regulate the allowed fossil quota limit for industry to use. The assumption is that not many industries would agree with these plans, then the injection is to inquire industry to learn the importance of implementation energy efficiency for industry in reducing emission

In order to enact policy model that supporting the material efficiency strategies we must do collaboration between stakeholder of industry and NGO to formulate policy model, supervise and inspect the material efficiency policy standard procedure. The assumption is when formulation new policy while reworking on existing policies might contradicting each other, then injection is to encourage discussion from each side to determine the best option.

In order to have an affordable environment impact assessment for small medium enterprise, we must recommend alternative option for environment impact assessment and make stake holder in this term the government to subsidize the cost of environmental assessment for SME. The assumption is if both alternatives is actualized, it could be costly

because of that the injection for this is by implementing Life Cycle Engineering method in environment assessment for SME

In order to have controlled consumer demand and consumption pattern, we must promote the reduce, reuse, and recycle lifestyle campaign for costumer and encourage consumer to use ecofriendly product. The assumption is both these alternatives might not be accepted by most costumers, hence the injection is to educate and give awareness for consumer about Sustainable Consumption.

5.4.   Future Reality Tree

Resolution from Evaporating cloud is then used to construct the Future Reality Tree, the Resolution are : green growth and sustainability development policies fully supported, industry to able shift the dependency toward renewable and green energy, enact policy model that supporting the material efficiency strategies, affordable environment impact assessment for small medium enterprise, and controlled consumer demand and consumption pattern.

As the root cause is already resolved and turned to be Desirable Effects, this desirable effect now become the injection for the Future Reality Tree. This injection will cure down-top structure of Current Reality Tree undesirable effects and turn it into Future Reality Tree.

5.5.   Islamic Perspective and Thinking

In Islamic perspective, there are some references from Al Quran and hadith that explain about the relation human activity and climate change. In Al Quran, some verses describe how human often do corruption toward the earth. One of the verses is from *Ar-Rum* 41:

$$\text{ظَهَرَ ٱلْفَسَادُ فِى ٱلْبَرِّ وَٱلْبَحْرِ بِمَا كَسَبَتْ أَيْدِى ٱلنَّاسِ لِيُذِيقَهُم بَعْضَ ٱلَّذِى عَمِلُوا۟ لَعَلَّهُمْ يَرْجِعُونَ ﴿٤١﴾}$$

"Corruption has appeared throughout the land and sea by (reason of) what the hands of people have earned so He may let them taste part of (the consequence of) what they have done that perhaps they will return (to righteousness)."

From the tafsir of Al Mu'tabar, *Ar-Rum* verse 41 confirms that the corruption on the earth is caused by human activity itself, which is waging war outside the corridors of the Shari'a of Allah. in warfare, humans kill humans who are protected by their rights to live, even destroy all existing natural order.

From the Tafsir of Quraish Shihab, *Ar-Rum* verse 41 as "It has seen fire, drought, corruption, business losses and drowning caused by crimes and human sins. God wants to punish the people of the world with their deeds, that they may repent of their sins"

More comprehend interpretation is come from the tafsir of Ibn Kathir. In his tafsir of surah *Ar-Rum* verse 41 and 42, Ibn Kathir explain, from Ibn `Abbas, `Ikrimah, Ad-Dahhak, As-Suddi and others said: "What is meant by "*Al-Barr*" here is the empty land or wilderness, and by Al-Bahr is towns and cities." According to a report narrated from Ibn `Abbas and `Ikrimah, "*Al-Bahr*" refers to towns and cities which are on the banks of rivers. Others said that what was meant was the usual meaning of the words, i.e., land and sea.

Zayd bin Rafi` said: (Evil has appeared) "The rain is withheld from the land and this is followed by famine, and it is withheld from the sea, adversely affecting the animals which live in it." This was recorded by Ibn Abi Hatim, who said: "Muhammad bin `Abdullah bin Yazid Al-Muqri' told us, from Sufyan from Humayd bin Qays Al-A`raj from Mujahid: (Evil has appeared on land and sea) "Evil on land means the killing of the son of Adam, and evil on the sea means piracy." According to the first opinion, the phrase, (Evil has appeared on

land and sea because of what the hands of men have earned) means the shortfall in the crops and fruits is because of sins. Abu Al-`Aliyah said: "Whoever disobeys Allah in the earth has corrupted it, because the good condition of the earth and the heavens depends on obedience to Allah."

Hence it says in the Hadith which was recorded by Abu Dawud: (Any prescribed punishment which is carried out in the land is better for its people than if it were to rain for forty days.) The reason for that is that if the prescribed punishments are carried out, this will deter the people -- most or many of them -- from violating the prohibitions of Allah. If they give up sin, this will be a cause of blessings in the skies and on the earth. So, when `Isa bin Maryam, peace be upon him, comes down at the end of time, he will judge according to this *Shari`ah* at that time, and will kill the pigs and break the cross and abolish the *Jizyah*. He will accept nothing except Islam or the sword. When Allah destroys the Dajjal and his followers, and *Ya'juj* and *Ma'juj* during his time, it will be said to the earth, bring forth your blessing. Then groups of people will eat from one pomegranate, and will seek shade beneath its skin, and the milk of one pregnant camel will be sufficient for a group of people. This will only be because of the blessings that will result from application of the *Shari`ah* of Muhammad. The more justice is established, the more the blessings and good things will increase.

It was reported in the Sahih: (When the evildoer dies, it is a relief for the people, the land, the trees and the animals.) Imam Ahmad bin Hanbal recorded that Abu Qahdham said: "At the time of Ziyad or Ibn Ziyad, a man found a cloth in which were wrapped grains of wheat which were as big as date stones; on it was written: `This grew at a time when justice prevailed." (that He may make them taste a part of that which they have done,) means, He tries them with the loss of wealth, souls and fruits as a test and as a punishment for what they have done. (in order that they may return.) means, from disobedience. This is like the Ayah, (And We tried them with good and evil in order that they might turn.) (7:168). Then Allah says: (Say: "Travel in the land and see what was the end of those before (you)!") meaning, those who came before you. (Most of them were idolaters) means, so see what happened to them when they rejected the Messengers and were ungrateful for the blessings.

All the tafsirs has similar interpretation of surah Ar-Rum verse 41 and 42, which describe that the corruption occurred in the earth that is caused by human activity and sins. Corruption can be in shape of disaster and misfortune. And this corruption happened as Allah's punishment for human to repent the sins.

In relation with this study and industry, climate change might be the punishment from Allah because of the greediness of industry. The greediness is can be overlooked by how the many industry is still money oriented without considered the industry activity toward the earth. Industry extract natural resource excessively, and not doing reclamation after the extraction.

In order to control industry from doing more corruption to the earth, action is needed to take. As proposed in Future Reality Tree, industry could start limiting the usage of fossil fuel and start using renewable energy, also industry need to balance the demand from consumer and the resource they must extract. For the purpose of controlling the consumer demand, industry could work together with government to educate people, especially their target consumer, to change consumer consumption behavior by introducing and give awareness about sustainable consumption.

5.6. Lack of Research

 This research only discusses about the way for industry to reduce its emission contribution and be able to achieve SDG 13 targets. There are some points that not discussed or still need further research to be expanded, which is: In applying Evaporating Clouds, this research still relays on the assumption and use logic and reasoning to determine which alternative to be chosen. While it is better to use fix criteria or using other tools and methods as decision making