

## Chapter V: Inadequate Environmental Involvement of Korean Churches.

It is not surprising that the rapid growth of Korean churches has been reported in various Christian magazines and journals along with that of the Korean economy. It has attracted attention among Christians worldwide, particularly those who are involved in church growth studies (Ro and Nelson 1995:5).

However, it is clear that the tide began to turn at the end of the 1990s. Even though there are no exact statistics at the moment, it is common information among Koreans that the total membership of the Protestant churches has decreased more than 10% from that time on. They are also confronted with the new problem of environmental impact as a result of the energy and mineral development to meet the demands of the Korean rush for economic growth as mentioned in 4.3 to 4.5.

They have no honorable position for environmental degradation in Korea, because they have concentrated on church growth but not so much on social movements, keeping pace with the rapid economic growth. They have generally executed their pastoral duties with indifference regarding taking a position on political and economic programs and structures. They have become encapsulated communities separated from their societies as a result of the dichotomous theological influence from Western Christendom that the church is good and the world is evil.

Most of them are unconcerned about the serious environmental deterioration as a result of energy and mineral development projects. Their church-centered ministries do not exhibit the necessary social responsibility to actively participate in environmental movements. They are rather of the opinion that the environmental issues are only the responsibility of government and specialized non-government organizations, not for Christian churches.

In this chapter, I will briefly analyse the Korean religious context, the direct contributing factors to the rapid growth of Korean churches, the leadership pathologies in Korean churches and the environmental activities of the secular organizations (NGOs) to understand the Korean Christian context concerning environmental movements, and then look over the environmental-involving situation of Korean churches to recognize their unconcerned attitudes to the environment in light of the serious environmental impact from mining activities and nuclear plant operations as

mentioned in 4.7 to 4.9.

## 5.1. Korean Religious Context.

With a history stretching over 5000 years, Korea boasts a rich and distinct culture that is steeped in confucianism and Buddhism. Consequently, unlike some cultures where a single religion is dominant in western countries, the Korean culture includes a wide variety of religious elements that have shaped the people's ways of thinking and behaviour. Historically, Koreans lived under the influences of shamanism, Buddhism, Taoism and Confucianism. In modern times, Christianity has made strong inroads into the country, bringing forth yet another important factor that has changed the spiritual landscape of the people (KOCIS 2004:424-441).

Table 5.1: Market Share of Korean Religions in 2001. Unit: %

Religion	Buddhist	Protestant	Catholic	Indigenous Religion	Confucian	Muslim	Others	Non-Religious
Market Share(%)	23.89	23.55	8.12	8.00	0.47	0.07	0.88	35.02

Source: P. Johnstone and J. Mandryk, Operation World: 21st Century Edition, 2001 P. 218.

### 5.1.1. Shamanism.

The different religions of Korea reflect dissimilar religious thought. Shamanism is a primitive religion that does not have a systematic structure but permeates into the daily lives of Korean people through folklore and customs. Shamanism gradually gave way to Confucianism or Buddhism as a tool for governing the people, but its influence lingered on and has remained an underlying religion of the Korean people as well as a vital aspect of their culture.

The shaman, Mudang in Korean, is an intermediary who can link the living with the spiritual world where the dead reside. The shaman is considered capable of averting bad luck, curing sickness, assuring a propitious passage from this world to the next and solving conflicts and tensions that might exist between the living and the dead.

### 5.1.2. Buddhism.

Buddhism is a highly disciplined philosophical religion which emphasizes personal salvation through rebirth in an endless cycle of reincarnation. Since Buddhism was introduced into Korea from China in 372, many temples and monasteries were constructed and the number of believers grew steadily under royal patronage.

The past few decades have seen Buddhism undergo a sort of renaissance, involving efforts to adapt to the changes of modern society. While the majority of monks remain in mountainous areas, absorbed in self-discipline and meditation, some come down to the cities and universities to propagandize and research their religion. Meditation-oriented Korean Buddhism has been growing noticeably with many foreigners following in the footsteps of revered Korean monks through training at several temples.

#### 5.1.3. Confucianism.

Confucianism is a system of ethical precepts such as benevolent love, righteousness, decorum and wise leadership to inspire and preserve the good management of family and society, which was founded by Confucius in the 6th century B.C.

The Chosun Dynasty accepted Confucianism as the official ideology and developed a Confucian system of education, ceremony and civil administration. When Korea was invaded by many other countries including Japan in the late 19th century, the Confucianists raised "righteous armies" to fight against the aggressors. They are also making efforts to reform Confucianism to adapt it to the changing conditions of the times. Today, Confucian ancestral worship is still prevalent and filial piety is highly revered as a virtue of Korean society.

#### 5.1.4. The Catholic Church.

The tide of Christian mission activity reached Korea in the 17th century, when copies of the Catholic missionary Matteo Ricci's works in Chinese were brought from Beijing by the annual tributary mission to the Chinese Emperor. Along with religious doctrine, these books included some aspects of Western learning such as the solar calendar and other matters that

attracted the attention of Chosun scholars of the Practical Learning School.

By the 18th century, there were several converts among these scholars and their families. No priests entered Korea until 1794 when a Chinese priest, Chu Mun-Mo, visited Korea. The number of converts continued to increase, although the propagation of foreign religion on Korean soil was still technically against the law and there were sporadic persecutions.

By the year 1865, a dozen priests presided over a community of some 23,000 believers. With the coming power of Daewongun, a xenophobic prince regent in 1863, persecution began in earnest and continued until 1873. 79 Koreans were martyred during the persecutions of the Chosun Dynasty and were beatified at Saint Peter's Basilica in Rome in 1925, and an additional 24 were honoured in the same way in 1968.

During and after the Korean War from 1950 to 1953, the number of Catholic organizations and missionaries increased. The Korean Catholic Church grew quickly and its hierarchy was established in 1962. The Roman Catholic Church in Korea celebrated its bicentennial with a visit to Seoul by Pope John Paul II and the canonization of 93 Korean and 10 French missionary martyrs in 1984. It was the first time that a canonization ceremony was held outside the Vatican. This gave Korea the fourth largest number of Catholic saints in the world, although quantitative growth has been slow for the Catholic church in Korea.

#### 5.1.5. The Protestant Churches.

We cannot help accepting that God has been deeply interested in the missionary history of Koreans and the growth of their churches since the Sorae Church and Saemoonan Church were planted by Sang-Ryun Suh and H. G. Underwood in 1885 and 1887 respectively. In the 1970s and 1980s, the Korean church had grown at a remarkable pace from 30,000 churches in 1984 to over 50,000 with about 14,839,000 members and more than 60,000 pastors in 2000. There are 11 mega-congregations, the largest Pentecostal, Presbyterian and Methodist congregations in the world and the second largest Baptist (Hong 2001:19-29).

Korean missionaries have rapidly increased from 93 persons serving in other lands in 1979 to 10,422 persons sent by over 160 Korean and International Missionary Agencies in 2002. That is the second highest number of overseas missionaries after U.S.A in the world. There are more

than 20 protestant missionary colleges and postgraduate seminaries, including several of the world's largest theological colleges. Over the last century, Korea has recorded the most miraculous growth of Christians and churches ever experienced in any part of the world.

The Seoul Young Men's Christian Association (YMCA) was founded in 1903 along with other such Christian organizations. The organizations carried out social and political programmes actively encouraging the establishment of similar groupings of young Koreans. These groups pursued not only political and educational causes but also awakened social consciousness against superstitious practices and bad habits, while promoting the equality of men and women, eliminating the concubine system, and observing the ceremonial simplification (Park 2000:5-38).

The growing vitality of Korean churches saw the inauguration of large-scale conferences for Bible study in 1905. Four years later "A Million Souls for Christ" campaign was kicked off to encourage massive conversions to the Christian faith. The Global Consultation on World Evangelism (GCOWE) was held in Seoul in 1995 and 2000.

However, as already mentioned, the tide began to turn at the end of the 1900s. In particular, the leadership crisis is regarded as one of the biggest challenges for the churches in Korea.

#### 5.1.6. Western Missionary Activities in Korea.

While Catholic missionaries performed only evangelical work, Protestant missionaries simultaneously carried out evangelical and social programmes such as medical, educational and social welfare projects. As a result of such versatility, the Korean Government favoured Protestant missionaries over Catholic ones.

Protestant missionaries were permitted by the Government to set up the Kwanhae hospital in April 1885 and to establish Baejae college in 1886 and Iwha women's college in 1888. By 1910, they had set up 37 colleges and high schools and several orphanages, which inspired a number of Koreans to become Christians.

It was by working together, by ecumenical cooperation, that Western missionaries succeeded in their task in Korea. They carried out their missionary projects together, which included publishing "the Korean Mission Field" in 1905, "The Christian Newspapers" in 1906 and "the Korean

Table 5.2: The Members and Affiliates of Korean Churches in 2001.

Churches	Congregations	Members	Affiliates
Presbyterian(Hapdong)	6,494	918,306	2,295,766
Presbyterian(Tonghap)	6,270	1,103,983	2,307,966
Korean Methodist	4,752	656,486	1,365,490
Korea Assembly of God	1,178	513,953	1,130,696
Presbyterian(Hapdong Bosu)	3,172	630,000	1,097,000
Korean Baptist Convert	2,245	270,000	650,000
Presby.(Hapdong Jeongtong)	1,695	183,482	610,818
Jesus Korean Holiness	953	193,373	505,946
Korea Evangelical	2,041	400,000	501,793
Presbyterian(Koshin)	1,416	176,832	442,080
Unification(Moonies)	407	132,132	440,000
Presbyterian(Yejang)	425	185,000	345,325
Presbyterian(Kijang)	1,448	141,750	321,773
Jesus Assembly of God	270	120,836	302,090
Seventh-day Adventist	628	147,080	190,000
Presbyterian(Yejang Hapbo)	293	109,700	187,500
Presbyterian(Hohun)	976	145,000	182,000
Jehovah's Witnesses	1,502	87,179	130,000
Latter-day Saints(Morm)	150	47,170	75,000
Episcopal	88	15,000	75,000
Jesus Korean Methodist	330	26,224	75,000
Gospel Baptist Convert	155	37,500	75,000
Full Gosp. Intl. Gen. Mtg.	95	30,000	75,000
Church of the Nazarene	210	40,000	55,000
Church of God(Clev)	117	20,601	36,000
Korea Evangelical	35	4,505	10,000
Catholic	980	2,125,665	3,804,940
Other denominations	17,496	2,896,000	5,429,000
Doubly affiliated		-4,000,000	-8,291,000

Source: P. Johnstone and J. Mandryk, Operation World: 21st Century Edition, 2001 P. 218.

Hymnal" in 1908. Together they established Soongsil University in 1906 and Yeunshe University in 1916.

The characteristics of the Western missionary activity in Korea can be summarized as follow:

- 1) The foundation of missionary activity in Korea had already been laid in China, Japan and America.
- 2) It was by cooperating with one another that Western missionaries could succeed in their task in Korea.
- 3) Protestant missionary work was carried out by indirect methods such as medical, educational and social welfare projects.
- 4) The missionary work started with the translation of the Bible in

Korean that was undertaken jointly by various Korean Christian leaders.

5) Koreans took the initiative for the Korean evangelical movement to plant the seeds of faith in Jesus Christ and to plant their churches in Korea.

6) Korean churches were able to stand on their own feet by adhering to the three-self principle of self-support, self-government and self-propagation (Clark 1973:42).

## 5.2. Contributing Factors to the Rapid Growth of Korean Churches.

According to the Report on Empirical Study of Korean Church Growth and Faith, Korean church growth depends on the Korean church itself more than its environment: Social factors accounting for 9.0%, personal factors 25.7%, and the church factor 64.6% (Kim 1982: 32-37). In this paragraph, I would like to look at the direct contributing factors for Korean church growth to figure out their main activities, almost all for their churches themselves, not for social development (environmental movements) (Kim 1997:156-159).

### 5.2.1. Prayer Movement.

One of the main factors contributing to Korean church growth is prayer. If anyone asks "What is the key factor for Korean church growth?" most of Korean Christians clearly answer "It's our continual fervent prayer." Korean Christians pray fervently for themselves, churches and country. Pastor, Cho, Y. G. said in a seminar on church growth (Cho 1982:45-46):

If you want your churches to grow, you must pray fervently. The work of the Lord depends upon prayer. How can you have a powerful ministry with a weak human power? So, I have prayed for about two hours in every morning prayer meeting and before preaching on Wednesday and Sunday.

Korean traditional religions and her history of suffering made Korean Christians into prayerful people. Whenever they suffered from the aggression of foreign countries, they prayed with tears day and night, and got the boldness to overcome their hardships through their prayers. They have earnestly been seeking the guidance of the Holy Spirit and the

blessing of God through their prayers. The basic power of church growth in Korea is that Korean churches are founded on prayer. There are several kinds of prayer meetings in Korean Churches:

#### 5.2.1.1. Early Morning Prayer Meeting.

The early morning prayer meeting was initiated by pastor, Kil, Seon-Ju in Pyongyang and gave Korean Churches cause for the Great Revival Movement in 1907 (Min 1982:122-124). When Korean churches were coercively closed by the police of Japan during her colonial period, a lot of Korean Christians prayed early in the morning in front of the closed gates of their churches. Korean Christians have been looking for the origin of the morning prayer meeting in the practical life of Jesus Christ (Mk. 1:35) as the basic power of church growth.

#### 5.2.1.2. Wednesday Evening Prayer Meeting.

All Korean churches have the evening prayer meetings on Wednesday. After the prayer meeting, they make it a rule to study the Bible for an hour. They are sure that the prayer and Bible study make their faith healthy and contribute to rapid church growth in Korea.

#### 5.2.1.3. Friday All-night Prayer Meeting.

Most Korean churches have all-night prayer meetings on Friday. They refresh their faith through remembering the tribulations of Jesus Christ for themselves on the cross. Some Christians are used to fasting for one or two meals on Friday.

#### 5.2.1.4. Mountain Prayer House.

A lot of Korean churches have prayer houses in the mountains for prayer and training of their church members. Some prayer houses are run privately for all Christians. Many Korean Christians go to the mountain prayer houses to pray for three to seven days. For instance, about 3,000 Christians pray every day and 10,000 on weekends in Osanri fasting mountain prayer house, belonging to Yoido Full Gospel Church.



## 5.2.2. Evangelistic Movement.

Korean churches lay emphasis on evangelism as the best way to accomplish the will of God, and Korean Christians also think that evangelism is their most important task. They have spread the gospel to save the lost through several evangelical methods:

### 5.2.2.1. Street Evangelism.

Korean Christians have gone out into the streets and market places to preach the gospel and distribute tracts, following the street evangelism of Jesus Christ, since the beginning of Korean mission. It was a famous pastor Choi, Bong-Syuk who cried out "Jesus' Kingdom" on the street of Pyongyang city at five o'clock every morning. His evangelical voice that spread from the street early in the morning became a candle to those who didn't know their spiritual way in the hard times of Japanese colonial rule. Eventually, he was one of the martyrs under the persecution of Japan.

### 5.2.2.2. Visiting Evangelism.

When a new church starts in Korea, the pastor, evangelist and church leaders visit house to house, talk with the family and preach the gospel. Many people have a good feeling through such visiting evangelism, come to the churches and convert into Christians. Many churches use this evangelical method effectively in the urban areas mainly consisting of apartments, while they visit the Sarang room<sup>1)</sup>, the Korean guest room, to preach the gospel to the many people gathering from the villages in the rural areas.

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1) It is a small room with a heated floor and no furniture, used by the master of the house to receive guests. Sometimes Western missionaries spent two or three hours a day in the Sarang room talking with visitors. Many Korean pastors used the room to preach the gospel to the people of the villages.

#### 5.2.2.3. Special Evangelism.

The military evangelism is a good method to spread the gospel to 600 thousand young men and women in the military services. There are chaplain corps in the army, navy and air force to serve military evangelism, organized by the order of the first president, Dr. Rhee in 1951. After being discharged from their military services, most of the young converts from the services have become members of their native churches.

School evangelism has also significantly contributed to the rapid church growth. There are several groups for school evangelism such as Campus Crusade for Christ (CCC), Inter-Varsity Christian Fellowship (IVF) and Youth for Christ (YFC). In particular, the movement of the CCC that started in 1958 has affected all Korean churches considerably.

There are various kinds of Christian groups in most Korean organizations such as the government, banks, hospitals and so forth, and Korean pastors work in many fields, having various kinds of positions such as hospital pastor, prison pastor, police pastor, school pastor and so on. The companies and factories run by Christians have regular worship services once a month and small groups for Bible study. These movements have provided good opportunities to evangelise friends and colleagues.

#### 5.2.3. Revival Movement.

The great revival movement that occurred in Wonsan city in 1907 spread over the whole nation. A great number of people experienced the work of the Holy Spirit and repented of their sins sincerely as a result of the movement. From the starting point in 1907 Korean churches began to accelerate their growth.

There were two heroes, pastor Kil, Seon-Ju and Kim, Ik-Du in the Korean revival movement. Pastor Kil led more than 7,000 people to conversion and 3,000 to baptism in the revival conference (Kim 1968:74-75). When pastor Kim led the revival conference in Daegu city in 1920, 880 people were converted and a paralytic person was healed and leapt up, through his prayer.

The mass revival conferences were held to evangelize the whole nation. In August 1963, one was held with 10 thousand people under the slogan of "for 50 Million Souls for Christ" at Chan-Chun Gymnasium. From it on, the

mass conferences were on a regular basis held with the concerted efforts to make the slogan a reality, such as the Billy Graham Revival Conference attended by 4.43 million persons in 1973, the Revival Conference of "Explo 74" with 6.55 million persons by Campus Crusade for Christ (CCC) in 1974, and the National Revival Conference for Evangelism with 1.29 million in 1977 (Ju 1982:67).

#### 5.2.4. Bible Study.

One of the important growth factors is the diligent study of the Bible by Koreans, because they are sure that the Scripture is the bread of life (Shearer 1966:196-197). Korean Sunday schools have played an important role in evangelism for children through Bible study, while the small group Bible study for adults meets outside the churches. Women's groups usually gather in the daytime, while men's groups in the night at the home of the member. The seasonal Bible study is held for church leaders for one or two months in summer or winter. Korean Christian faith is strongly built through earnestly studying the Bible and their lovely fellowship is made through the study groups (Wagner 1979:107).

#### 5.2.5. Passion of Pastor.

Korean pastors work hard every day. They think that God endows them with their total life jobs for the glory of God. They work as if they were shepherds and laymen were sheep. So, they work with pleasure under difficult conditions. They must get up early for morning prayer meetings and work until midnight to visit new members and lead many Bible classes. They have regular visiting events at the homes of the church members to exhort them and pray for their family and enterprises in spring and fall. They have good fellowship with each other through regular visits.

They have to prepare several messages for the morning prayer meeting, Sunday morning and evening services, the Wednesday evening service and the Friday all-night prayer meeting every week. Their messages are very evangelical with the emphasis on salvation of sin, victory from sufferings, blessings of earth and heaven, freedom from sin and hope for the second coming of Jesus Christ.

They don't think that the message without Jesus Christ and His Kingdom

is a sermon. According to Empirical Study of Korean Church Growth and Faith, the forgiveness of sin accounted for 34.2% of the total messages, the hope of future life 21.1%, and the stewardship of the church 15.6%, but social development only for 3.3% (Kim 1982: 175-178).

#### 5.2.6. Dedication of Laity.

Korean churches has already practised laity participation in church ministry from the first period of mission in Korea on account of Nevius' Policies (Clark 1973:42). Lay people have changed into dedicated leaders without any rewards through disciple training and seasonal Bible study. The church leaders are elected by the church members as elders and deacons who are ordained for their whole life. Additionally, the pastors appoints temporal deacons with a one year service term to participate in their church ministry.

### 5.3. Leadership Pathologies in Korean Churches.

Korean churches enjoyed the rapid growth trend and attracted attention among Christians worldwide. In the course of the growth for the last several decades, some leadership pathologies have unfortunately been identified namely, church-centered, secularized, and authoritarian leadership etc. They are nowadays confirmed as primary factors preventing Korean Protestant churches in participating in social development (environmental movements). However, most of the churches' endeavors have ironically concentrated on developing leadership skills, programs and methodology to experience numerical growth again (Kang 2004:250-268).

#### 5.3.1. Secularized Leadership.

The secularized leadership in Korean churches can be understood as leading God's people and performing God's mission with secular values. Behind their apparent promotion of God's glory, secular motifs were involved. These motifs could be described in various ways such as successionism (success-orientation), materialism, megaism and numeralism.

In 1989, Ministry & Theology asked journalists what they thought Korean pastors were most interested in. They answered as portrayed in the

following table 5.3.

Table 5.3: Matters of Most Concern for Korean Pastors.

Concern Matters	Quantitative Growth	Spiritual Growth	Construction of Church Building	Charity	Social Participation
Concerning Rate(%)	75.5	67.2	62.6	43.7	30.4

Source: Gil-Soo Kang and J. Hendriks, "Leadership Pathologies in the Korea Church," *Missionalia* Vol. 32 No2, August 2004, PP251-268.

In 1999, ten years after surveying an enquete from Korean journalists, Ministry & Theology put the same question to 1,000 pastoral candidates, Shockingly, the opinion of the candidates were more critical than those of outsiders as shown in the following table 5.4.

Table 5.4: Matters of Most Concern for Korean Pastors.

Concern Matters	Quantitative Growth	Construction of Church Building	Spiritual Growth	Evangelizing	Charity	Social Participation/Reformation	Others & No Answer
Concerning Rate(%)	63.1	13.0	11.4	9.2	1.2	0.8	1.3

Source: Kang, 2004:251-268.

These tables show that not only do outsiders critically point out that Korean church leadership has been secularized by being too focused on numerical growth and the construction of huge buildings, but pastoral candidates are even more critical of secularized leadership in the Korean churches.

The success-oriented, competitive and secularized leadership obsessed with numerical growth has caused disappointment in church members and has been an obstacle to outsiders. Additionally, in response to the query regarding the most serious factors that Korean churches should deal with in the "Report on Research into Attitudes of Pastors in Seoul," the respondents listed: quality of pastors, materialism, denominationalism, secular blessing, and quality of lay people (Lee 193:379). So, it can be said that many pastors compromise what they want to do (the ideal) with what they cannot help doing (the reality).

### 5.3.2. Church-centered Leadership.

The church is God's vehicle through which He reaches out to the world to establish His Kingdom. However, the church in the Western Christendom has tried to incarcerate the Kingdom of God in the church by means of the a dichotomous theology that the church is good and the world is evil.

This dichotomy has led to the separation of evangelism and social action, public and private truth, values and facts, faith and reason. Accepting this view of reality, the church has accepted its banishment to the realm of the personal, private and interior, leaving the public and exterior world to the dehumanizing impact of modernity (Myers 1993:21-46).

However, the Korean church has been so influenced by this dichotomous thought that it has become an encapsulated community isolated from its society. This church-centered leadership has brought about either the loss of public confidence or an indifferent and critical attitude of society towards Protestantism and has failed to promote the social responsibility of the church.

In Korea, the social services can mainly be divided into two areas such as charity and structural service. The former conveys the individual or collective activity of charity work in schools, social care, medical aid, relief work. The latter denotes the input to solve society's fundamental problems by reforming social structures (Ro and Nelson 1995:18), which has exclusively been the ministry of the liberal group. The conservative groups, comprising a majority in Korean churches, have deliberately neglected the latter field.

Even though the Korean church has participated in various forms of social service from its beginning, this field has been treated as a secondary ministry so that its annual budget allocates only a small portion (4%) to it compared with evangelism (53%) and worship (33.8%) (Lee 1993:378). As a result, the Korean church has lost much of its credibility in the Korean society.

### 5.3.3. Authoritarian Leadership.

Authoritarianism is another pathological issue in the Korean church relating to a pastor-centered and hierarchical system in the church administration, androcentric leadership in the church ministry and the like. In 1999, Ministry & Theology surveyed the question on what causes church members to experience hurt from their pastors (Lim 1999:83). The result is

shown in the table 5.5.

Table 5.5: Why Church Member Experience Hurt from their Pastors.

Causes	Losing Credibility	Authoritarian Attitude	Money Problem	Stern Language	Sexual Problem	Political Problem	Others
Causing Rate(%)	42.6	23.8	8.2	6.9	5.7	3.2	4.7

Source: Kang 2004:251-268.

The pastors who have shown a discordance (discrepancy) between word and action have lost their credibility in the eyes of their church members. They tend to control the lay people by their positional and functional powers (authoritarianism), instead of pastoral authority based on legitimacy, spirituality and character in order to maintain their leadership. The stern language of pastors is akin to authoritarianism. Korean Christians should ask themselves where and why these negative images originated and why they are so dominating in the Korean church.

Secularized leadership in Korean churches can be defined as pastors leading God's people and performing God's mission with secular values. Church-centered leadership has brought about either the loss of public confidence or an indifferent and critical attitude of society towards Protestantism and has failed to enhance the social responsibility of the church.

Authoritarian pastors have shown a discordance (discrepancy) between word and action and have lost their credibility in the eyes of their church members. They tend to control lay people by their positional and functional powers (authoritarianism), instead of pastoral authority based on legitimacy, spirituality and character in order to maintain their leadership.

#### 5.4. Environmental Activities of Korean Secular Organizations (NGOs).

In order to figure out the trends of environmental movements in Korea, it is inevitable to understand the serious political situation under the military government. Because the environmental movement was started together with the democratic movement against the Korean military government. In this paragraph, I would, therefore, look at the environmental activities of Korean secular organizations (NGOs) prior to analyzing the environmental movements of Korean churches.

The Anti-pollution Act and Environment protection Act were enacted in 1963 and 1977 respectively. But the former law has not been enforced for a long period of time and the latter law has not been strictly enforced. Besides, the general public were not allowed to participate in the environment-related decision making under the military government. Nor were they allowed to protest against the environmental policies of the government. The main concern of the government was much less the environment than economic growth itself. The extremely low budget for environment (0.24% of the national budget as of 1993) is an obvious sign of the meager efforts of the government in protecting the environment (Kim 1998:44-65).

Under these circumstances, the roles of the non-government organizations (NGOs) have been very important. The roles of NGOs have been highly evaluated, especially in urging the government to be more seriously concerned about the environment and thus to more strictly regulate environment-related crimes. The environmental movements were started as a part of the democratic movements in 1970s and 1980s, quite different from those in other countries freely allowing various kinds of social movements (Kim and Jang 2007:34-39).

Therefore, there is a trend to draw a line between the environmental movements under and after a military government based on the Kwangju Democratic Movement (KDM) broken out in June 1987. Because the KDM became the turning point for changing from the military government to a civil government and allow the environmental movement freedom by virtue of political openings under the civil government.

#### 5.4.1. Environmental Movement under the Military Government.

Korean environmental movements were seriously started in the 1980s under the military government. The economic development projects under the national economic plan resulted in serious pollution so that the civil movements were initiated in spite of the harsh oppression of the government. Even though the movements were peaceful ones, concerned only with environment damage and pollution, the government regarded them as anti-government movements and suppressed them forcefully.

The Korea Institute of Environmental Pollutions (KIEP) was established in 1982 to cope with the serious pollution affected by the heavy and chemical



industries supported by the national economic development plans of the military government. The KIEP was a symbolic group formed to struggle against environmental pollution under the military government.

The Institute was reorganized into the Korea Movement Association for Environmental Damages Banishment (KMAPB) through merging with the Volunteers Movement Association and the Youth Movement Association against Environmental Damages set up by the homemakers and the young people in 1986 and 1987 respectively. The KMAPB had played a vital role in spreading out the environmental movements all over the nation.

The environmental movements in this period were regional and organized sporadic activities against environmental damages and serious industrial pollution as a result of the rapid economic growth policies of the military government in 1960s and 1970s. These remarkable movements resulted in the survival strikes of the residents living in the vicinity of nuclear power plants and compact industrial complexes unilaterally pursued by the government, keeping pace with the democratic movements against the military government.

#### 5.4.2. Environmental Movement after the Military Government.

Korean economic growth has made the people pay more attention to aspects of life quality, which is mostly dependent upon the quality of the surrounding environment. By virtue of the political openings under the civil government after the KDM in 1987, the environmental movements have grown as rapid as environmental destruction and have actively engaged in environmental recovery and protection. The 1992 Rio Declaration marked a turning point for the Korean environmental movements (Park<sup>(b)</sup>, 2007: 122-123).

The environmental movements have progressed into the resistant activities against the business styles of private companies as well as government policies, through the disclosure of resources abuse, wastes discharge and environmental destruction, and the civic campaign to boycott the products of such behaving companies. The movements were involved in resource- recycling, energy-saving, waste-reducing and alternative policy proposals by means of various methods such as campaigns, seminars, workshops, lectures, public hearings, demonstrations and strikes.

So, Korean companies should pay attention to the social movements

concerned with environmental protection and the change from their old attitudes. They have recently declared business policies for sustainable development in sympathy with their environmental movements, even though those are superficial commercial gestures in order to do their business smoothly. When the government is planning to carry out any great national projects, it cannot avoid some discussion with the environmental organizations.

Some remarkable initiatives were the countermeasure pressing action on the phenol accident in the Nakdong river in 1991, the activities against the nuclear power plants, the fierce anti-action against the nuclear waste place establishment at Wido without discussing it with the residents living in the vicinity of the islands in 2002, the countermeasure action for the polluted products affected by the closed mines in 2006, and the oil spill disasters in the South and West coasts in 1995 and 2007 and the special treatments for health damages from the asbestos mining areas in 2008 and so on.

### **5.5. Environmental Movements of Korean Churches.**

According to the serious caution concerning environmental degradation as the result of the rapid economic growth for the last five decades, Korean churches have sporadically participated in coping with environmental pollution from the 1980s together with secular organizations. But they have not affected public opinion regarding environmental issues very much. Because they did not have Christian practical guidelines in detail different with the directions of the secular organizations (Park 2007:120-126).

Korean churches also started the environmental movements, keeping pace with the Korean democratic movements. The Catholic churches became actively involved in the democratic movements in close cooperation with social organizations in the 1980s, while the Protestant churches mainly initiated the environmental movements as a part of their missionary policy in the 1990s.

After the financial crisis experienced in 1997, environmental issues have gradually been replaced by issues of job creation and economic development. It seems to give a strong persuasion to Korean Churches to strengthen the individual competition for their members to get jobs. Most Korean churches used to sit back from the environmental movements (Kim and Jang 2007:21-22).

When it comes to coping with environmental pollution from mining activities and nuclear plants, Korean churches really have no honorable position. Because there is almost nothing that mentions their activities except for voluntarily participating in the oil-removing activities in the west seacoast polluted by the oil spill disaster in December 2007.

They only sporadically participated in the movements against the establishment of nuclear plants, nuclear waste place, dams and waste incineration places pursued by secular environmental organizations. There is only the Environmental Institute for Taebaek Mining Region (EITM) as a Christian environmental group independently concerned with the mining pollution in Taebaek region.

Due to the recent sequence of serious accidents such as the acute anti-action against the establishment of a nuclear waste place by the residents living in the vicinity of Wido island in 2002, the polluted products affected by the closed mines in 2006, the oil spill disasters in the West coasts in 2007, and the health damage from the asbestos mining areas in 2008 etc., Korean churches usually accept that they should be doing something to prevent this environmental pollution from mining activities and nuclear plants that confronted daily life.

However, Korean churches do not know exactly how to cope with such environmental crises as Christians belonging to the Creator Jesus Christ. They are still of the opinion that environmental issues are only for government and specialized non-government agencies, not for the churches. Their environmental programmes are still far from doing systematic approaches to cope with the environmental pollution from mining activities and nuclear plants. They are still in the initial stage of formulating Christian guidelines for sustainable development in accordance with the will of God.

#### 5.5.1. Environmental Movement of Korean Catholic Churches.

Korean Catholic churches actively participated in environmental movements as well as the democratic movements particularly under the military government. They have actively cooperated more with other religious orders such as Buddhism and Confucianism in comparison with the Protestant churches. From 2000 they have held a Religious Environmental Conference every year. However, they have not played a prophetic role for environmental movements in the light of the affective activities in the

980s.

#### 5.5.1.1. Major Initiatives of the Catholic Churches.

The environmental initiatives of the Catholic churches were mainly directed to the government to ask for proper treatment for the serious environmental pollution on account of national economic plans, in cooperation with secular organizations (NGOs). So, the environmental pioneers of the Catholic churches had sometimes even been treated as a social cancer against Korean economic growth by the military government in the 1970s and 1980s.

In the 1970s, the farmlands and streams were seriously polluted owing to the rapid increasing usage of agricultural chemicals and chemical fertilizers. A lot of farmers lost their health through infection from agricultural chemicals. The consumers avoided buying the agricultural products when the chemical remains were detected in products such as vegetables, fruits and peppers and so on.

The Catholic Farmers Association started the Life Movement in the 1980s to protect agricultural and livestock products through diffusing organic agricultural methods and promoting the benefit to farmers by directly trading safe agricultural products between the producers and consumers.

The Message of "The Peace with the Creator God and the Peace with all the Creatures" declared by the Pope, John Paul II in December 1989 became an initiator to promote the interest of the environment. The Seoul Catholic Parish established the Department of Environmental Preservation to develop a systematic approach to environmental problems in 1989.

The Cardinal, Kim emphasized this in the opening speech for the Conference on Justice, Peace, Integrity of Creation (JPIC) held in Seoul in March 1990 (Park 1990:686-706):

The most serious problem in the current world is the destruction of nature (environment), of which the causes should be found in the minds of human beings. The entity of civilization is the human being. If there are somethings wrong in the environment in civilization, we should try to search for the causes from human beings who made the civilization bad. The destruction of nature means the

destruction of mentality and morality of human beings. Because human beings are a part of nature.

The Catholic churches built environmental groups in the parishes of Daegu, Busan, Kwangju, Suwon, Incheon and so forth. They have organized regional environmental initiatives together with non-governmental organizations (NGOs). Except for Incheon Parish, there is no other parish in the Catholic church who has an "environmental priest" exclusively responsible for environmental ministry. The Incheon Parish set up the Catholic Environment Institute in 1992 and has practised a Christian environmental life through "the Abanada Movement for Spare, Exchange, Share and Reuse."

#### 5.5.1.2. The Environmental Organizations of the Catholic Churches.

Korean Catholic churches established a lot of nominated groups concerned with the environment. But there are only a few organizations to continually carry out the environmental initiatives (Kim and Jang 2007:39-91).

##### 5.5.1.2.1. The Commission on Justice and Peace (CJP).

The CJP was established in August 2001 as an environmental sub-commission to diffuse the teaching materials concerning environmental problems and coordinate the environmental movements direction among the environmental groups of the Catholic church. The CJP has concentrated the environmental movements through developing theological teaching materials for the Catholic churches and coordinating the environmental activities of the Catholic churches.

The CJP has published environmental teaching collections based on the statements of the Pope concerning environmental issues. It has also taught the laity to practise a Christian life for environmental protection through some special events such as lectures and exhibitions under the catch-phrase of "Return to the Nature."

##### 5.5.1.2.2. The Hanmaeum (One Mind) Movement Headquarter (HMH).

The HMH was established to perform environmental conservation in the Seoul Parish in January 1991 through practising a frugal daily life and spreading an environmental attitude of mind. The HMH has regularly opened a market to exchange second hand goods and trade directly agricultural products between rural and urban communities.

In order to promote a frugal daily life, it has annually held some workshops and lectures on how to wisely use electricity and water and recycle waste. In order to promote environmental awareness, it has regularly held "Public Hearings for the Conservation and Completion of the Creation Order" in cooperation with other religious orders under the catch-phrase of "Let's collect the religious powers in confrontation with destructed nature beyond religious orders."

#### 5.5.1.2.3. The Catholic Disciplinant Groups (CDG).

The CDG has jointly held environmental workshops with the Catholic churches and other organizations and developed education programs on creation orders for the children. It has insisted that the churches should train special teachers to teach the children to protect the environment by the will of God.

#### 5.5.1.2.4. The Catholic Farmers Association (CFA).

The CFA has spread organic agricultural methods to farmers and has carried out direct product trading between the farmers and consumers in order to supply clean foods and prevent land pollution.

#### 5.5.1.2.5. The Catholic National Environmental Priest Association (CNEPA).

The CNEPA is a group established in September 1991 to cope with public pollution and nature destruction. The CNEPA consists of priests, nuns, disciplinants and laity interested in environmental protection. It asked strongly to set up a sustainable alternative plan for land reclamation by drainage at Saemangum, Jeonbuk Province in May 2001.

#### 5.5.1.2.6. The Catholic National Creation Conservation Association (CNCCA).

Looking back on the environmental initiatives of the Catholic churches during the last two decades, they have realized that there is no movement of their own practicing creation spirituality and ecological spirituality in Christian lives in accordance with the will of God, although it has sporadically been a part of the activities of other environmental organizations.

Awakening to the responsibility for protecting nature as the children of the Creator and confirming the calling of God to solve the current environmental crisis, they established the Catholic National Creation Conservation Association (CNCCA) on the occasion of Environmental Day in 2002.

The CNCCA declared that its founding purpose was to identify environmental initiatives in the Catholic churches which were different from environmental organizations, overcoming the dichotomy separating human beings from nature, settling the churches as communities harmonizing with all creatures, and practicing creation spirituality in their Christian lives.

The CNCCA has carried out environmental initiatives in close cooperation with the Hanmaeum (One Mind) Movement Headquarter (HMH), the Catholic Ecological Meeting for Women (CEMW), the Environment Priest Commission of Seoul Parish, the Catholic Environmental Coalition of Incheon Parish, the Green Peace Coalition of Daegu Parish, the Catholic Environmental Conference of Daejeon Parish, the Rural Revival Movement Headquarter of Busan Parish, the Environmental Center of Suwon Parish, the Justice and Peace Commission of Wonju Parish, the Life and Environment Coalition of Andong Parish, the Environment Priest Commission of Kwangju Parish, the Saemangum's Tideland Life and Peace Coalition of Jeonju Parish and some other groups such as the Disciplinants Coalitions for Men and Women. However, the Masan, Jeju, Eujungbu, Chungju and Chooncheon Parishes do not take part in these activities yet.

The major activities of the CNCCA have been to participate in an anti-nuclear plant movement in August 2002, declare an anti-statement concerning nuclear energy development in October 2002, hold the Religious Environment Conference in March 2003, publish a pamphlet for movement against nuclear plants in August 2003, hold a Workshop for Religious Environmentalists in September 2004, and publish the Journal of Energy of God's Gift from November 2004.

### 5.5.2. Environment Movement of Korean Protestant Churches.

Korean Protestant churches have been divided into more than 100 denominations. However, when we nowadays discuss Korean churches concerned with the environment, we can mainly classify them into two groups of progressive churches and conservative churches. The former has been relatively active, while the latter has almost become silent regarding the environment (Park<sup>(b)</sup> 2007:126-127).

The National Council of Churches in Korea (KNCC)<sup>2)</sup> is a representative association of the Korean progressive churches established in September 1924. The KNCC declared that Korean churches should actively perform environmental initiatives to cope with the serious current environmental degradations, and suggested the environmental missionary policy as their coalitional action plan in the beginning of the 1990s.

The KNCC declared "Our Confession to Life Conservation" in April 1991. The KNCC set up the Environment Commission to carry out ① a survey and research on the environment and the setting-up of countermeasures and implementing plans, ② public relations and education on environmental problems, ③ participation in environmental initiatives, ④ cooperating with environmental organizations, and ⑤ management of the environmental groups. The KNCC has carried out its environmental programs in close cooperation with the Christian Environment Movement Association (CEMA), playing a pivotal role in the environmental initiatives of the Korean Protestant churches.

The Christian Council of Korea (CCK)<sup>3)</sup> is a representative association of the Korean conservative churches set up in 1989, matching the KNCC. The CCK established the Environmental Conservation Commission (ECC) in 1992

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2) The members of the KNCC consist of 8 denominations such as the Korean Salvation Army, Korean Gospel Baptist Churches, Korean Evangelical Churches, Jesus Assembly of God, Korean Episcopal Churches, Korean Presbyterian Churches (Tonghap), Korean Presbyterian Churches (Yejang) and The Greek Orthodox Churches in Korea.

3) The members of the CCK are composed of 63 denominations which are almost all the small denominations in the Korean Presbyterian Churches (Hapdong).



and built up the Christian Environment Watching Group under the ECC to lead the Christian environment movement based on the Christian worldview. The CCK sometimes held seminars on "Korean churches and Environmental Conservation" and published a booklet of Christian Environmental Conservation.

#### 5.5.2.1. Major Initiatives of the Protestant Churches.

##### 5.5.2.1.1. The Environmental Week Movement.

It is the environmental week movement that the KNCC has held as a national ecological event every year in cooperation with the CEMA since the KNCC declared the "Environmental Week" on environmental day in 1992. Most of the Korean churches have joined in the weekly movement which was started for practicing "the Environment Declaration of Korean Churches" announced by the KNCC and the CEMA in 1992.

The major programme of the week movement in 2003 was to protect and save water under the subject of "Love God is Love Water," meeting the World Water Year declared by the United Nations. Korean churches announced their viewpoint concerning the national project of land reclamation by drainage in Saemangum as a representative figure destroying the environment through reversing the will of God.

In response to the World Rice Year declared by the United Nations in 2004, Korean churches carried out the Environmental Week Movement under the catch phrase of "Rice of Life and Holy Table" to supply safe foods, decrease the waste and to express thanks for our lives under the protection of the Creator. In 2005, Korean churches initiated "the Green Church Movement" in environmental week to build a sustainable society by the will of God. The practical programme was the Christian Agenda 21 composed of 10 pledges and 30 guidelines in the fields of Kerygma, Didache, Organization, Koinonia and Diakonia to conserve the creation order of the God (Park<sub>(b)</sub> 2007:128–133).

In 2006, a joint environmental worship service was held at the Francis Hall of the Seoul Episcopal Church during environmental week under the catch phrase of "Let's practice the sharing spirit for the life table movement" which has 5 purposes such as the faith movement to worship God giving our daily bread, the health movement to take care of the body

and mind with safe edible products, the revival movement to restore all creatures, the economic movement to practice honorable poverty, and the sharing movement to give in charity to the poor and suffering neighbours.

#### 5.5.2.1.2. The Ecological Community Movement.

There are some alternative community movements in South Korea to overcome the inhuman and devastated surroundings of the current capitalistic society as a result of industrialization and urbanization. One of them is the ecological community movement, promoting organic agriculture and practising an environment-friendly lifestyle.

There are several outstanding ecological communities known to Koreans such as Hanmaeum Community at Jangsung started in 1990, Green World at Sangju in 1995, Gongsaeongnong Durae Village at Changnyoung in 1995, Jindori Ecological Village at Muju in 1996, Gandhi Ecological Village at Sanchung in 2000, and Durae Village at Hanyang in 2002.

Korean churches have promoted direct trade of safe products between their churches and ecological communities and strengthened the environmental mind through study and observation of ecological communities. Some churches have directly operated their own ecological communities to kindle a sense of awe, wonder, mystery, and humility by directly contacting nature and standing under the stars during staying several days at the community.

#### 5.5.2.2. The Environmental Organizations of the Protestant Churches.

##### 5.5.2.2.1. The Christian Environment Movement Association (CEMA).

It is the CEMA<sup>4)</sup> that has played a pivotal role in the environmental movements in the Korean Protestant churches. The CEMA was reorganized in 1997 from the Environment Institute of Korean Churches established in 1992 to pursue the environmental movements in close cooperation with Korean churches beyond their nominations and Korean environmental organizations (Park<sub>(b)</sub> 2007:151-154).

Environmental activities have mainly been carried out in the three fields of environmental education, church support and environmental initiatives. Education has been given through corresponding programmes, professional

lectures and training courses. The church support has mainly been carried out through keeping environmental week with worship services, sermons, prayers, practices and events such as compositions, drawings and musical festivals concerned with the environment.

The major environmental projects are the prayers for creation order conservation, application of the ten commandments for green Christians and churches, green consuming movement, anti-movement against tideland reclamation, nuclear power plant, great dam construction, gene fabrication and cloning and so on. The CEMA has been implementing these initiatives in cooperation with the seven regional solidarities such as Kwangju, Daegu, Busan, Incheon, Jeonju, Taebaek and Hamyang Christian Environmental Solidarity.

#### 5.5.2.2.2. The Environmental Institute for Taebaek Mining Region (EITM).

The EITM<sup>5)</sup> is a Christian organization concerned about mining pollution, was established in 1994 to cope with the serious pollution from abandoned coal mines closed by the restructuring policy of the government. In particular, the acid drainage from coal mines has polluted the clean water from the mountains so seriously that people could not eat the agricultural products produced in the region of Taebaek. The limestone mines have polluted the clean air so much that all the roofs were covered with mining dust (Park<sub>(b)</sub> 2007:156-160).

The EITM has the potential to recover the creation order of the Creator and practise a Christian life harmonized with nature in accordance with the will of God. The major activities required are to solve the current environmental problems such as acid drainages and air pollutions from the coal and limestone mines, consult the residents in Taebaek region about environmental problems, operate the reporting center for environmental

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4) The CEMA has 5 directors such as pastor M. J. In who is in charge of Galilee Church, and is located at 35-6, 2Ga, Chungpa-Dong, Yongsan-Ku, Seoul (Tel.: 82-2-711-8905/ [www.green Crist.org](http://www.green Crist.org)).

5) The director of the EITM is pastor S. J. Lee who is in charge of Hwangji Central Church, and located at 368-13 Hwangji-Dong, Taebaek city, Kangwon province (Tel.: 82-33-533-7979/ [www.tbgreen.net](http://www.tbgreen.net)).

problems, run the green shop trading of organic products and regional special goods and open the market exchanging second hand goods. Through education, lectures and events, the EITM has encouraged the residents to develop environmental awareness and participate in environmental movements.

#### 5.5.2.2.3. The Incheon Environmental Mission Association (IEMA).

The IEMA was established in 1994 as a trans-denominational mission organization to do missionary work to restore the creation order of the Creator, support environmental activities, survey and research environmental problems, provide environmental education and publish bulletins concerned with environmental activities.

In its initial stage, it had actively performed significant environmental activities such as piety and moderation life movement, green faith movement, green church movement, environment stewardship meetings, lectures and education. However, there has not been any activities of the IEMA from 2004 onwards.

#### 5.5.2.2.4. The Environmental Groups under the General Assemblies of the Protestant Churches.

There are quite a number of environmental groups under the auspices of the General Assemblies of Korean church denominations. There are some environmental departments in the ranks of the member denominations of the KNCC, while there are a few in the denominations of the CCK. But they exist only in name and not in deed. So, they have generally done some initiatives in cooperation with the KNCC and the CEMA from time to time.

##### 5.5.2.2.4.1. The Environment Conservation Commission of Korean Presbyterian Churches (Tonghap).

The Commission was established in 1991 to undertake the piety and moderation movement through practising a simple, thrifty and sound life. It has actively participated in the environmental movements of the CEMA. It has also managed the College of Environment set up in 2003 to create sensitivity for the environment and carry out a nature conservation

movement. Its director is pastor Y. C. Kwon who is in the Saesungnam Presbyterian Church (Tel.: 82-2-741-4350/ [www.pck.or.kr/DeptSocial](http://www.pck.or.kr/DeptSocial)).

5.5.2.2.4.2. The Environment Mission Commission of Korean Methodist Churches.

The Commission was established in 1990 to carry out environmental missionary work. It drew up a list of 60 rules to encourage environmental conservation in 1991 and sent it to all the members of Korean Methodist churches. In 1993, it prepared for the Social Creed adopted in the General Assembly of the Korean Methodist Church. The creed is to develop a theology on the creation order of conservation and apply it in Christian daily life. In 1995, it adopted a resolution on environmental mission work to cope with the current environmental crisis. It has actively participated in the environmental movements in cooperation with the KNCC. Its director is pastor J. H. Kwon who is in charge of Kungjung Methodist Church (Tel.: 82-2-399-4334/ [www.kmcmission.or.kr](http://www.kmcmission.or.kr)).

5.5.2.2.4.3. The Church and Society Commission of Korean Presbyterian Churches (Kijang).

The Commission drew up a list of 92 rules for practicing nature conservation and diffusing it to all Korean churches in 1992 and carried out the life recovery movement in 1993. It published a booklet 'the Crisis and Conservation of Creation World' to discuss the tasks confronting the Korean churches in the environmental crisis in 1999. It has actively participated in the environmental week project in cooperation with the KNCC and the CEMA. Its director is pastor J. M. Kim who is in charge of Eunpyung Presbyterian Church (Tel.: 82-2-3499-7600/ [www.prok.org](http://www.prok.org)).

5.5.2.2.4.4. The Christian Rural Development Institute of Korean Presbyterian Churches (Kijang).

The Institute was established to educate farmers having the mind of the God and foster faith, hope and love for the land through engaging in farming in accordance with the will of God. It does not separate labour from prayer in accordance with Christian tradition that prayer is labour and labour is prayer. Its theological background is the Minjung Shinhak and

Missio Dei theologies which supplied it with the ideological foundation to actively participate in democratic movements in the 1970s and 1980s. Its director is pastor Y. T. Lee and it is located at: 139-1, Limun-Ri, Lisuh-Myun, Wanju-Kun, Jeonbuk Province (Tel.: 82-63-222-9081/ [www.cafe.daum.net/kinongwon](http://www.cafe.daum.net/kinongwon)).

## **5.6. Environmental Movement Infrastructure of Korean Churches.**

In this paragraph the result of a survey that was done twice by the Research Corps for Environmental Culture of Three Korean Religions (RCECTKR) in January and June 2006 to analyze the environmental spirit of the three Korean religions—Catholicism, Protestantism and Buddhism and prepare desirable guidelines and policies to prevent serious environmental degradation will be discussed (Kim and Jang 2007:350-411).

In order to improve the precision and reliance of the survey, the RCECTKR considered the distribution rates of the Korean population and religious statistics when it selected respondents for the survey. It confirmed the standard error range through carrying out some pilot-tests for the survey. The survey analysis was mainly made by the method of Statistical Package for Social Science (SPSS).

### **5.6.1. The Size and Finances of Religious Environmental Organizations.**

The Korean religious environmental organizations have shown quite different trends in their environmental initiatives in comparison with the secular environmental organizations. They have performed their environmental initiatives with low membership fees and modest structures, quite different from the recent trend of secular environmental organizations to increase in size. Of these religious organizations the Protestant churches have received the greatest financial support from the government.

#### **5.6.1.1. The Size of the Religious Environmental Organizations.**

Most of the organizations have small membership numbers. 50.9% of the organizations consist of less than 50 persons. 91.4% of the Protestant organizations have small membership numbers of less than 100 persons. There are only two organizations that have more than 1,000 members,

namely in the Catholic churches, in the Incheon and Suwon parishes. They have a few permanent workers so that 72.4% of them have less than 5 persons to undertake their environmental initiatives. There is only one Buddhist organization having more than 30 members.

#### 5.6.1.2. The Finances of the Religious Environmental Organizations.

Most of their members have not paid their fees regularly so that 71.2% of them have payment rates of less than 50%. The Catholic and Buddhist organizations relatively have higher payment rates than the Protestant ones of which 90% have a rate of less than 50%. The numeral results reflect the dwindling interest in the environmental movement, gradually being replaced issues of job creation and economic development after the financial crisis experienced in 1997 (Kim and Jang 2007:21-22).

So, they have undertaken their environmental initiatives under such poor financial conditions that 46.3% of them have self-support rates of less than 50% as shown in the table 6. The Protestant organizations are relatively poorer than the Catholic and Buddhist ones supported by their religious orders.

Table 5.6: The Self-support Rates of the Religious Environmental Organizations Unit: %

Rate Degrees	Protestant	Catholic	Buddhism	Rates
Less than 30%	25.7	-	11.1	18.5
30-49%	40.0	-	11.1	27.8
50-79%	20.0	20.0	33.4	22.2
80-100%	11.4	70.0	33.3	25.9
More than 100%	2.9	10.0	11.1	5.6
Total	100.0	100.0	100.0	100.0

Source: Kim, J. D. et al., The Ecological Crisis and Religious Culture, Life Seed Pub. Co., Seoul, 2007, p. 360.

#### 5.6.2. Environmental Activities of Religious Environmental Organizations.

Comprehensively speaking, Korean religious organizations are in the initial stage of developing environmental projects so that there is not any performing field having more than 5.0 in the value rating of the SPSS as

shown in table 7. They have, in particular, undertaken very few environmental initiatives to cope with environmental pollution as a result of mining activities and nuclear power plants. Such projects are not even part of a typical survey items to check out their environmental activities.

In spite of being at such an initial stage of their environmental activities, we can comparatively analyze their environmental initiatives based in table 7. The protestant organizations outstandingly performed environmental initiatives in the fields of ecological experiences and education, tours of ecological villages and rural areas, ecological food life, and ecological fine arts, literature, movies and construction compared with the Catholic and Buddhist organizations, while the Catholic organizations carried out environmental activities in the areas of ecological food life, publication of teaching materials for environmental education and practices, ecological experience and education, and establishment of environmental days.

The inactive fields in the case of the Protestant organizations are the establishment of environmental education centers, publication of teaching materials for environmental education and practices, investment to foster ecological experts, and job guarantees for environmental activists, while the slump fields of the Catholic organizations are ecological movies, fine arts and literature, and housing with indirect heating systems.

We can conclude that they have still much to do with regard to environmental initiatives in Korea. In particular, they need to undertake the promotion of environmental projects for the sustainable development of energy and mineral resources.



Table 5.7: The Major Activities of Religious Environmental Organizations.

Contents of Environmental Activities	Performance Degrees			
	Protestant	Catholic	Buddhism	Average
Joint networks with other organizations	3.36	3.50	3.46	3.42
Ecological experiences and education	3.67	3.83	3.67	3.69
Ecological food life	3.53	4.17	4.34	3.96
Consultation & diffusion of environmental technology and experiences.	3.22	2.67	3.11	3.10
Tours of ecological villages & rural areas	3.61	2.50	3.08	3.23
Ecological fine arts	2.97	1.67	2.36	2.52
Ecological literature	2.92	2.00	2.56	2.63
Ecological movies	2.94	1.33	2.25	2.42
Ecological construction	3.37	2.00	2.47	2.78
Housing with indirect heating systems	3.03	2.00	2.46	2.63
Investment to foster ecological experts	2.83	3.00	2.81	2.85
Establishment of environmental education center	2.53	2.17	2.64	2.52
Publication of teaching materials for environmental education and practices	2.89	4.00	2.78	3.00
Sustainability evaluation of ecological community	3.19	2.17	2.92	2.93
Job guarantee for environmental activists	2.78	2.83	2.69	2.75
Financial and working guarantee of environmental organizations	2.81	2.67	2.86	2.81
Establishment of environmental days	3.14	3.33	2.20	2.77
Total	3.09	2.68	2.86	2.93

Source: Kim, J. D. et al., The Ecological Crisis and Religious Culture, Life Seed Pub. Co., Seoul, 2007, p. 402.

## Chapter VI. A New Concept of Sustainable Development of Energy and Mineral Resources in accordance with the Will of God.

In social science, modernization has been approached in terms of the democratization of politics, the industrialization of the economy, the urbanization of socio-ecological structure, and a transition towards individualism. Through such a way of social development, the concept of sustainable development has emerged in relation to the environmental problem that has arisen as a by-product of industrialization during the last 300 years.

After beginning as an agricultural society and then moving into the industrial age, human society is now being transformed into an information society. The agricultural society can be characterized as low level in terms of convenience of life, efficiency of work, and material and cultural affluence, but as high level in terms of the safety and health of society, and of environmental amenity. Such social profiles were reversed in a industrial society. The industrial society is characterized as a society with high convenience, efficiency, and affluence, but as a risky society, especially in terms of environmental amenity.

In explaining the causes of environmental problems, two primary approaches have been offered in social science. One is the ecological explanation, and the other is the political economy explanation. The two approaches have suggested a wide range of causes of natural environmental problems. These causes include population growth, development of science and technology, overconsumption and overproduction of energy and minerals over the optimum capacity, etc.

In addition, many environmental economists maintain that the market failure of environmental resources in capitalism is the main cause of the environmental problem. These causes of the environmental problems are related to the processes of industrialization and/or their results. Thus, environmental problems are an unexpected by-product of industrialization. This would mean that a contradiction lies between the environment and industrialization.

In relation to the emergence of the contradiction, two opposite arguments were made in the 1970s. As is known, they are 'the limits to growth' and 'the continuing growth through technological optimism.' In accordance with

such concerns with the environment, UN organizations have given attention to the environment on an international and global basis since the 1970s. The major examples include 'One World Only,' 'Eco-Development,' 'Sustainable Development,' and 'Our Common Future' etc.

In 1992, the UN Conference on Environment and Development (UNCED) adapted the ideology of 'environmentally sound and sustainable development' as a common world-wide developmental value for the future. But the ideology of sustainable development is a compromise to solve the contradiction between industrialization and the preservation of the environment.

Even if sustainable development is a useful approach to solve the contradiction between industrialization and the preservation of the environment, it is still faced with some dilemmas particularly in relation to consumerism as sustainable industrialization advances. This is the apparently irresolvable tension between people's drive to consume more and more goods and services in order to improve the quality of life, and the environmental degradation threatened by such consumption.

Therefore, I will firstly analyse the concept of sustainable development, looking at two controversial views of a traditional finite world paradigm and market resource allocation paradigm to examine the ideology and practice of economic growth, fundamentally brought out the concept of sustainable development. Secondly, fundamental roots of environmental degradation and biblical proposition for sustainable development will be discussed to criticise for accusing Christianity of causing an environmental crisis and lay the foundations for biblical sustainable development. And then, I would like to introduce a new concept of sustainable development in accordance with the will of God to show a fundamental approach going beyond discussing only the socio-economic forces encouraging population growth, technological development and production activity on account of anthropocentric greedy values.

### **6.1. Controversial Concept of Sustainable Development.**

The concept of sustainable development has a long and mixed history. It has become a common goal or at least an irresistible slogan in public discourses about the meaning and at the on-going environmental impact of human societies in the last two decades.

However, we should note that the concept relates to a specific theory on economy–environment interactions that contains a large amount of debate about an adequate framework accommodating all the different principles of value determination not only of the current generation but also future generations, hopefully maintaining current lifestyles and economic growth.

#### 6.1.1. Origin of Sustainable Development.

"Silent Spring" written by Rachel Carson was published in 1962. The book's release was considered by many to be a turning point in the understanding of the interconnections among environment, economy and social well-being. Since then, many milestones have marked the journey toward sustainable development.

The linkage between environment and development was globally recognized in 1980, when the International Union for the Conservation of Nature (IUCN) published the "World Conservation Strategy" and used the term "sustainable development" (IUCN 2007).

The concept came into general usage following the publication of "Our Common Future," also known as the Brundtland Report. Set up by the United Nations General Assembly, the Brundtland Commission coined what was to become the most often-quoted definition of sustainable development (WCED 1987:43):

Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

It contains within it two key concepts: the concept of needs, in particular the essential needs of the world's poor, to which overriding priority should be given; and the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs.

#### 6.1.2. Scheme of Sustainable Development.

Sustainable development encompasses three general policy areas: economic, environmental and social-cultural (Munasinghe 1993:47-52). In support of this concept, several United Nations texts refer to the "interdependent and mutually reinforcing pillars" of sustainable development as economic development, social development, and environmental protection (UNSD 2005).

The Universal Declaration on Cultural Diversity elaborates further the concept by stating that cultural diversity is as necessary for humankind as biodiversity is for nature (UNESCO 2001). It becomes one of the roots of development understood not simply in terms of economic growth, but also as a means to achieve a more satisfactory intellectual, emotional, moral and spiritual existence. In this vision, cultural diversity is the fourth policy area of sustainable development.

Agenda 21 clearly identified information, integration, and participation as key building blocks to help countries achieve development that recognizes these interdependent pillars. It emphasizes that in sustainable development everyone is a user and provider of information. It stresses the need to change from old sector-centered ways of doing business to new approaches that involve cross-sectoral co-ordination and the integration of environmental and social concerns into all development processes. Furthermore, Agenda 21 emphasizes that broad public participation in decision making is a fundamental prerequisite for achieving sustainable development (UNCED 1992).

Green development is generally differentiated from sustainable development in that green development prioritizes what its proponents consider to be environmental sustainability over economic and cultural considerations. Proponents of sustainable development argue that it provides a context in which to improve overall sustainability where cutting edge green development is unattainable.

For example, a cutting edge treatment plant with extremely high maintenance costs may not be sustainable in regions of the world with less financial resources. An environmentally ideal plant that is shut down due to bankruptcy is obviously less sustainable than one that is maintainable by the indigenous community, even if it is somewhat less effective from an environmental standpoint.

Some research activities start from this definition to argue that the

environment is a combination of nature and culture. The excellent network of "Sustainable Development in a Diverse World" sponsored by the European Union integrates multidisciplinary capacities and interprets cultural diversity as a key element of a new strategy for sustainable development (UNSD 2007).

Still other researchers view environmental and social challenges as opportunities for development action. This is particularly true in the concept of sustainable enterprise that frames these global needs as opportunities for private enterprise to provide innovative and entrepreneurial solutions. This view is now being taught at many business schools including the Center for Sustainable Global Enterprise at Cornell University.

Sustainable development is an ambiguous concept, as a wide array of views fall under its umbrella. The concept has included notions of weak sustainability, strong sustainability and deep ecology. Different conceptions also reveal a strong tension between ecocentrism and anthropocentrism (De Wit 2001:69-82).

### 6.1.3. Systematic Approach to Sustainable Development.

All definitions of sustainable development require that we see the world as a system that connects space and time. When you think of the world as a system over space, we grow to understand that air pollution from China affects air quality in Korea. And when you think of the world as a system over time, we start to realize that the economic policies we endorse today will have an impact on urban poverty when our children are adults.

We also understand that quality of life is a system. It is good to be physically healthy, but what if you are poor and do not have access to education? It's good to have a secure income, but what if the air in your part of the world is unclean? And it is good to have freedom of religious expression, but what if you can not feed your family?

The concept of sustainable development is rooted in this sort of systems we must consider all the variables involved in our thoughts and activities. It helps us understand ourselves and our world. The problems we face are so complex and serious that we can not address them in the same way we created them.

#### 6.1.4. Carrying Capacity of the Earth.

In the public discourse on "sustainable development" and "the carrying capacity of the earth" these concepts turned out to be universally supported but inherently politicized. The resulting controversy generates different advocacy organizations with different objectives, resources, and political influence. Even among scholars, the notion of the "carrying capacity" are contentious like "sustainable development."

Sociologist William Catton is convinced that the earth has a finite carrying capacity, and that we have already exceeded it (1997:175-78). Others have argued that there is no such thing as sustainable development, being a rhetorical and ideological term for those who wish to continue destructive growth.

Lester Brown and Donella Meadows believe that we may have already exceeded the earth's carrying capacity, but continue to hedge their bets (Brown 1996; Meadows 1992). Economist Julian Simon has for decades been a tireless advocate of the idea that there is no finite carrying capacity, and that development and growth in material consumption should be vigorously promoted to proceed as it has for the last 50 years (1981).

#### 6.1.5. Sustainable Development Timeline.

During the last twenty years, different organizations have tried to measure and monitor the proximity to what they consider sustainability by implementing what has been called sustainability metric and indices. The UNDSO lists the areas coming within the scope of sustainable development ([www.menominee/sdi/whatis.htm](http://www.menominee/sdi/whatis.htm)).

"The Conference on Twenty Years after Brundtland" was held to reflect on the past twenty years of sustainable development since the publication of the Brundtland report in 1987 at Ottawa, Canada in October 2007. Some of the key events have been captured through the "Sustainable Development Timeline" published from 1998 by the International Institute for Sustainable Development (IISD).

#### 6.1.6. Criticism on Sustainable Development.

Many environmentalists have criticized some interpretations of the term "sustainable development" as an oxymoron, claiming that economic policies based on concepts of growth and continued depletion of resources cannot be sustainable, since that term implies that resources remain constant. Recently, the term "developing sustainability" has been used.

Another criticism of the term and its application is that it hurts the developing world. While current first world countries polluted in large quantities during their development, the same countries pressure third world countries to stop polluting, which impedes growth. Many see such policies as hypocritical. Other criticisms of the term include the suggestion that its implementation would mean a reversion to pre-modern lifestyles.

Others have criticized the overuse of the term. They argue that the word "sustainable" has been used in too many situations today, and that "ecological sustainability" is one of those terms that confuse a lot of people. We can hear about sustainable development, sustainable growth, sustainable economies, sustainable societies, sustainable agriculture. Everything is sustainable.

#### 6.2. Competitive Views on Social and Environmental Future.

There are two controversial views on the social and environmental future, which have been around in Western intellectual and political circles since the 1940s. Those are a so-called traditional finite world paradigm and a market resource allocation paradigm. Both have sophisticated intellectual articulation, and both have contemporary defenders to contend for legitimacy and shape policy.

The former is supported by most ecologists, physical scientists and demographers, but the latter is strongly supported by most neoclassical economists, business and industry groups, particularly representing the energy and extractive industries, and the conservative members of the U.S. House of Representatives.

The former view profligates growth as a prelude to disaster, and sees technological innovations as allowing rich nations to make only Faustian bargains.<sup>1)</sup> The latter holds that the environmentalists' attempts to dampen



material growth and consumption are the real threats to continued human progress.

Can they do so without devastating the carrying capacity and resource base of the planet in terms of any reasonable criteria for human security and well-being? If the current trends continue, will human beings thereby replicate a global scale outbreak-crash<sup>2)</sup>, familiar to ecologists and population biologists? Or will humans be able to invent and grow our way into a sustainable high-consumption world for large numbers of people?

Can all the people on the earth emulate the consumption habits and lifestyles of contemporary Europeans or North Americans? If we simply let markets operate, the price mechanism will regulate scarcities and stimulate investment in efficiency and innovation. Given human technological ingenuity and elasticities of substitutability, will things work out?

#### 6.2.1. A Future Without Limits: Cornucopia.

Since the 1960s, Herman Kahn (the former director of the Hudson Institute) and his colleagues argued that universal affluence and permanent growth are possible and the most probable long-term outcomes of present trends. They argue that most people in the world can, in fact, live like contemporary Americans and Europeans without devastating the planet. They argued that:

The prospects for achieving eventually a high level of broadly worldwide economic affluence and beneficent technology are bright, and that this is a good and logical goal for mankind ... (Kahn and Phelps 1979: 202).

Taking a very long view, they argued that we are now part of a great transition that began with industrialization in the 1700s:

In much the same way that the agricultural revolution spread round the world, the Industrial Revolution has been spreading and causing a permanent change in the quality of human life. However, instead of lasting 10,000 years, this second diffusion process is likely to be largely completed with a total span of about 400 years or roughly by the late 22nd century (Kahn, Brown, and Martel 1976:20).

Kahn and his colleagues viewed the global inequality as a transitional gap between the living standards of the poor and the rich nations. They think this is inevitable as industrialism spreads and living standards of some parts of the world rise relative to others. But that is analogous to the widespread misery and poverty of early industrialism, which will eventually spread better living conditions to many people in industrial societies.

While they do not ignore the problems of the present, Kahn and his colleagues have little patience with those who view contemporary problems in apocalyptic terms. Reacting to "The Global 2000" (Barney 1980), they responded that:

Global problems due to physical conditions...are always possible, but are likely to be less pressing in the future than in the past. Environmental, resource, and population stresses are diminishing, and with the passage of time will have less influence than now upon the quality of human life on our planet. These stresses have in the past always caused many people to suffer from lack of food, shelter, health, and jobs, but the trend is toward less rather than more of such suffering. Especially important and noteworthy is the dramatic trend toward longer and healthier life throughout all the world. Because of increases in knowledge, the earth's carrying capacity has by now no useful meaning. These trends strongly suggest a progressive improvement and enrichment of the earth's natural resource base, and of mankind's lot on earth (Simon 1981:13).

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1) The term "Faustian bargain" derives from the monumental fictional work by German writer Johan Wolfgang von Goethe (1749-1832) about a tragic figure, Faust, who sells his soul to the Devil for pleasure, wealth, and power while he lives, but finds himself condemned to hell for eternity. He bought short-term gain for long-term damnation.

2) The phenomena of outbreak-crash can be illustrated when a bacteria is introduced to a petridish and its exuberant growth follows. But in the limited world of the dish, such growth is not sustainable. Sooner or later, the bacterial populations deplete available resources, and submerge in their own wastes, their initial blossoming replaced by stagnation and collapse (Clark 1990:11).

In a nutshell, this is a cornucopian (optimistic) view of the future, accepting the present trends as basically benign. Kahn and his colleagues have taken a clear human exemptionalist view that humans are essentially exempt from the limits of nature (Dunlap, 1992). With faith in human good will and inventiveness, they see no reason to deflect the course of social development. Many businessmen and politicians are attracted to this view, which posits the possibility of universal affluence and progress (Zey 1994; Simon 1994; Naisbett 1994; Cetron 1994).

#### 6.2.2. A Future with Limits: Outbreak-Crash.

The counterpoint to the cornucopian scenario argues that present trends are putting us on a collision course with the finite carrying capacity of the planet, which we may overshoot. As noted above, some argue that we are already in an overshoot mode. If so, we must dramatically reverse the historic trends of the past 300 years, or inevitably suffer a collapse of human civilization because of a collapse of the resource base on which it depends. The most articulate, influential, and controversial statement of this view was by a 1970s futurist think tank called the Club of Rome.

Rather than rely on the mental and intuitive models of Kahn and his colleagues, the methodology of the Club of Rome used an elaborate computer simulation model called a World System Dynamics (WSD) model developed by scientists, Jay Forrester, Donella Meadows and his colleagues of the Massachusetts Institute of Technology (MIT).

This model started with what was known about current patterns and trends in population growth, economic growth, resource consumption, food supply, and pollution effects, each of which has been growing exponentially. The WSD model then developed an elaborate set of coefficients for how continued growth in each of these areas would impact the others, and attempted to project the sum of these interactions into the future for several hundred years (Meadows et al. 1972).

The resulting projection by the WSD model was a classic outbreak-crash model. The model argues that current exponential growth in population, resource consumption, and food production will produce such enormous stress on the carrying capacity of the planet by 2100, that the resource and capital inputs to support such consumption levels will not be sustainable. Capital investments can no longer keep up with the growing needs. This

prevents increases in fertilizer production, health care, education, and other vital activities. Without food and necessary services, world population and living standards will undergo a steady decline sometime during the twenty-first century (Humphrey and Buttel 1982:97-98).

Thus the Club of Rome research group argued that, on a global basis, the whole of humanity will replicate the more limited ecological crash experience of the Western Roman Empire, and many other preindustrial societies. In their degraded environments they could no longer obtain the investments necessary for social maintenance (Harper 1996). The views of the Club of Rome research group have been forcefully stated in a variety of technical and popular publications (Meadows et al. 1974).

The most recent report by the group using more recent data is significantly entitled "Beyond the Limits," and argues that we have already overshot the earth's carrying capacity and are now living with a dwindling resource base (Meadows et al. 1992).

At some time shortly after the turn of the next century (2100), growth would be unsustainable. The problem was not any single dimension but the cumulative effects of the way that they interact. And the underlying problem is growth itself. Hence MIT researchers emphasized the urgency of global efforts to dampen exponential economic growth itself and move toward a global equilibrium. This is what MIT analysts called their "standard run" reflecting current world conditions.

In this view, it is not enough to simply wait for markets to adjust to scarcity of food and non-renewable resources. By that time irreversible declines in ecological equilibrium and resource availability may have already taken place, and a variety of points of no return may have been passed. Nor can technology save us on an exhausted and polluted planet. All that technological advances can do is delay the inevitable, since dominant cultural patterns and institutional arrangements perpetuate problem-solving-by-growth that are in the end self-defeating. The specter raised by this vision is that, if present trends continue, after 2100 a smaller human population will be eking out a more marginal existence on an exhausted and polluted planet.

This is indeed a sharp counterpoint to the cornucopian view of the future presented by Kahn and his colleagues. It is a darker and more pessimistic scenario about the future, and as we might imagine, has provoked a blizzard of commentary and criticism over the years. The attacks on the

perspectives of the Club of Rome groups have been more political and ideological than scientific. They have been attacked as providing the justification of a planned and rationed world socioeconomic order, an anathema to conservatives and free-market economists, as well as those on the political left as providing justification for halting growth and thus betraying the aspirations of the world's poor.

#### 6.2.3. Evidence for Cornucopian or Finite Future.

Empirical evidence is not irrelevant to this grand-debate about society-environment interaction. But neither is it the sole basis for public policy. The defenders of the cornucopian view note the very great elasticities of substitution, both historic and potential, in industrial and energy resources. They note that many energy and mineral resources are more plentiful and cheaper than they were in the 1970s.

The defenders of the limits view respond that while true, the cost-supply-accounting calculations (prices) about energy and minerals do not include the costs of externalities, and that the most serious problems with industrial minerals have to do not with source but with sink problems (pollutants). They note the on-going pollution of water, declines in biodiversity, and the effect of greenhouse gasses on the climate.

Moreover, the defenders of the limits point not to industrial minerals, but to per capital declines in agricultural resources (arable soil, water) used to produce foods and fishes. Agricultural resources are being seriously over-exploited, and food per capita is becoming less available and more expensive, though that may not be noticed among the affluent classes in rich nations.

#### 6.2.4. Grand-debating Reasons for the Same Future.

How can different analysts disagree so much about the future? How do they do so, even when they look at the same world, and sometimes use the same facts? Which view has the closest approximation to actual world futures? The debate is often sterile and unproductive, with each side grasping a portion of the truth, but not the whole truth.

Part of the answer has to do with differences in the mindsets of the two groups of analysts, who by their training have learned to think about the

world in different ways. They have different paradigms for the way the world works. Another part of the answer to these questions has to do with the selectivity of people's view of the world and its future. No scholars or writers are completely exempt from selectivity.

However, the scenarios emphasizing future limits were created by persons from a variety of scientific backgrounds, including population experts, environmental scientists and ecologists, hydrologists, physical scientists and geologists, mathematics and computer modelers, soil scientists, biologists, climatologists, and some social scientists. But the scenarios emphasizing more optimistic cornucopian futures were created by economists, business people, technical experts in management, and journalists (Brown, 1991:5-9; Harper, 1996:48-58).

Between scenarios written by the emerging consensus within scientific communities and those written by business leaders, economists, and journalists, who do you trust the most to sort through facts and fancies, and to come to grips with objectivity and reality? I definitely have more faith in the official statements by the world's most respected scientific communities than by the industry spokesmen, elected politicians and environmental journalists.

### **6.3. Fundamental Roots of Environmental Degradation.**

When it comes to the roots of environmental degradation, there are some arguments such as Christianity, throwaway worldview, lifestyles of the modern world, different result between the way nature works and the way humans thinks and so forth.

Ecological complaint argues that Christianity is the primary cause of environmental degradation. They accuse Christianity of advocating the human domination and/or domination of the physical world for the sake of material exploitation and spiritual evolution.

Lynn White, Jr. was the first to popularize the idea. His famous essay, called "The Historical Roots of our Ecologic Crisis," is considered by many to be a classic of environmental literature. He argues that the distinctive Western tradition of modern technology and science is deeply conditioned historically by Christian beliefs. He criticizes that Christianity is the most anthropocentric religion the world has seen (White 1967:1203-7).

Ecological complaint against Christianity is pathetically simplistic. Most

complaints often have structured their complaint on a single biblical passage (Gen. 1:28) dealing with domination. However, dangerous modifications of the environment are not necessarily dependent on any philosophical or theological concept like domination.

Tyler Miller refers to "a throwaway worldview" at the root of environmental degradation. This worldview is based on several following beliefs (Miller 1990):

- (1) Humans are apart of nature.
- (2) Humans are superior to non-human creation.
- (3) Human role is to conquer and subdue nature to further their goals by humanizing the surface of earth.
- (4) Resources are unlimited because of human ingenuity in making them available or in finding substitutes.
- (5) The more humans produce and consume, the better off humans are.
- (6) The most important nation is the one that can command and use the largest fraction of the world's resources.
- (7) The ideal person is the self-made individualist who does his or her own thing and hurts no one.

The worldview sees the earth as a place of unlimited room and resources, where ever-increasing production, consumption, and technology inevitably lead to a better life for everyone. This view justifies short-term self-interest to satisfy as much of human unlimited greed as possible. However, this seductive worldview will turn out to be a fatal attraction.

On ecological concerns, the Christian traditions probably affected the various cultural forces at work historically, but they were hardly the historical root of our ecological crisis. There are too many variables to make such a simple assessment. Therefore, I would like to summarize some fundamental roots of environmental degradation to show the proof to the contrary to "the complaints against Christianity" and "throwaway worldview" and find the supporting grounds to define a new concept for sustainable development in accordance with the will of God.

### 6.3.1. Fall of Man (Gen. 2:1-6).

The serpent (Satan) tempted Eve by getting her to doubt God's goodness. Satan made Eve forget all that God had given her and, instead, focus on the one thing she couldn't have. We also fall into trouble, when we

dwell on the few things we don't have rather than on the countless things God has given us.

Even though Adam and Eve got what they wanted: an intimate knowledge of both good and evil, but the results were disastrous. Sometimes we have the illusion that freedom is doing anything we want. But God says that true freedom comes from obedience and knowing what not to do. The restrictions God gives us are for our good, helping us avoid evil.

Self-exaltation leads to rebellion against God. As soon as we begin to leave God out of our plans, we are placing ourselves above Him. This is exactly what Satan wants us to do. Our sins do not always appear ugly to us, and the pleasant sins are the hardest to avoid. So, we cannot always prevent temptation, but there is always a way of escape (1 Cor. 10:13). Use God's Word, and God help us stand against it.

One of the realities of sin is that its effects spread. After Eve sinned, she involved Adam in her wrongdoing. When we do something wrong, often we try to relieve our guilt by involving someone else. Like toxic waste spilled in a river, sin swiftly spreads. We should recognize and confess our sins to God before we are tempted to pollute those around us.

#### 6.3.2. Human Greed.

The story of Babel is the story of human greed without limit (Gen. 11:1-9). The greedy tower divided all the people and they no longer understand each other. They have lost the ability to feel with each other, imprisoned by their own greed at the expense of others.

Mammon, carrying great wealth on its back, exploits, breaks and kills all creatures in order to possess more wealth. This is the evil spirit who keeps false vested interests without justice. This is the same evil spirit which crucified Jesus Christ. Our Lord Jesus Christ said concerning the greedy acquisitiveness: "No one can serve two masters..... You cannot serve God and mammon" (Matt. 6:24).

#### 6.3.3. Anthropocentrism.

Traditional Christian theology and Western thinking put the human at the center of the created world. That has underpinned the view that human beings have the power to control and dominate creation. Modern science



and development models are based on this assumption. However, we should remember that human beings are a very small part of nature. We affirm that we all come from the earth in the Christian tradition.

#### 6.3.4. Limited Carrying Capacity of the Earth.

We live on a finite, essentially self-contained planet. There are no infinite boundaries or inexhaustible resources. Even though the limits are sometimes extendible by means of human technology, everything is still limited by human overuse and abuse. If our current lavish lifestyles are constant, non-renewal resources will eventually run out; the only question is when, the short or the long term by our greedy over-exploitation?

#### 6.3.5. The second law of thermodynamics<sup>3)</sup>

By the great design principle of the Creator, entropy increases when natural resources are extracted and waste accumulates. Entropy would not be limiting if natural resources and the assimilative capacity were infinite. But there are good indications that both are finite (Daly 1996:33). When these limitations prove to be true, the only plausible way will be to mitigate entropy.

However, post industrial revolution economic systems are heavily dependent on exhaustible fossil fuels which implies that the second law of thermodynamics is essential to the understanding of the current economy. Fossil fuels embody a high level of useful energy, but entropy increases

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3) The law of conservation of energy, known as the first law of thermodynamics means that energy is neither created nor destroyed in all physical and chemical changes, but it may be converted from one to another. In other words, we cannot get something for nothing in terms of energy quantity. However, the second law of thermodynamics means that when energy is changed from one form to another, some of the useful energy is always degraded to lower quality, more dispersed, less useful energy. So, we cannot break even in terms of energy quality because energy always goes from a more useful to a less useful form when energy is changed from one form to another.

when it is burnt to release waste energy in the form of heat and emissions. The increased disorder is reflected through the effects of emissions such as greenhouse effect, climate change, etc.

Neoclassical economists tend to ignore the notion of entropy and treat technology as a changing ratio between capital and labour (Mansfield 1988). However, technological advancement can only make throughput more efficient, but cannot mitigate entropy. So, if some fundamental shifts are not made, the earth will ultimately move to a point of no return.

Humans are insecure in their ambiguous situation of finitude and freedom. So, they seek security against the vicissitudes of nature by pretending to have unlimited technological capacities and by exceeding the limits providentially established. Environmental sin is one form of the pride of power through their arrogant sense of independence and greedy efforts beyond natural requirements.

#### 6.3.6. Economic Growth Mania.

Growth-mania is a prime tenet of marketing economic nations today. It is almost an imperative of patriotism in the present. Internationally, economic growth has become for many nations a faith which unites economic ideologies. Allegedly, the perpetual expansion of production and consumption is necessary for progress and prosperity to satisfy the insatiable wants of consumers and to provide employment opportunities for an expanding population. They are used to count even the losses of ecological capital in natural resources as assets rather than deducting them as liabilities, measured quantitatively in GNP (Nash, 1991:197-203).

The capitalistic growth system has some glaring deficiencies. It is not designed to satisfy the needs of the poor and powerless. Wealth is severely maldistributed by the system. The pan of the system agrees that it caters to marketing hedonism responding to and creating every conceivable desire of people, no matter how ignoble in order to provide goods and services. "Born to shop" is the motto of the human product of this process.

However, economic growth is a major factor in destroying the ecosystems on which the well-being of social and economic systems ultimately depends. Unrestrained production and consumption are key factors in the excessive exploitation and toxication of the renewable and non-renewable gifts of nature.

### 6.3.7. Consumerism (Consuming Paradise).

Why do we take the kind of environmental risks with regard to nuclear plants and mining activities as mentioned in Chapter II and IV? The simple answer is that we are driven by necessity. We need the energy and minerals for our industries and cars and homes. We need them because progress is inevitable and none of us dares stand in its way.

We are victims of our own successes and slaves of our search for consuming paradise affected by western lifestyles. Christians have also come to believe the unspoken maxim: A certain amount of damage to the earth is the cost of the lifestyle we require; we dare not sacrifice this lifestyle, because there is nothing else to give life meaning.

At the heart of consumerism is a basically crooked motivation created by the advertisers: What you see is what you want. What you want is what you deserve. What you deserve is what you must have. After all, we are consumers, and consumers must consume (Badke 1991:131).

### 6.3.8. Maldistribution.

Economic inequality is a major contributor to environmental problems. Poverty is a driving force behind environmental degradation. Poor people are forced to use their natural resources beyond the point of sustainability to survive in the present. In a vicious cycle, this deterioration reduces the availability of resources and further propels the extension of poverty (Nash 1991:50-54).

Global environmental problems cannot be resolved adequately unless economic maldistribution is remedied. Otherwise, the world's poor are forced to overexploit their natural resources in order to stay alive. So, preferential option for the poor entails a preferential option for ecological integrity.

However, we should make a distinction between pollution from poverty and pollution from prosperity. Because environmental destruction from prosperity contributes to environmental degradation from poverty. The excessive use of the world's finite resources by the overdeveloped world is a significant force in depriving the poor of sufficient resources for their essential needs, and hereby practically compelling them to choose between death and environmental degradation.

#### 6.3.9. Population.

The biblical injunction to increase and multiply (Gen. 1:28) may be the only one that humankind has obeyed faithfully. Now population expansion is a serious problem so that the size of population jeopardizes ecological integrity. Because the human population can exceed the carrying capacity of the earth. We seem to be pressing the limits of natural resources, if we have not already surpassed them (Nash 1991:44-50).

Contrary to the bulk of evidence, some analysts argue that the earth can sustain many times the present population, because of its unlimited resources and the great potential of technological creativity as mentioned at 2.1. However, most demographic interpreters are anxious that the population growth can have serious social and ecological consequences.

Excessive population growth accentuates every environmental problem. The earth has limited resources to sustain and improve the quality of life. While these limits can be extended through human creativity, the potential of extension itself is limited. Overpopulation is a major contributing factor for environmental degradation. So, the population growth should be managed along with the carrying capacity of the earth.

#### 6.3.10. Risks of Nuclear Plants.

The risks of nuclear catastrophes may be as small as optimistic nuclear advocates contend – one in so many thousands of operating hours. But the risk estimates are only educated guesses and hopes. When the risks occur, the potential magnitude of the damage is so severe, as Chernobyl illustrates, that the risk is morally unjustifiable. The rejection of the risk is really the rejection of possible damage.

Plutonium wastes are lethal during the lives of tens of thousands of generations, but they are stored in facilities or containers that will endure for a few decades or at best a few centuries. In the light of the waste problem, nuclear energy is acceptable only so long as the interests of future generations are discounted, only so long as the risks and costs are unjustly postponed to the future.

#### 6.3.11. Marketing Price.

Extracting and processing raw materials to make various kinds of goods depletes non-renewable energy and mineral resources, produces hazardous waste, disturbs land, pollutes the air and water, contributes to global climate change, and reduces biodiversity as mentioned in Chapter II and IV. These harmful effects are external costs passed on to the public, the environment, and in some cases future generations (Miller 2004:24-25).

These harmful costs are not included in the market price, everyone must pay these hidden costs sooner or later, in the form of poorer health, higher costs for health care and health insurance, and higher taxes for pollution control. Thus, the world's current pricing system does not provide consumers with accurate information about the environmental impacts of the products and services they buy in the marketplace.

Therefore, the harmful costs should be included in the market prices of goods and services. However, internalizing the external costs will not occur unless it is required by government action. As long as business receive subsidies and tax breaks for extracting and using virgin resources and are not taxed for the pollutants they produce, few will volunteer to reduce short-term profits by becoming more environmentally responsible.

#### **6.4. Biblically Based Proposition for Sustainable Development.**

All the discussions have finally confirmed that human beings cannot devise a fundamental framework for sustainable development with their own technologies, ideologies and systems. It is definitely clear that no morally flawless new human will emerge and no environmental tokenism or half-measures will be fitting responses to the persistent source of environmental problems.

However, if we have gained anything through our study of ecology in the light of Scriptures, it must be to understand that the physical world is not irrelevant to the biblical Christian. The issue of the environment is fundamentally theological and is related to central truths of the Christian faith: creation, sin, salvation, and the proclamation of the gospel (Kinnamon 1991:55-72).

We can find a fundamental concept for sustainable development from the Bible. To lay the foundations for biblical sustainable development, I would like to summarize a number of key propositions to deal with the

environmental crisis.

#### 6.4.1. The Earth is the Lord's.

According to Psalm 24:1-2, the One who made the earth has claimed it for his own. All created things belong to Him, and human beings can lay no claim to any part of the earth to exercise exclusive rights in exploiting its resources. It is important that Christians affirm that ours is a created universe, formed by God who owns it, for without this truth we become a law to ourselves. Such autonomy provides the recipe for environmental disaster. Only when we see ourselves as standing at the throne of God so that we can act under his orders, we can have any hope of living responsibly in the environment (Gnanakan 1999:31-39).

#### 6.4.2. Human Role of Imaging God.

Human understandings of God as Creator, Holy Spirit, and Redeemer implies that all the creatures are valued and loved by God. Divine valuations appear to be cosmocentric and biocentric, not simply anthropocentric. Since loyalty to God entails loyalty to God's values, Christians are called to practice ecological integrity.

All the creatures have intrinsic value, and are to be treated with appropriate care and concern. So, any notion of man's domination over nature must be tempered by two interwoven considerations. First, God created human beings to operate under His lordship. Second, God intended mankind to image Him in the earth, dealing with the environment as representatives of the Creator, as if He Himself were at work.

#### 6.4.3. Relationship between Humans and Nature.

The main cause of environmental problems may fundamentally be a wrong perspective on the relation between humans and nature, in which humans are not a part of nature. Contrary to the will of God, they have tried to competitively study how to control nature and to ruthlessly exploit the resources from nature for their material affluence.

Nature can exist without human beings, but human beings can not exist without nature. Industrialization has been advanced while ignoring this truth.

We should note that material affluence has been achieved under the serious sacrifice of the natural environment such as air and water pollution, depletion of non-renewal resources, climate change etc. So, some scholars define the present world as a risky person walking on thin ice in terms of environment.

#### 6.4.4. The Creation as a Mirror of Human Hearts.

Human beings need concrete reminders of who they are before God. Thus the earth was created as a vast mirror of human experience. In the Garden, the environment said to Adam and Eve, "You are the cherished higher creation of the God whose majesty you see around you. All that you require for life and happiness is easily within your grasp" (Badke 1991:147).

By contrast, we must expect that rebellion against the Creator God in the spiritual realm would bring a corresponding harshness to the environment. Such was indeed the environmental case. So, we should keep in mind in our daily lives that all the creation serves as a mirror of the condition of the human heart, that it is a tangible statement of an intangible reality.

#### 6.4.5. Environmental Crisis from Sinful Hearts.

The mirror images of the inner life of post-fall humanity exist as opposites to the Creator God of glory and nurture. Instead of glory, we find condemnation in the morality of all things, the horrors of natural disasters, and the growing crisis of environmental pollution as mentioned in Chapter II and IV. This is the witness of penalty. Instead of nurture, we discover that the earth no longer supports life without extreme effort, and that death can snuff out in an instant all that we have worked for. This is precariousness.

To pollute deliberately or through carelessness is to make a statement about the condition of one's inner being, for the earth mirrors our hearts. Polluters assume falsely that the earth belongs to man, that greed is good, that economic advancement is the only true goal of humanity, and that sinful human beings can solve their own environmental problems. This complex of self-induced lies is symptomatic of hearts that are in rebellion against the God who made all things.

#### 6.4.6. Lifestyle with the Image of Christ.

Jesus lived a simple life, though He deserved the splendor of the heaven. He sacrificed all, even His very survival, to obey His Father and win our salvation. To image God with the image of Christ is to live in contradiction with a world that scorns self-sacrifice and simplicity. We must be active, as followers of Christ's lifestyle, to do our work on earth.

We need to begin to look at our world through the eyes of God to see what is fitting and what is not as we deal with the physical earth around us. As the follower of Jesus Christ, we must make it our goal to bring a certain kind of beauty to our surroundings, a beauty which harmonizes with nature rather than clashing with it.

#### 6.4.7. Responsibility for Ecological Integrity.

God is the source and sustainer of the whole cosmos. God loves creation, reflecting the glory of its creator. God's work of redemption in Jesus Christ reconciles all things and calls us to the healing work of the Spirit in all creation.

However, today all creation in the world is endangered because humanity has failed to love the earth. The rich and powerful have plundered it as if it were created for selfish purposes. The magnitude of the devastation may well be irreversible and therefore forces us to urgent action.

Biblical statements, such as "to have domination" and "subdue the earth" have been misused through the centuries to justify destructive actions toward the created order. As we repent of this violation, we should accept the biblical teaching that people, created in the image of God, have a special responsibility as servants in reflecting God's creating and sustaining love, to care for creation and to live in harmony with it.

### **6.5. Biblical Sustainable Development in accordance with the Will of God.**

Briefly speaking, the definition of sustainable development by the Brundtland Commission (refer to 6.1.1) is a compromising concept for environmental and economic well-being for today and tomorrow on the basis of continuing economic growth and without changing lifestyle in spite of the limited carrying capacity of the earth. As a result, the goal of sustainable



development is to minimize environmental degradation without damaging economic growth and without considering different economic and political systems around the world.

This lack of clarity has promoted the development of frameworks, management guidelines, and indicator sets in an attempt to operate the concept. Consequently, sustainable development has become a highly ambiguous term, having been made to mean almost anything or almost nothing and interpreted to support a vast array of arguments, strategies and decisions (Cordes and Otto 2000:1). So, although commendable, this definition is not operational and has created much antagonism and cognitive dissonance. Sustainable development has been defined in many ways (Allen 2007:47-65).

However, environmental problems are not only scientific, technical, political or strategic questions, but also fundamentally moral issues. Because environmental pollution is the harmful or fatal effects of human actions, direct or indirect, that places natural and/or synthetic elements in ecosystems where they should not be at all or in amounts that surpass an ecosystem's capacities for normal assimilation. They are human-created problems that adversely affect the good of humans and other creatures in our relationships (Nash 1991:24).

It is therefore necessary to redefine the controversial and ambiguous sustainable development by considering the fundamental roots of environmental degradation and the biblical proposition for sustainable development mentioned in the 6.3. and 6.4.

#### 6.5.1. New Definition of Sustainable Development in accordance with the Will of God.

If the solutions are to be commensurate with environmental problems, they will certainly require fundamental changes in how societies assess and manage economic activities and consumption patterns of human beings to live in harmony with all the other creatures within the carrying capacity of the earth.

Are luxuries and conveniences really significant contributors to human enrichment? What should we be willing to sacrifice now for the sake of social and ecological integrity in the future? How can we reduce or redesign our wants? What is the purpose of the Creator in creating the heavens and the earth (Gen. 1:1)? Why did God make humans in His own image (Gen.

1:27) from the dust of ground (Gen. 2:7)?

Through considering the biblical proposition for sustainable development and the fundamental roots of environmental degradation above-mentioned in the 6.3 and 6.4, I would like to redefine the popular definition of sustainable development by the Brundtland Commission in the following way and call it biblical sustainable development:

Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs in harmony with all creation within the carrying capacity of the earth through changing the lavish lifestyle in affluent societies and amending a neoclassical fossil-fuel economic system in accordance with the will of the Creator.

No matter how sophisticated our technology becomes, ecological prudence should be an adaptation to the forces and restraints of nature, recognizing the limitations of human knowledge and technological ingenuity. Humans should avoid overconfidence in human powers to control nature, exaggerations of human authority over nature, and under-valuations of other creatures.

The prevention strategies of environmental degradation would require significant transformation in the patterns of production and consumption in human societies. Life would be less consumptive, more frugal, more restricted, and less convenient, but also safer, more efficient, and ecologically richer. Otherwise, future generations will bear the agonies of our generation's profligacy.

We should use no more than our share of non-renewal resources like fossil fuel and minerals, or provide reparation for jeopardizing the opportunity for future generations coming into being. Excessive depletions of non-renewable resources should be counterbalanced by the devising of new techniques so that succeeding generations have opportunities matching those of their predecessors. The compulsive overuse of fossil fuels in our generation would require not only a new conservation but also the compensatory development of environmental-friendly technologies for energy and mineral resources.

### 6.5.2. Biblical Sustainable Development in the Mining Context.

In recent years, several concepts have been created to apply to various aspects of environmental management. However, most are highly ambiguous, having been misinterpreted, misused and further redefined over time. It is becoming increasingly challenging to apply environmental management to several sectors of industry.

The most important example is the mining sector. Because mining activities have the ability to cause widespread environmental damage on numerous fronts as mentioned in Chapter II. Moreover, because prospective ore-bodies are geologically fixed, mining management cannot nationally select locations for mine sites. As a result, the management is often criticized for conducting mining operations in environmentally sensitive areas.

The very nature of the mining operation has made the concept of environmental management strictly defined to prevent mining companies from spreading mining pollution and transferring them into future generations in the decision-making and strategic planning processes. Thus to avoid being interpreted generically, a key concept must be defined specifically for the mining industry.

There are three widely adopted environmental management concepts in the mining context, namely "cleaner production" (CP)<sup>4)</sup>, "pollution prevention"<sup>5)</sup> and "burden of proof." They are important environmental management concepts to be defined concisely for sustainable development before incorporating them in the mining industry.

The major basis of the debates on mining activities for sustainable development is focusing on the finite nature of mineral resources themselves (Tilton 1996:91-97). Primary examples include sustained mineral assets through conservation and mineral and metal recycling. Others discuss the importance of sustainable development as a guiding principle in mining environmental management in the setting of environmental practicing codes and environmental standards (Carbon 1997:10-13; Miller 1997:14-17).

So, in this light the definition of biblical sustainable development in accordance with the will of God mentioned in the 6.5.1, I would also like to redefine the three concepts as the followings:

#### 6.5.2.1. Cleaner Production (CP) in the Mining Context.

Cleaner production (CP) in the mining context is redefined as a strategy to continuously improve products, services and processes to reduce environmental impact, and to work towards ecological, economical and ethically sustainable development in accordance with the will of God.

#### 6.5.2.2. Pollution Prevention in the Mining Context.

Pollution prevention in the mining context is defined as source reduction and all other practices that reduce or eliminate the creation of pollutants through (1) increased efficiency in the use of raw materials, energy, water,

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4) The cleaner production (CP) is used as an overarching environmental management concept, and heralded to be at the pinnacle of the newly emerged preventive paradigm. The origin and introduction of CP into environmental management literature occurred as a result of the work of the United Nations Environmental Programme (UNEP) and United Nations Industrial Development Organization (UNIDO). However, in most cases, UNEP is credited with having first used the concept, initially defining it as a "preventive strategy which promotes waste before it is systematically created, to systematically reduce pollution, and improve the efficiencies of resource use" (UNEP 2001:3). It has been widely adopted and applied throughout Europe, Australia, New Zealand and Asia.

5) After implementing the US Pollution Prevention Act in 1990, advanced countries have developed working definitions of pollution prevention, shifting from conventional pollution control to a preventative approach, with some focussing on the methodologies of product reformation, system modification and equipment redesign and resource recovery changes as key pollution prevention practices in the mining activities. The Pollution Prevention of the Ontario Ministry of Environment (MOE), for example, has defined pollution prevention as activities that "reduce or eliminate pollutants or wastes at the source," (MOE 2001:27). Environment Canada has adopted a similar interpretation, defining pollution prevention as "the use of processes, practices, materials, products or energy that avoid or minimize the creation of pollutants and waste, and reduce overall risk to human health or the environment," (EC 2002).

or other resources within the carrying capacity of the earth, or (2) protection of natural resources by conservation and through changing a lavish lifestyle in affluent societies and amending a neoclassical fossil-fuel economic system.

#### 6.5.2.3. The Burden of Proof in the Mining Context.

In the light of the severe environmental consequences of human ignorance and inevitable error concerning the products made from energy and mineral resources, the burden of proof should rest not on public agencies to prove that new and existing goods are harmful, but on the producers to give reliable evidence that they are safe and not persistent in the environment<sup>6)</sup>. Particularly, chemicals are not innocent until proven guilty, but suspect until proven innocent.

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6) This means the elements and chemicals which take long time and are difficult to dissolve and/or corrode (decay) like dichloro-diphenyl-trichloro-ethane (DDT).