

Review Article

Stopping of NO_x, NP Elimination at Developed Countries is Easy Method to Protect Global Warming

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Abstract

Since developed countries started elimination of NO_x and elimination of NP. Global warming is happening by the decrease of CO₂ assimilation from insufficient supply of NP fertilizer. Developed countries consider NO_x NP as pollution substances and are eliminating NO_x, NP. Main compound of NO_x is NO and NO is not toxic. Toxic NO₂ is very minor component produced by oxidation of NO by ozone. Ozone is produced rarely. Therefore NO_x is not toxic and very important nitrogen fertilizer. About 6 billion tone NO_x in burned gas is eliminated by ammonia. About 2 billion tone NP in waste water is eliminated by activated sludge process using much electricity. CO₂ assimilation is retarded by insufficient supply of NP. Plankton growth is retarded. CO₂ fix is retarded. Developing countries do not eliminate NO_x and NP. Then CO₂ assimilation is activated. These countries are keeping high GDP increase rate. If developed countries stop eliminations of NO_x and NP, CO₂ assimilation will be activated. CO₂ increase will stop. Production of grain and fish will increase. DGP will increase and global warming will not happen.

Keywords: NO_x; NO; NO₂; NO_x elimination; CO₂ Assimilation, Protection of Global Warming; GWPR

Introduction

Why global warming is happening. I searched CO₂ emission, CO₂ fix, amount of fossil burning, amount of NO_x, NO_x elimination, NP concentration, NP elimination, grain production, fish production, population, GDP increase rate, GWPR (Global Warming Protection Rate), of countries of the world by internet. And found global warming come from the fact that developed countries are eliminating NO_x and NP and CO₂ assimilation is blocked by insufficient supply of NP.

In the world, 510 billion tone CO₂ is produced. Burning of fossil produce 360 billion tone CO₂. Burning of wood produce about 50 billion tone CO₂. Respirations of animals produce about 100 billion tone CO₂. Almost 100% of produced CO₂ is converted to carbohydrate (later fossil) by CO₂ assimilation. About 140 billion tone CO₂ is remaining unassimilated. CO₂ assimilated CO₂ is 370 billion tone. $GWPR = 510/370 = 1.38$. We can decrease GWPR CO₂ emission/CO₂ fix by decrease of produced CO₂ or by increase of fixed CO₂. To increase fixed CO₂, acceleration of CO₂ assimilation by increasing the supply of NP. Developed 7 countries hating NO_x as toxic substance and 6 billion tons NO_x is eliminating. Main component of NO_x is NO. NO is not toxic. Very small amount of NO₂ is contained. Toxic NO₂ is produced by ozone. Ozone is produced very really. Therefore NO_x is not toxic and very important nitrogen fertilizer. Developed countries are eliminating NO_x and NP. By this eliminating procedure, supply of NP is retarded, CO₂ assimilation is retarded, and CO₂ is increasing. Growth of plant is retarded and production of food like grain and fish is retarded, DGP increase stopped and countries are declining insisting eliminations of NO_x, NP should be stopped many times [1-39].

NO_x Is a Precious Gift From Nature

Nature has systems to change N₂ to nutrient nitrogen. By thunder, the high temperature at fire place for cooking, warming up of room by burning of wood, by forest fire, by forest burning, by bonfire, and also burning of fossil fuel, NO_x is produced.

Thunder produces NO_x from N₂ and O₂ [40-44]. About 4 million thunder in one day and about 30×10⁶ t NO_x is produced by thunder in one year and about 20-80% of NO_x is produced by thunder in the world. Ott et al [44] estimated that each flash of lightning on average in the turned 7 kg of NO_x. With 1.4 billion lightning flashes per year multiplied by 7 kg per lightning per year is 8.6 million tones. Old agriculture such as rice production in Japan was carried out using NO_x. Old proverb says that many thunderstorm years gives good rice harvest. One thunder lightning give one inch growth of rice. Thunder lightning is written as Inazuma, Ine(rice) tsuma(wife). Because thunder is so precious and essential like rice and wife. Kaminari (thunder) in Japanese character is written Ame(rain) on the top of Ta(rice field). Heavy snow falling (3 meter) district and many thunder district Minami Uonuma is famous for the production of most delicious rice [7].

NO_x Should Be Released As It Is

NO_x is playing very important role for CO₂ assimilation, growth of plant and plankton, climate control [2,4,5,7]. But developed countries are eliminating NO_x by ammonia by the reaction



The reaction (1) is elimination of one fertilizer by other one fertilizer. This is tremendous loss of precious resources. Amount of NO_x is about 5 times of synthetic nitrogen fertilizer. This reaction is

Table 1: CO₂em (internet), CO₂fix(ref 21), CO₂em/p (internet) , NOx con (NOx concentration of exit gas)(ref 19), GWPR = CO₂em/CO₂fix, GDP (internet).

Country	CO ₂ em bill t	CO ₂ fix bill t	CO ₂ em/p tone	NOxcon g/kWh	W Dump	GWPR	GDP inc ratio
World	510	370				1.38	
China	106	100	8	1.6	do	1	6.9
India	24.6	32	1.9	1.6	do	0.76	7.1
Indonesia	5	19	2.1	1.6	do	0.3	5.2
USA	51	95	19.1	0.5	no	0.53	1.48
Japan(2018)	12.5	3.8	8.9	0.1	no	3.3	1.03
Japan(1980)	5.5	5.5	3.1	1.6	do	1	7
Russia	19.6	32		0.61		0.61	0.8
Germany	7.8	3.5	8.9	0.31	no	2.2	1.83
U.K	4	2.4	5.6	1.3	no	1.7	1.8
Italy	3.5	3	5.8	0.5	no	1.2	0.88
France	3.3	8.4	5		no	0.4	1.2
Canada	5.6	100	18	1.3	no	0.06	1.44

causing global warming. This reaction should not be done.

Since this reaction was carried out, Seto inland sea, Japan (no thunder district) changed dramatically. Transparency of sea increased. Turbidity by plankton disappeared. Eel glass disappeared. Fish, sell and sea weed production decreased [1,2]. Fish production of the world increased at developing countries who do not do NOx elimination like China, India and Indonesia. But fish production of developed countries decreased since NOx NP elimination.

Waste Water Should Be Dumped As It Is

Developed countries are eliminating NP in waste water. In Japan 2200 waste water clean center were build 117.8 billion kWh electricity (1.16 % of total electricity 10080billion kWh) were used for the operation of this center. For the production of 117.8 billion kWh electricity, 600 thousand tone fuels was burned [37]. If we stop waste water purification. $600 \times 3 = 1600$ thousand tone CO₂ emissions is saved. By the operation of this center, Emission of 44.8 thousand tone N and 17.5 thousand tone P is lost. By the elimination of NOx and NP, Fish production of Japan decreased from 12 million tone of 1975 to 2.5 million tone after 1980. Because of decrease of NP concentration of sea water, plankton cannot grow and fish, cell, sea weed cannot grow. Fish eat 20 times plankton. Plankton grows by eating same weight CO₂.

By elimination of NP, $12 \times 20 = 240$ million tone CO₂ fix is lost. If Japan stop NOx, NP elimination and increase NP concentration increase and 2.4 billion plankton grow and 2.4 billion tone CO₂ is fixed and 12 million tons fish will be produced [13,14,21,31-39].

Bon Fire Is Recommend

Slash and burn agriculture is carried out for many thousand years in the world.

Wood is burned and wood turn to the field which can produce crops. Ash produced by burning is said to be effective substance. But main effective substance is NOx [35]. When tree 1000 tone is burned, $1000/25 = 40$ tone NOx is produced. And 40 tone NOx can grow $40 \times 25 = 1000$ tone plant [35]. In Japan, 3 billion tone garbage is collected and burned at high temperature incinerator to produce 0.12

billion tone NOx. This NOx is eliminated by ammonia.

In Japan very special law about the garbage incinerator was set up in 2002 by the reason much NOx is produced at lower temperature. By this rule, incinerator must be burned at higher temperature than 800°C by adding excess fuel to keep higher temperature. Corrugated carton and fallen leaves must be burned at high temperature incinerator. Bon fire is inhibited by the reason bon fire produce much NOx. Burning of rice straw-wheat straw is not possible. Big earth quake and tsunami happened in east Japan in 2011. Debris disposal was not allowed to burn on site. Debris disposal must transfer to far away district having high temperature incinerator consuming much fuel and money. Operation of this high temperature incinerator is using much excess fuel releasing much CO₂. Garbage, waste wood, fallen leave, straw should be burned on site producing much fertilizer NOx. Bon fir inhibition rule should be abandoned.

Method to Fit Paris Agreement

510 billion tones CO₂ are now producing in the world. To fix so much CO₂, promote plant growth and increases of CO₂ fix are essential.

Plant has C/N = 25/1 composition in average. As one molecule N combine with 25 molecules CO₂, supply of $510/25 = 20.5$ billion tone N is essential. To supply N, NOx should be released to air as it is. NOx is produced 16.8 billion tone. In waste water, estimated 10 billion tone NP are contained. From these NOx, NP, 7 developed countries are eliminating 6 billion tone NOx and 4 billion tone NP.

To stop the increase of CO₂, to accelerate CO₂ assimilation, 7 developed countries should stop NOx elimination stop NP elimination and do bon fire. Then $(6+ 4) \times 25 = 250$ billion tone CO₂ can be fixed. CO₂ emission and fix become equal and GWPR (Global Warming Protection Ratio) become 1 and fit Paris agreement [5,7,10,16,19,22,24,29,31-39].

Comparison of NOx, NP Elimination Countries and NOx, NP Elimination Countries

Developing countries like China, India do not eliminate NOx and NP and release as it is. Electricity price is low. CO₂ assimilation is

activated. Production of agriculture and fish industry increase. GDP is increasing 6% for 40 consecutive years. China use 106 billion tone CO₂ and 4 billion tone NOx effectively and increased fish production to 81.53 million tone.

India use 1 billion tone NOx effectively and grain production increased 5 times in 1950—>2010. Population increased 3.8 billion to 12.5 billion in 1951—>2014. On the contrary, 7 developed countries are eliminating NOx, NP and CO₂ assimilation is depressed production of grain and fish is de-pressed. GDP growth rate is low. GWPR is high. Japan is doing NOx, NP elimination most severely. 8 million tone fish production is lost yearly. Fish price is 10\$ /Kg. Japan is losing 0.08 billion \$. 6.7 million \$ per person. GDP growth rate increased only 1.6 % from 1985 to 2017 Japan dropped food production ability at his country from 100% in 1948 to 37% at 2018. Japan is now anxious how they can alive today. Import of food is becoming difficult because of COVID-19. The country who use NOx NP are growing and increasing population. The countries that eliminate NOx, NP are declining and decreasing population [32].

CO₂ em (CO₂ emission), CO₂ fix (fixable CO₂), CO₂ em/p (CO₂ emission per person), NOx con (NOx concentration at exit gas), W dump (Wastewater dumping), GWPR (global warming protection ratio), GDP (GDP increase ratio) of 11 countries are shown in Table 1.

Japan is not eliminating NOx before 1980, CO₂ emission was 5.5 billion tone, CO₂ fix was 5.5 billion tone, NOx con in exit gas was 1.6 g/kWh, was doing NP dumping, GWPR was 1, GDP increase rates was 7.0. In 2018, CO₂ em is 12.5 billion tone, CO₂ fix is 3.8 billion tone, NOx con is 0.1g/Wh, not doing water dumping. GWPR is 3.3, GDP is 1.03.

Japan, Germany, UK and Italy are narrow and they cannot fix CO₂ produced at there countries. GWPR is over 1. These countries are surrounded by sea. They can fix CO₂ by plankton CO₂ assimilation by increase of NP concentration of sea. NOx, NP elimination should be stopped

Japan Should Stop NOx, NP Elimination and should not Inhibit Bon Fir

Japan is criticized as producing much CO₂. Japan producing much CO₂ for electricity generation for elimination of NOx, NP. Japan established very severe law. Every factory must eliminate NOx by NH₃ to less than 0.1 g/kWh. Japan eliminate NP in waste water purification center completely using much electricity. Japan producing 12.5 billion tone CO₂ and criticized as most CO₂ increasing country. Wood and agriculture field can fix 1000 tone CO₂ per 1 Km². Japan land is 3.8×10⁵ km². Fixable CO₂ at Japan is 3.5×10⁵×1000=3.8 billion tone. Japan increasing 12.5-3.8=8.7 billion tone CO₂.

GWPR of Japan is 12.5/3.8=3.3. Japan is using 28 million tone NH₃ for the elimination of NOx. 11 million tone butane is used for the preparation of NH₃ and generating 33 million tone CO₂. Japan also using 118 billion kWh electricity for water purification [35]. If Japan stop NOx, NP elimination, CO₂ emission will be reduced to 12.5-1-1= 10.6 billion tone. By using 0.5 billion tone NOx, 0.5×25= 12.5 billion tone CO₂ can be fixed. Food production will increase. GWPR will decrease to from 12.5/3.8=3.3 in 2018 to 10.5/12.5=0.84. This value is fit to Paris agreement.

Summary

Promotion of CO₂ assimilation by stopping NOx and NP elimination is easy way to protect global warming. If developed countries stop NOx, NP elimination, CO₂ assimilation is promoted, CO₂ does not increase. Grain and fish production increase. GDP increase and global warming will not happen.

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