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Review Article

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

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Abstract

Since developed countries started elimination of NOx and elimination of NP. Global warming is happening by the decrease of CO_2 assimilation from insufficient supply of NP fertilizer. Developed countries consider NOx NP as pollution substances and are eliminating NOx, NP. Main compound of NOx is NO and NO is not toxic. Toxic NO_2 is very minor component produced by oxidation of NO by ozone. Ozone is produced rarely. Therefore NOx is not toxic and very important nitrogen fertilizer. About 6 billion tone NOx in burned gas is eliminated by ammonia. About 2 billion tone NP in waste water is eliminated by activated sludge process using much electricity. CO_2 assimilation is retarded by insufficient supply of NP. Plankton growth is retarded. CO_2 fix is retarded. Developing countries do not eliminate NOx and NP. Then CO_2 assimilation is activated. These countries are keeping high GDP increase rate. If developed countries stop eliminations of NOx and NP, CO_2 assimilation will be activated. CO_2 increase will stop. Production of grain and fish will increase. DGP will increase and global warming will not happen.

Keywords: NOx; NO; NO_2; NOx elimination; CO_2 Assimilation, Protection of Global Warming; GWPR

Introduction

Why global warming is happening. I searched CO_2 emission, CO_2 fix, amount of fossil burning, amount of NOx, NOx 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 NOx and NP and CO_2 assimilation is blocked by insufficient supply of NP.

In the world, 510 billion tone CO_2 is produced. Burning of fossil produce 360 billion tone CO_2. Burning of wood produce about 50 billion tone CO_2. Respirations of animals produce about 100 billion tone CO_2. Almost 100% of produced CO_2 is converted to carbohydrate (later fossil) by CO_2 assimilation. About 140 billion tone CO_2 is remaining unassimilated. CO_2 assimilated CO_2 is 370 billion tone. GWPR = 510/370 = 1.38. We can decrease GWPR CO_2 emission/ CO_2 fix by decrease of produced CO_2 or by increase of fixed CO_2. To increase fixed CO_2, acceleration of CO_2 assimilation by increasing the supply of NP. Developed 7 countries hating NOx as toxic substance and 6 billion tons NOx is eliminating. Main component of NOx is NO. NO is not toxic. Very small amount of NO_2 is contained. Toxic NO_2 is produced by ozone. Ozone is produced very really. Therefore NOx is not toxic and very important nitrogen fertilizer. Developed countries are eliminating NOx and NP. By this eliminating procedure, supply of NP is retarded, CO_2 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 declin am insisting eliminations of NOx, NP should be stopped many times [1-39].

NOx Is a Precious Gift From Nature

Nature has systems to change N_2 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, NOx is produced.

Thunder produces NOx from N_2 and O_2 [40-44]. About 4 million thunder in one day and about 30×10^6 t NOx is produced by thunder in one year and about 20-80% of NOx 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 NOx. 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 NOx. 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].

NOx Should Be Released As It Is

NOx is playing very important role for CO_2 assimilation, growth of plant and plankton, climate control [2,4,5,7]. But developed countries are eliminating NOx by ammonia by the reaction

$$4\,NO + 4NH_3 + O_2 \longrightarrow 4N_2 + 6\,H_2O \quad (1)$$

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

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Table 1: CO_2em (internet), CO_2fix(ref 21), CO_2em/p (internet) , NOx con (NOx concentration of exit gas)(ref 19), GWPR = CO_2em/CO_2fix, GDP (internet).

Country	CO_2em bill t	CO_2fix bill t	CO_2em/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. 600×3 = 1600 thousand tone CO_2 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 CO_2.

By elimination of NP, 12×20 = 240 million tone CO_2 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 CO_2 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 40×25 = 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 CO_2. 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 CO_2 are now producing in the world. To fix so much CO_2, promote plant growth and increases of CO_2 fix are essential.

Plant has C/N = 25/1 composition in average. As one molecule N combine with 25 molecules CO_2, 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 CO_2, to accelerate CO_2 assimilation, 7 developed countries should stop NOx elimination stop NP elimination and do bon fire. Then (6+ 4) × 25 = 250 billion tone CO_2 can be fixed. CO_2 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 NO NOx, NP Elimination Countries

Developing countries like China, India do not eliminate NOx and NP and release as it is. Electricity price is low. CO_2 assimilation is

activated. Production of agriculture and fish industry increase. GDP is increasing 6% for 40 consecutive years. China use 106 billion tone CO_2 and 4 billion tone NOx effectively and increased fish production to 81.53 million tone.

India use 1billion 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 CO_2 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 anexious 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].

CO_2 em (CO_2 emission), CO_2fix (fixable CO_2), CO_2em/p (CO_2 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, CO_2 emission was 5.5 billion tone, CO_2 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, CO_2 em is 12.5 billion tone, CO_2 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 CO_2 produced at there countries. GWPR is over 1. These countries are surrounded by sea. They can fix CO_2 by plankton CO_2 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 CO_2. Japan producing much CO_2 for electricity generation for elimination of NOx, NP. Japan established very severe law. Every factory must eliminate NOx by NH_3 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 CO_2 and criticized as most CO_2 increasing country. Wood and agriculture field can fix 1000 tone CO_2 per 1 Km^2. Japan land is 3.8×105 km^2. Fixable CO_2 at Japan is 3.5×105×1000=3.8 billion tone. Japan increasing 12.5-3.8=8.7 billion tone CO_2.

GWPR of Japan is 12.5/3.8=3.3. Japan is using 28 million tone NH_3.for the elimination of NOx. 11 million tone butane is used for the preparation of NH_3 and generating 33 million tone CO_2. Japan also using 118 billion kWh electricity for water purification [35]. If Japan stop NOx, NP elimination, CO_2 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 CO_2 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 CO_2 assimilation by stopping NOx and NP elimination is easy way to protect global warming. If developed countries stop NOx, NP elimination, CO_2 assimilation is promoted, CO_2 does not increase. Grain and fish production increase. GDP increase and global warming will not happen.

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