

Promotion of CO₂ assimilation by stopping of NO_x, NP elimination is best method to absorb greenhouse gas CO₂, to stop global warming, to get much food and to growth

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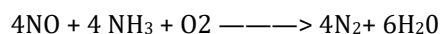
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Abstract

Global warming is induced by the NO_x and NP elimination by developed countries. Developed countries started NO_x elimination by the reaction with ammonia at around 1980



Developed countries are eliminating N and P in waste water.

These NO_x and N,P eliminations caused the lack of N,P. CO₂ assimilation decreased and CO₂ absorption decreased. Food production decreased. And global warming has started. Developer countries should stop NO_x elimination by ammonia and close waste water clean center. Then CO₂ assimilation is activated and global warming will stop and much food will be produced. Countries will make progress.

Keywords: NO_x, CO₂ assimilation; NO_x elimination; Carbon neutral; Stop of global warming; GWPR

1. Introduction

Paris agreement asking us: CO₂ emission is equal as carbon fix and progress by 2050. Author define ratio CO₂ em and CO₂ fix as GWPR (Global Warming Protection Ratio)

$$\text{GWPR} = \text{CO}_2 \text{ em} / \text{CO}_2 \text{ fix}$$

Carbon neutral is CO₂ em = CO₂ fix and GWPR = 1. Present GWPR of the world is 1.3. We must lower GWPR from 1.3 to 1. Most person are trying to reduce CO₂ em. The author is demanding to lower GWPR by increase of CO₂ fix. Increase of CO₂ fix is possible by activation of CO₂ assimilation.

Global warming is produced by elimination of NO_x and NP. Elimination of NO_x and NP decrease CO₂ assimilation and decrease of CO₂ fix, and promote global warming. The author is asking the promotion of CO₂ assimilation to stop global warming by stopping NO_x, NP elimination at 63 papers (Ref 1-62). In this paper I wish to describe that CO₂ assimilation is best method to reduce CO₂ and best method to stop global warming.

- To promote CO₂ assimilation. We must increase fertilizer. NO_x is safe and easily available nitrogen fertilizer. Nitrogen and phosphorous in waste water are easily obtainable nitrogen, phosphorous fertilizer. We must increase concentration of nitrogen and phosphorous. We must increase NO_x.
- Stopping of NO_x elimination can stop global warming.

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- Stopping of NP elimination center can decrease global warming and increase food production
- Heat absorption by CO₂ assimilation can stop global warming

Decrease of CO₂ assimilation is caused by the stopping of NO_x and NP elimination. Stopping of NO_x, NP elimination will give enough CO₂ fix and global warming will stop and production of enough food and rich country will be possible.

2. NO_x is safe and good fertilizer to produce food (ref 7)

NO_x is hated as pollution gas causing illness. Many governments mis understand the usefulness of NO_x and set up very strict law to eliminate NO_x in burned gas and forced to eliminate NO_x using ammonia. This action caused global warming

I wish to insist that NO_x elimination should be stopped. Because toxicity of NO_x is not so serious compared with significant merit of NO_x. NO_x is essential for the promotion of CO₂ assimilation for plant to grow and produce food.

Thunder produce NO_x from N₂ and O₂. (ref 7, 63-66). About 4 million thunder in one day and about 30 x 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.

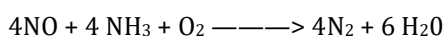
The year of many thunder give good harvest. This fact is written at Kojiki, 1300 year old Japan history book. Thunder by Japanese character Kaminari rain top on ta (field) bottom. Lightning Japanese character Inazuma Ine (rice) and Tsuma (wife). Both is precious as life. Heavy snow (2-3 m) fall at Hokuriku district Japan and produce many thunder. This produce much NO_x. The concentration of nitrogen in the snow melted river is high. Toyama bay produce plankton, fish, crab, shrimp. Ishikawa prefecture produce rice and Niigata prefecture produce delicious rice Koshihikari. I buy fish and rice at Niigata prefecture, meat from Ishikawa Prefecture.

When something is burned, NO_x is produced. NO_x is a mixture of 90 % NO and 10% NO₂. NO_x is dissolved in rain and give nutrient nitric acid and promote the growth of plant and plankton.

At Japanese coastal area, many snow falls. And near sea Gulf Toyama(Toyamawan) and surrounding sea are rich in nutrient N from thunder produced NO_x and filled with plankton producing many Yellow tail(Buri), therefore thunder is called as Buriokoshi(yellow tai producer). No report as to the serious sick and dead person caused by NO_x is reported. NO_x released at no person district such as sea side far from house do not give serious damage to persons. NO_x is essential for the growth of plant and essential for the production of food and essential for all living biology. One NO_x can fix 25 CO₂. One NO_x can produce 25 plankton.

3. Promotion of CO₂ assimilation by stopping NO_x, NP elimination is best method to reduce CO₂ to stop global warming, to get much food

At around 1980 7 developed countries had conference. And decided to eliminate NO_x by inserting ammonia because NO_x is toxic.



This decision induced global warming. This reaction stop the recycle of nitrogen. This reaction retard CO₂ assimilation and stop CO₂ fix and produced global warming.

When 7 developed countries proposed NO_x elimination plan, Japan government accepted this NO_x elimination plan and eliminated NO_x completely by making a law to eliminate NO_x at all factory. And if NO_x is detected at exit gas, government can stop the factory. All factories of Japan put ammonia into exit gas and NO_x (around 50 million tone) was eliminated. Then concentration of nitrogen 1.2 mg/L in rain become zero. Concentration of Nitrogen decreased remarkably. Fish production of Japan decreased from 12 million tone to 4 million tone per year. Nori production at Seto inland sea stopped. Silas production at Shizuoka Prefecture Japan decreased remarkably.

In 2008, Japan build new 1320 garbage incinerator equipped with ammonia insertion. Kamakura Nagoe clean center is burning 30 thousand tone garbage and forty five thousand tone CO₂ is released. This exit gas contains NO_x and 40.94 kg ammonia is used. $40,94 \times 30/17 = 72.24\text{kg}$ NO (molecular weight of NO/molecular weigh of NH₃) is eliminated. Population of Kamakura is 172000 and population of Japan is 120,000,000. $72.24 \times 120,000,000/172,000 = 50,400$ kg NO is eliminated at Japan. Ikanago production at Hyogo Prefecture Japan was 7000 tone before 1990. It decreased to 200tone after 2010.

CO₂ produced at developed countries is around 10 billion tone. And around $10 \times \frac{1}{25} = 4$ hundred million tone NO_x is produced.(ref 58,62)

To eliminate this NO (90% of NO_x is NO), 226 million tone ammonia NH₃ is used. Amount of NO_x is so much. Elimination of NO_x use much ammonia and natural gas. These decision give great damage for agriculture and fish industry, GDP and protection of global warming.

If developed country stop the addition of ammonia to the exit gas, Consumption of 8000 million tone CH₄ can be saved. And emission of 220 million tone CO₂ can be saved. And 400 mill t x 25 = 10 billion t CO₂ can be fixed. Accordingly 220 mill t + 10 bill t = 10.22 billion tone CO₂ can be fixed. CO₂ em of developed countries is 10 billion tone. Therefore GWPR (CO₂em)/ (CO₂fix) = 1. CO₂ increase is zero. 10.22 billion Tone CO₂ produce plant like wheat. CO₂ produce plant $\frac{2}{3} \times \frac{30}{44}$ (1/6 of molecular weight of C₆H₁₂O₅) /44 Molecular weight of CO₂) weight of his weight. Wheat contain $\frac{2}{3}$ straw of his weight Wheat grain will be about $\frac{1}{3}$ weight of plant. 10.22 billion Tone CO₂ can afford 10.22 billion x $\frac{30}{44} \times \frac{1}{3} = 2.32$ billion tone grain. 1kg wheat is 1.5 \$ 2.32 billion kg wheat is 3.48billion \$. Therefore, if developed country do not eliminate NP. 2.32 billion Tone wheat. 3.48 billion\$ is produced. GDP will increase. Economy of developed country will become much better. And global warming will not happen

Japan was producing 12 mill t fish and 4 mill t rice before 1980 at that time no elimination. By the elimination of NP only 4 million fishes were produced.

Therefore I am proposing the plan to stop global warming by stopping the addition of ammonia to the exit gas (ref 50-59). But no company stop the addition of ammonia.

Because developed countries government set up unreasonable law. NO_x should be zero at exit gas. If NO_x is detected at exit gas, operation of factory is not possible. Therefore law forced to add ammonia and 50 million tone NO_x is destroyed and plant cannot grow and production of fish and grain is reduced and GDP do not increase.

Author advice elimination of Law or top persons of developed countries offer notice that you need not eliminate NO_x. Law elimination or notice will activate CO₂ assimilation and stop global warming..

This is a reason why I ask the elimination of law which force to the addition of ammonia.

It is difficult to reduce CO₂ But it is easy to reduce GWPR by increase of CO₂ fix. Increase of CO₂ fix is possible by increase of NP. To increase NP, just stop the elimination of NP is enough. Developing countries like China, India and Indonesia are using NO_x and NP as fertilizer. CO₂ assimilation is promoted rapidly and production of agriculture and fish industry increased rapidly and GDP increase rate are high. On the contrary at developed country, CO₂ assimilation is inhibited and production of agriculture and fish industry is inhibited. Economic and social influence are immeasurable great. We can compare developed country who doing NO_x, NP elimination and developing countries who use NO_x, NP as fertilizer. (ref 56-62)

This NO_x eliminating reaction has 5 great dis advantages.

- This reaction eliminate NO_x, necessary compound for CO₂ assimilation. 0.4 billion tone(developed country), 0.05 billion tone (Japan)
- Large amount of CH₄ is necessary to make hydrogen for the synthesis of ammonia. 0.8 billion tone (developed countries),10 million tone(Japan)CH₄ is necessary
- Large amount of CO₂ is produced for the production of hydrogen. 220 million tone(developed country) 27.5 million tone (Japan) CO₂ is produced.
- Electricity price increase USA 12 c/kWh Japan 12, Germany 35, UK 15.4, Italy 28 Developing countries China 1.6-4.5, India 6, Indonesia 10
- Food production decrease by the decrease of CO₂ assimilation. Food production ratio of Japan decreased from 100% to 37 % Fish production of Japan decreased from twelve million tone(1980) to 4 million tone(2000). Rice production decreased from 8 million tone to 4 million tone.

CO₂ produced at developed countries is around 10 billion tone. And around $10 \times \frac{1}{25} = 4$ hundred million tone NO_x is produced.

Government of developed country asked the addition of ammonia to the exit gas of factory by the ratio of 400 mill tone NO_x to 226.7 mill tone ammonia. Amount of NO_x and ammonia is huge. Japan is keeping this arrangement most honestly.

Then NO_x concentration in exit gas of Japan is lowest 0.1 g/kWh, USA is 0.5 g/kWh, Germany 0.31 g/kWh and China, India, Indonesia (no NO_x elimination country) are 1.6 g/kWh. GDP ratio 2021/1991 USA is 3.2, Japan 1.1, Germany 4.3, Developed countries use much fossil to eliminate NO_x The price of electricity is high and productive industry moved to developing countries. Developing countries increased GDP. 2021/1991 China 51.1, India 11.1. No NO_x elimination country use NO_x as fertilizer and getting much food and fixing all CO₂ produced at his country. GWPR of developed countries is over 1. Japan is 3.3.

If developed countries stop NO_x, NP elimination, economy of developed country will become much better. And global warming will not happen

Japan is eliminating 50 mill t NO_x by spending 10 mill t LNG emitting 27.5 mill t CO₂.

If Japan do not eliminate NO_x, Japan can fix 50 mill x 25 = 1250 mill tone CO₂.

CO₂ grow plankton 2/3 of his weight (30 1/6 of molecular weight C₆H₁₂O₅ /44 CO₂ molecular weight). Fish grow by eating 10 times of plankton. 10 bill t CO₂ fix mean 10x 3/4x1/10 = 7.5 bill kg fish production. Fish price is 2 \$ per kg. 2x 75 bill = 150 billion &. =1633 mill \$. But by the elimination of NO_x, 150 billion \$ fish was not produced. Japan was producing 12 mill t fish and 4 mill t rice before 1980 at that time no elimination. By the elimination of NP only 4 million fishes were produced. Fisherman 388990 in 1963 decreased to 151700 in 2018. Country region is suffering from depression and depopulation. GDP does not increase since NP elimination has started. The elimination of NP influence not only warm up earth but also give significant bud influence on economy. The law to eliminate NO_x by blow in ammonia to the exit gas and to eliminate NP in waste water should be eliminated sooner. If the law is eliminated and sufficient nitrogen is supplied, fish prediction will increase and GDP will increase. CO₂ produced at developed countries is around 10 billion tone. And around 10x 1/25 = 4 hundred million tone NO_x is produced. To eliminate this NO (90% of NO_x is NO), 226 million tone ammonia NH₃ is used.

Therefore I am proposing the plan to stop global warming by stopping the addition of ammonia to the exit gas (ref 50-59). But no company stop the addition of ammonia.

Because developed countries government set up unreasonable law. NO_x should be zero at exit gas. If NO_x is detected at exit gas, operation of factory is not possible. Therefore law forced to add ammonia and 50 million tone NO_x is destroyed and plant cannot grow and production of fish and grain is reduced and GDP do not increase. Law asking the addition of ammonia should be abandoned..

4. Waste water clean center should be closed(ref 42-49)

Japan constructed 2200 waste water purification center to eliminate NP. Author investigated Yamazaki waste water purification center at Yamazaki, Kamakura in Japan (ref 38). This center cover 96881 persons. Water 98287 m³ containing Nitrogen 40 mg/l, Phosphorous 4.2 mg/l is treated by activated sludge process. Air is bubbled for ten hours to give water contains Nitrogen 7.5 mg/l Phosphorous 2.73 mg/l. Consuming 8841200kWh electricity. Population of Japan is 120 million.

This data showed that if Japan stop waste water clean center 44900 tone Nitrogen, 174 00 tone Phosphorus can work as fertilizer Phosphorous is eliminated in one day at this center. This data indicate 7.34x 120000000/ 96881x 365 = 140 million tone Nitrogen, 12.8 million tone Phosphorous can work as fertilizer in one year. 140x25= 3200 million tone CO₂ is fixed and 3200 million tone plankton can grow and 3200x 1/10 = 3.5 million = 35tone fish will be produced. By stopping of waste water purification center, consumption of 884100X 1200000000/ 96881 = 110 billion kWh electricity(100880/110 = 1.11% of total electricity consumption 1000880 kWh of Japan)is saved. For the generation of electricity, 59000 tone CH₄ is used. By stopping of waste water purification, baying of 590000 tone CH₄ become unnecessary and 590000 x 3= 1770000 t CO₂ emission will stop. Each house must pay waste water purification fee(about 30 \$)in addition to water fee. If waste water clean center is closed, we need not pay waste water purification fee. If waste water purification is not done in Japan,140x25 = 35 million tone CO₂ is fixed and 35 million tone plankton can grow and 35x 1/10 = 3.5 million tone fish will be produced. Therefore waste water clean canter should be closed.

Phosphorous and nitrogen eliminations of the world will be 10 times of Japan. If developed countries stop the elimination of nitrogen and phosphorous by stopping of waste water purification center, 82950 tone fish will be produced. And 121660 tone CO₂ will be fixed

5. Prediction of GWPR after stopping NO_x, NP elimination

If developing countries stop NO_x, NP elimination. NO_x concentration increase to 1.6 g/kWh. CO₂ assimilation is activated. CO₂ fix will increase. GWPR will decrease from 1.3 to 1 as shown in Table 1 Fish production will increase. Grain production will increase.

$$\text{GWPR} = \text{CO}_2 \text{ emission} / \text{CO}_2 \text{ fix} = 1 \text{ Carbon neutral}$$

Table 1 Prediction of CO₂em (CO₂emission), NO_x (NO_x production), NO_xcon (NO_x concentration at exit gas), Dump (Wastewater dumping), Fixable CO₂, GWPR (global warming protection ratio), GDP (GDP ratio 2025/1991) at 2025 of 13 countries

Country	CO ₂ emit	NO _x	NO _x con	Wdump	Fixabl CO ₂	GWPR	GDP
	Hmilt	Hmilt	g/kWh		Hills		2025/1991
World	510	16.5			510	1.0	
China	196.4	4.25	1.6	Do	100	1.0	51.1
India	24.6	1	1.6	Do	32	0.76	11.1
Indonesia	5.0	0.2	1.6	Do	19	0.3	
USA	51	2	1.6	Do	95	0.53	7.0
Japan	8	0.5	1.6	Do	8.0	1.0	10
Russia	19.6	0.63			32	0.61	
Germany	5.5	0.3	1.6	Do	2.2	1.0	10
UK	3.0	0.2	1.6	Do	2.4	1.0	10
Italy	2.5	0.14	1.6	Do	3.0	1.0	
France	0.12		1.6	Do	6.4	0.4	
Canal	5.6	0.22	1.6	Do	199	0.06	
Iran	6.3	0.025			1.6	3.0	
Turky	4.0	0.16			7.6	0.5	

Developed countries can get 174.4 billion \$, by stopping NP elimination and can get high GDP and GDP ratio 2025/ 1991 will increase

6. Heat absorption by CO₂ assimilation can stop global warning(Ref 29)

On earth 140 billion tone fossil fuel is burned and CO₂ 3.6 x10¹⁰ t was produced. And 7.4 x 10¹⁵ kcal is produced. When we consider the heat produced by animal respiration, 7.4 x 10¹⁵ kcal x 4.6/3.6 = 9.45 x 10¹⁵ kcal is produced.

The earth is also warmed by the heat of atomic energy. Uranium produce 2 x 10¹⁵ kcal heat. Electricity generation capacity of the world is 16868 Tetra watt h. Electricity generation by atomic energy is 2086 Tetra watt h. Therefore, 7.4 x 10¹⁵ x 2986/ 10868 = 2.02x 10¹⁵ kcal evolved by atomic energy.

The earth is also warmed by the heat evolved by animal. Human being eat 1000 kcal food every day and release heat 1000 kcal every day. Population of the world is 7.6 billion. Therefore, human being is releasing 1000 x 365x 76x 10⁹= 2.8x10¹⁶ kcal in one year. Animal other than human being, caw, bird, whales, seal are producing heat. We can estimate as same as human being 2.8x10¹⁶ kcal. Therefore, total heat is fossil burning produce 7.4 x 10¹⁶ kcal, atomic energy produce 2.02x10¹⁵ kcal. Human being produce 2.8x10¹⁶ kcal. Other animal produce 2.8x10¹⁶ kcal

Total heat produced is $(7.4+0.202 + 2.8+ 2.8) \times 10^{16} = 13.002 \times 10^{16}$ kcal. We must absorb 13.002×10^{16} kcal by CO₂ assimilation. CO₂ 1 mole 44g and water 18 g absorb 114 kcal sun's heat to carbohydrate and 32 g oxygen. If 51 billion t, 5.1×10^{16} g CO₂ do CO₂ assimilation, $114 \times 5.1 \times 10^{16} / 44 = 13.136 \times 10^{16}$ kcal can be absorbed. Heat production 13.002×10^{16} kcal is almost same as heat absorption 13.136×10^{16} kcal.

$$\text{GWPR} = \text{Heat production} / \text{heat absorption} = 13.002 \times 10^{16} \text{ kcal.} / 13.136 \times 10^{16} \text{ kcal.} = 1$$

CO₂ assimilation must be promoted by stopping of NO_x elimination and by stopping waste water purification. By stopping NO_x elimination. 1.44 billion tone NO_x can fix $14.4 \times 25 = 36.0$ billion tone CO₂. Amount of N.P in drainage is around 0.5 billion tone. By using this 0.5 billion tone N.P, we can fix $0.5 \times 25 = 12.5$ billion tone CO₂. By adding $36.0 + 12.5 = 48.5$ billion tone CO₂ can be fixed. And we can absorb 13.1×10^{16} kcal. And earth can keep comfortable temperature. Heat absorption by CO₂ assimilation is essential to lower earth temperature.

7. COP 28

COP 28 (28th United Nations climate change conference)is now in progress participating 128 countries top persons at Dobay UAE Reduction of greens gases is main subject. Main compounds of green house gases is CO₂ CO₂ emission was 37.12 billion tone at 2021, 37.5 billion tone at 2022, 57.4 billion tone at 2023. Many developed countries are prepared fund to offer to developing countries. Reduction of greenhouse gases is easily possible by activation of CO₂ assimilation to increase CO₂ absorption by stopping of NO_x, NP elimination I wish to ask the aim change from Reduction of CO₂ to Activation of CO₂ assimilation and stop addition of ammonia to the exit gas and stop waste water clean center. Then global warming will stop and fund payment will become unnecessary as I mentioned at CO₂ 7 (Ref 58)

8. Conclusion

Stopping of ammonia addition to eliminate NO_x and stopping of water clean center are easy methods to stop global warming. Let stop NO_x, NP elimination and let stop global warming and let produce much food and let make progress

Compliance with ethical standards

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