Purification of water and air is promoting global warming and country decline

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Abstract

Burning of fossil is increasing. Production of CO2 and NOx is increasing. Increased CO2 and NOx promoted the CO2 assimilation. Most produced CO2 is fixed by CO2 assimilation. But developed countries started purification of water and air by elimination of NOx and NP at around 1980. 6 billion tone NOx and 2 billion tone NP are eliminated. NOx is main nitrogen fertilizer and NP is main nitrogen and phosphorous fertilizer. Therefore plant growth is retarded. CO2 fix is retarded. CO2 is increasing. Food like grain, fish, meat production is retarded. DGP increase rate decreased. Global warming and country decline are progressing. If developed countries stop NOx elimination by ammonia and close waste water purification station, global warming will stop and country decline will stop.

Keyword:- purification of water, purification of air, GWPR, global warming protection ratio, plankton, NOx elimination, NP elimination, CO2 assimilation

Introduction

The earth is warmed by the fossil fuel burning releasing CO2 and heat. The plant is growing by CO2 assimilation absorbing CO2 and heat producing carbohydrate and oxygen.

CO2 assimilation
\[
\begin{align*}
\text{CO}_2 + \text{H}_2\text{O} + 114 \text{ kcal} & \overset{1/6}{\longrightarrow} \text{C}_6\text{H}_{12}\text{O}_6 + \text{O}_2 \\
\text{CO}_2 + \text{H}_2\text{O} + 114 \text{ kcal} & \overset{\text{Fossil}}{\longleftarrow} \text{O}_2
\end{align*}
\]

Burning

GWPR (Global warming protection ratio) = \frac{\text{Produced CO}_2}{\text{Fixed CO}_2}

If we can compensate the generation of CO2 and heat with the generation of CO2 and heat with the absorption of CO2 and heat by CO2 assimilation, GWPR (global warming protection ratio) become 1, and global warming warming can be protected.

About 510 billion tone CO2 is produced by burning of fossil and respiration of animals. About 30% of produced CO2 is fixed by land plant CO2 assimilation at land. About 70 % of produced CO2 is fixed by plankton CO2 assimilation at sea.

CO2 concentration is increasing 2ppm every year. 140 billion tone CO2 is increasing every year. Fixed CO2 is 370 billion tone. Therefore global warming protection ratio is \( \frac{510}{370} = 1.38 \). We must decrease produced CO2 and increase fixed CO2 to lower GWPR. To increase fix of CO2, we must increase CO2 assimilation. To increase CO2 assimilation, we must increase the supply of NP. we must increase NP concentration of sea.

CO2 assimilation by plankton is most important reaction to control climate. Plankton grow by eating CO2, H2O, nitrogen and phosphorous by Redfield ratio C: N: P \( 105.4 : 16 : 1 \) or \( 6.6 : 1 : 0.06 \). Plankton ask more N and P than normal plant. Ratio C: N: P \( 25 : 1 : 0.06 \)

Officials of 7 developed countries consider NP as pollution substances and started NOx, NP elimination at around 1980. Then CO2 assimilation is retarded. Food like grain, fish production is retarded. CO2 fix is retarded. I am insisting NOx NP elimination should be stopped many times (ref 1-36). In this paper, I wish to tell NOx, NP elimination is giving very bud effect for the economy, global warming. (ref 19).

Effect of NOx, NP elimination on GWPR (global warming protection
ratio) and GDP

When 140 billion tone fossil is burned, 420 billion tone CO2 and 16.8 billion tone NOx are produced. About 380 billion tone CO2 is fixed by CO2 assimilation. About 140 billion tone CO2 must be reduced. Most of CO2 can be reduced by CO2 assimilation. We must promote CO2 assimilation. We must provide enough NP fertilizer. NOx and NP in waste water are best sources of NP fertilizer.

Officials of developed countries put emphasis of toxicity than utility of NOx, NP. They started elimination of NOx by ammonia.

\[4\text{NO} + 4 \text{NH}_3 + \text{O}_2 \rightarrow 4\text{N}_2 + 6\text{H}_2\text{O}\]

Amount of NOx 16.8 billion tone is so much. 7 times of synthetic nitrogen fertilizer 2 billion tone of the world. To destroy one nitrogen fertilizer with one other nitrogen fertilizer is giving tremendous loss.

NOx is very effective promotor of CO2 assimilation. Therefore the production of grain and fish increased proportionally by the increase of CO2 and NOx. In 1900 20 billion tone CO2 is emitted and 20 billion tone CO2 is fixed. In 1960 100 billion tone CO2 is emitted and 100 billion tone CO2 is fixed. In 1980 200 billion tone CO2 is emitted and 180 billion tone CO2 is fixed. In 2016 360 billion tone CO2 is emitted and 220 billion tone CO2 is fixed. Amount of CO2 fix is 140 billion tone less than emission. This is caused by the elimination of NOx and NP.

By the elimination of NOx, CO2 assimilation is retarded. Agriculture and fish industry of developed countries are declining.

CO2em(CO2 emission), NOx(NOx production), NOxc(NOx concentration at exit gas), GWPR(global warming protection ratio), GDP(GDP increase ratio) of 13 countries are shown in Table 1.

<table>
<thead>
<tr>
<th>Country</th>
<th>CO2em (bill t)</th>
<th>NOx (bill t)</th>
<th>NOxc (g/kWh)</th>
<th>Area (km2)</th>
<th>FixableCO2 (bill t)</th>
<th>GWPR</th>
<th>GDP inc ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>World</td>
<td>360</td>
<td>14.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>China</td>
<td>106.4</td>
<td>4.25</td>
<td>1.6</td>
<td>.10x10^7</td>
<td>100</td>
<td>1.0</td>
<td>6.9</td>
</tr>
</tbody>
</table>
countries.

Italy

Wh

produced

billion

CO2

stopping

0.745

assimilation

25

of

produced.

.

production

GRPR

NOx

GDP

complete

Low

warming

developed

tone

Amount

1000

!

Km2

green land can fix 1000 t CO2. Fixable CO2 of the country can be estimated by

1000 x area of the country.

Amount of NOx produced at world is 16.8 billion tone. Developed countries are eliminating about 6 billion

tone NOx producing 10 billion tone CO2. 6 billion tone NOx can fix 6x 25 = 150 billion CO2. Therefore if
developed countries stop NOx elimination, 150+ 10= 160 billion tone CO2 emission is reduced and global
warming can be protected.

When we look at high GWPR countries, Japan 3.4 Germany 2.2, Iran 3.9, U.K 1.7, Italy 1.2, These countries area
are narrow and they cannot fix produced CO2 at his countries.

Growth rate of GDP of the countries who eliminate NOx are small as USA 1.46, Germany 1.83, Japan 1.03, Canada 1.44, U.K 1.6, Italy 0.88.

At China 4.25 billion tone. USA 2 billion tone, India 1 billion tone, Japan 0.5 billion tone NOx are
produced. Japan eliminating this 0.5 billion tone. Butane 0.1280 billions is used for the production
of H2 0.0606 billion tone and CO2 0.7480 billion tone is produced. If Japan stop NOx elimination,
25 times of NOx 0.5x 25= 12.5 billion tone CO2 can be fixed. By doing plankton CO2
assimilation at 3 times area of Japan land, 3.8x 105 Km2 area,11.4 billion tone CO2 can be fixed.
0.745 billion tone CO2 by stopping of NOx elimination can be saved. 0.5 billion tone CO2 by
stopping NP wast water purification can be saved. Total 11.4 + 0.745 + 0.5 = 12.645 billion tone
CO2 generation can be stopped. Japan can produce 0.3 billion fish and Japanese can enjoy anti-
aging and long life. (Ref 26,37-42) If europa stop the elimination of 0.71 billion tone NOx and 0.2
billion tone NP, 10 billion tone CO2 generation can be stopped. And 0.1 billion tone fish can be
produced

China producing 106.4 billion tone CO2. Area of China is 1.0x 107 km2

China can fix 100 billion tone CO2. GWPR = 106.5/ 100 = 1.0

Low area country Japan

GWRP = 12.5/3.7 = 3.4

NOx elimination can be found by NOx concentration of exit gas. 1.6 g/kwh is no elimination. 0.1 g/kWh is
complete elimination. No NOx elimination countries like China, India, Indonesia show low GWPR and high
GDP growth rate. On the contrary, NOx eliminating country like Japan (3.4 1.03), Germany (2.2 1.83) UK (1.7,1.8),
Italy(1.2 , 0.88) show high GRPR and low GDP growth rate.

Japan is eliminating NOx, NP most severely. NOx concentration at exit gas is 0.1 g/kWh, Then fish
production decreased from 12 million tone in 1970 to 2 million tone In 1985 by NOx NP elimination policy.
And DGP do not increase for 40 years from 1980.
Low doses of inhalation of nitric oxide have been reported to be clinically effective, and most current dosing recommendation do not exceed 40 ppm. At this dose, the little measurable short term toxicity. Indeed, it is noteworthy that in the large randomized trials of inhalation of nitric oxide, major clinical toxicity (e.g. methemoglobinemia) was observed only at dose>80 ppm (Ref 43,44). Therefore NOx has small demerit but not significant as big merit that NOx is essential for the growth of plant for the production of food for the promotion of health and long life. The ratio of merit / demerit is 10000/1. NOx elimination at exit gas of factory and garbage incinerator should be stopped.

Japan producing too much CO2

I investigated how much CO2 is produced by the elimination of NOx and NP in Japan

Japan emitting 9.1 tone CO2 per person. This value is too many in compared with France 5.6 tone, UK 5.7, Italy 5.7. I found that Japan producing 2 billion tone CO2 for the elimination of NOx (Ref 29) and NP in drainage and elimination of NOx at garbage incinerator exhaust gas (Ref 36).

NP elimination in waste water should be stopped

Japan constructed 2200 waste water purification stations to eliminate NP. Much CO2 is produced for the construction of 2200 wast water purification stations.

I investigated Yamazaki waste water purification center at Yamazaki, Kamakura in Japan (Ref 31). This center cover 96881 persons. Water 98287 m3 containing Nitrogen 40mg /l, Phosphorous 4.2mg/l is treated by activated sludge process. Air is bubbled for ten hours to give water containing Nitrogen 7.5 mg Phosphorous 2.7 31mg/l. Consuming 8841200 kWh electricity. This data showed that 7.34 Kg Nitrogen, 2.65 Kg Phosphorous is eliminated in one day at this center. This data indicate 7.34x 120000000/96881x365 = 140million tone nitrogen, 12.8 million tone phosphorous are eliminated in Japan in one year. Population of Japan is 1.2 billion. 8841200 x 120000000/96881= 110 billion kWh electricity is consumed in Japan for the treatment of waste water. This correspond 100880/ 110=1.11% of total electricity consumption 100880 kWh of Japan

If waste water purification is not done in Japan, 1.40x 25=35million tone CO2 is fixed and 35 million tone plankton can grow and 35x 1/10 = 3.5 million tone fish will be produced.

Bon fire inhibition rule should be abandoned
In Japan waste material must burn at incinerator. 0.4289 billion ton garbage (331 kg per person) is produced. Japan constructed 1243 garbage incinerators. Top number in the world.

Second is USA 351 third France 181. Japan reconstructed high temperature garbage incinerator in 2002. About 2 billion CO2 is produced for construction of these garbage incinerator.

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 at rice field 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. There is Nagoshi clean center at Kamakura Japan. This clean center burn garbage 0.03 million tone at Kamakura producing 0.045 million tone CO2. Exhaust gas contain NOx. By insertion of ammonia this center used 40.94 kg ammonia in 2018. This mean 40.94 x 30/17 = 72.256 kg NO is eliminated by ammonia at Nagoshi clean center. (ref 36). Population of Kamakura is 0.172 million. This data indicate 72.256 x 120000000/172000 = 50.41 million kg NO is eliminated at burning of garbage in Japan. 40.94 x 12000/17.2= 285.64 million kg NOx is eliminated by 255 million kg ammonia. 255 million kg ammonia is produced from 54 million kg H2. If NOx elimination is not done 706 million kg CO2 is not produced. 285 million kg NO x can fix 0.285x 25 = 7.125 million tone CO2.

The countries who use NOx, NP are growing and increasing population. The countries who eliminate NOx, NP are declining and decreasing population (Ref 32). DGP, food and population can be increased by effective use of NOx and NP (ref 16, 19, 21, 32-36)

**Summary**

Complete recycle of N and P is essential for complete recycle of CO2

1. NOx produced by burning should be released as it is. Do not eliminate NOx with ammonia.
2. Close up waste water purification center. Excreta should be released as it is. Ocean dumping, river dumping, field dumping, agriculture field dumping, forest dumping are recommended.

3. Garbage should be burned on site. Kitchen waste should be buried.

4. Bon fire, slash and burn agriculture should be encouraged.

5. NOx elimination law should be abandoned

6. Waste water purification law should be abandoned

7. Bon fir inhibition law should be abandoned

8. Stop the unproductive spent of fossil fuel, like war, military exercise, auto race, leisure cruising and leisure trip

9. Stop the unnecessary economy stimulus measure such as renewal of building, road

10. Restriction rule of NOx emission of car should be loosened

Reference


4. Ozaki Shoichiro Global warming can be protected by promotion of CO2 assimilation using NOx. Journal of Climatology & Weather Forecasting 2016 4.2 1000171


6. Ozaki Shoichiro Method to protect global warming by promotion of CO2 assimilation and method to reactivate fish industry. New Food Industry 2017 59 No 3 61-70


11. Ozaki Shoichiro Stopping of NOx elimination is easy way to reduce CO2 and protect global warming J.Environ Sci Public Health 2017:1 (1)]24-34

12. Ozaki Shoichiro Stopping of NOx elimination is clever way to reduce CO2 and to increase fish production J.of Cell Biology 6 Immunogy 2017 1 e 102

13. Ozaki Shoichiro Effective uses of NOx and drainage are clever way to protect global warming and to increase fish production. Oceanography & Fisheries.2017 4(4)

14. Ozaki Shoichiro NOx Elimination and Drainage NP Elimination should be stopped for the production of fish and for the protection of global warming . J.of Fisheries and Aquaculture Development 2017 issue 05 125

15. Ozaki Shoichiro Let’s enjoy civilized life using limited amount of fossil fuel. Journal of Aquaculture & Marine Biology 2017 6 (3) 06 00158


17 Ozaki Shoichiro Method to protect global warming and to produce much fish by promotion of plankton growth New Food Industry 2018 60 no3 88-94


20. Ozaki Shoichiro How to fix carbon dioxide same amount as emission for the protection of global warming Research & Development in Material Science 2018 vol 3 issue 5 RDMS.000572

21. Ozaki Shoichiro Stop of NOx elimination and stop of waste water purification are easy methods to protect global warming 2018 J of Immunology and Information Diseases Therapy 11 doi.org/06.2018/1.10006

22. Ozaki Shoichiro Climate can be regulated by effective use of NOx and waste water NP 2018 Biomedical Research and Reviews volume 1.1

23. Ozaki Shoichiro Promotion of Plankton CO2 assimilation by effective use of NOx and NP is best method to produce much fish and protect global warming 2018 J of Marine Science Research and Oceanography Volume 1 issue 1.1

24. Ozaki Shoichirou Promotion of plant growth by NOx is best method to reduce CO2 and to protect global warming and to get best climate. International J. of Earth and environmental Science 2018 3 160
.25. Ozaki Shoichiro  Promotion of plant growth by NOx is best method to reduce CO2 and to protect global warming  Current Trends in Oceanography and Marine Science 2018 01 1-4

26 Ozaki Shoichiro  Fish is best food to get anti-aging and long life. NOx elimination should be stopped to produce much fish and to protect global warming  Jacobs J of physiology 2018 4(1) 017

27 Ozaki Shoichiro  Fish is Best Food to Get Anti-Aging and Long Life  J of Aging and Neuropsychology 2018 issue 2 1-6 DOI: http://dx.doi.org/10.20431/2454-7670.0501001

28 Ozaki Shoichiro NOx and NP in waste water fix CO2 and control global warming and climate International J of Biochemistry and Physiology 2018 3 (4) DOI: 10.23880/ijbp-16000140


30 Ozaki Shoichiro  The effect of of increase of NOx and CO2 on grain and fish production, protection of global warming and climate International Journal of Earth Science and Geology 2019 1(1) 6-10

31. Ozaki Shoichiro  Complete use of NOx and NP is essential for the increased production of food and protection of global warming. Inter.J. Innovative Studies in Aquatic Biology and Fisheries 2019 3 (1) 1-6

32. Ozaki Shoichiro Increase of CO2 and NOx promote CO2 assimilation,CO2 fix and food production Advances in Bioengineering & Biomedical Science Research 2019 2 issue 3 1-6

33. Ozaki Shoichiro: Promotion of CO2 assimilation by effective use of NOx and NP is best method to produce much fish and protect glow warming  EC Agriculture 2019 5: Issue 8, 492-497.


35 Ozaki Shoichiro In pure water no fish can live. Water purification promote global warming, decline of countries. Rikuryou Science .2020 63

36. Ozaki Shoichiro  NOx elimination and NP elimination are promoting global warming EC Agriculture 2019


