

(RESEARCH ARTICLE)

Recycle of nitrogen, phosphorous is essential for protection of global warming

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World Journal of Advanced Science and Technology, 2022, 01(01), 015–030

Publication history: Received on 07 December 2021; revised on 09 January 2022; accepted on 11 January 2022

Abstract

Global warming is caused by lack of N and P by the elimination of NO_x and NP in seven developed countries. Global warming can be protected, if enough amounts of nutrients containing nitrogen and phosphorous are supplied. Most easily available substances containing N and P are NO_x and NP in waste water. If developed countries stop the elimination of NO_x and NP, CO₂ assaulting is activated and global warming will stop. . In addition, production of grain and fish will increase and GDP will increase. The goal "CO₂ zero and growth" described in Paris Agreement could be accomplished sooner than in 2050, if recycle of nitrogen and phosphorous is done completely.

Keywords: NO_x; CO₂ assimilation; Protection of global warming; Recycle of nitrogen; NO_x elimination

1 Introduction

Protection of global warming is biggest problem for all persons of the world.

Warm room gas mainly CO₂ increase zero is main task.

COP 26 was held at Glasgow England at 2021 Oct 30-Nov 10 . Main topic was CO₂ increase zero

(I prefer term CO₂ increase zero than CO₂ emission zero.)

CO₂ assimilation is a reaction of CO₂ with water to produce carbohydrate and oxygen

$6 \text{ CO}_2 + 6 \text{ H}_2\text{O} + 6 \times 114 \text{ kcal} \text{ =====> } \text{C}_6\text{H}_{12}\text{O}_6 \text{ (carbohydrate)} + 6 \text{ O}_2$

All living thing, organism can live by eating carbohydrate and derivatives. Petroleum, coal, natural gas are formed as fossil fuels.

CO_{2em}(CO₂ emission) are produced by burning of fossil fuel and respiration. Produced CO₂ is fixed to CO_{2fix} by CO₂ assimilation.

The author defined the ratio of CO₂ em and CO_{2fix} as GWPR(global warming protection ratio)

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

Paris agreement ask us CO_{2em} = CO_{2fix}, GWPR = 1 Carbon neutral

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Global warming is produced by increase of CO₂ 20 ppm every year. About 51 billion ton is emitting every year. About 36 billion tone CO₂ is fixed by CO₂ assimilation. About 15 billion tone CO₂ is remaining. We must fix 15 billion tone CO₂. We must lower present GWPR = $51 / 36 = 1.42$ to 1. To lower GWPR, we can do by two way

- Lower denominator CO₂em

The theory that global warming is produced by increase of CO₂ is proposed by William Nordhaus (winner of Nobel Economic Science 2018). Almost all government related officials are trying to reduce CO₂. COP26 is discussed on this line.

- Increase numerator CO₂ fix

The author is insisting increase numerator CO₂fix. By activating CO₂ assimilation, we can change CO₂ to carbohydrate, rice, grain, plankton and fish. 7 developed countries are eliminating nitrogen and phosphorous then CO₂ assimilation is retarded by the lack of nitrogen and phosphorous. CO₂ fix is retarded and CO₂ increased.. Elimination of NO_x and NP should be stopped for the protection of global warming. (ref 1-51)

CO₂ assimilation is heat absorbing reaction. Global warming can be protected by promotion of CO₂ assimilation.

Global warming is produced by stopping of NP elimination, activating recycle of NP. . Therefore return to the year before 1980 of no NP elimination. If we stop the elimination of NP CO₂ assimilation become active. The increase of of CO₂ fix mean increase of food production. Increase of food lead to the prosperity of countries and local district. Global warming will not happen.

Merit and demerit of Decrease of CO₂ emission

Merit

no

Demerit

- Not easy to reduce CO₂ emission
- Need long time. Effort for 30 years give no good result
- Need money
- No achievement

Merit and demerit of recycle of NO_x and NP and activate CO₂ assimilation

Merit

- Stop of NH₃ to blow in to exit gas and stop the clean center are easy
- Can do immediately
- Need no money
- Achievement: China, India, Indonesia who cycling NO_x and NP show low GWPR and high GDP

Demerit

no

Therefore to protect global warming, It is necessary to stop elimination of NO_x , NP, and activate CO₂ assimilation. Do this sooner.

Plants have constituent Carbon C 25,Nitrogen N 1, phosphorous P 0.06.

Plants eat same constituent substance C:N:P = 25:1:0.06 and grow.

7 developed countries settled very strict rule of NO_x concentration of exit gas of car.

They extended regulation of NO_x for the exit gas of electricity generation plant.They asked to blow in ammonia to

elimination are compared as shown in Table 1.

Electricity prices of the countries who do not do NO_x,NP elimination like China (1.6-1.5 c/kWh), India (6 c/kWh), Indonesia (10 c/kWh) are low. GWPR is less than 1. GDP increase rate is high.

Contrary to this, electricity prices of the countries who do elimination of NO_x, NP are high and GWPR of these countries are high as Japan 3.3,Germany 2.2, UK 1.7. GDP of these countries are low. GDP of Japan was high as 7 and GWPR was 1.4 ,when no elimination of NO_x NP. But GWPR at 2018 GWPR increased to 3.3 and GDP do not increase for 30 years This caused by very strict NP elimination, and recycle of nitrogen and phosphorous is blocked and production of grain and fish is retarded.

To lower GWPR and increase GDP, stop NO_x .NP elimination and promotion of recycle of nitrogen and phosphorus is sure , prompt and easy way.

CO₂ em(CO₂ emission), CO₂fix , CO₂em/p(CO₂ emission per person) , NO_xcon(NO_x concentration at exit gas),, Wdump(Waste water dumping), elect price(electricity price c/kWh) GWPR, GDP(GDP increase rate) of 11 countries are shown at Table 1.

Table 1 CO₂ em, CO₂fix, CO₂em/p, NO_xcon, Wdump, elect price, GWPR, GDP

Country	CO ₂ em bill t	CO ₂ fix bill t	CO ₂ em/p tone	NO _x con g/kWh	W dump	elect price	GWPR	GDP inc rate	
World	510	370	---	---	---	---	1.38	---	
China	106	100	8.0	1.6	do	1.6-4.5	1	6.9	
India	24.6	24.6	1.9	1.6	do	6	1	7.1	
Indonesia	5.0	6.0	2.1	1.6	do	10	0.83	5.2	
USA	51.0	510	19.1	0.5	no	12	1	1.48	
Japan	(2018)	12.5	3.8	8.9	0.1	no	24	3.3	1.03
	(1980)	5.5	5.5	3.1	1.6	do	--	1	7.0
Russia	19.6	19.6	----	0.61	---	17	1	0.8	
Germany	7.8	3.5	8.9	0.31	no	33	2.2	1.83	
U. K	4.0	2.4	5.6	1.3	no	15.4	1.7	1.8	
Italy	3.5	3.0	5.8	0.5	no	28	1.2	0.88	
France	3.3	3.3	5.0	--	no	19	1	1.2	
Canada	5.6	7	18	1.3	no	8.1	0.8	1.44	

2 How to do CO₂ increase zero and progress in Japan

The time which decreased fish production is same as NO_x,NP elimination started..This time is same sa GDP increase stopped. Also the time is same as CO₂ stated increase.

At around 1980, 50 million tone NO_x is released and feases and urine are released eleven million tone fish s are caught. .8x211 million tone x 25 = 27.9 hundred million tone CO₂ is fixed by plankton. CO_e emission at 1980 was 8 hundred million ton. In after 2018, 1.25 billion tone CO₂ is released. 11.7 billion kWh is used.for wast water treatment. 28.3 million tone NH₃ is used for NO_x elimination.4.99 million tone H₂is used. Fort he production of 4.99 million tone H₂, 27.5 million tone CO₂ is released.

To protect CO₂ increase, it is better to increase plankton by activating CO₂ assimilation.Plankton eat same weight CO₂. Fish grow by eating about 10 to 20 times plankton . If NO_x,NP elimination is stopped, fish production return to the situation as in before 1980. GWPR will decrease from 3.3 to 1.45.. When we look at production of fish in the world,China

increased fish production, 57 times from 1960 to 2017, In 1960 1.5 million tone. In 2017 85,3 million tone. China produced 10.6 billion tone CO₂ and 0.4 billion tone NO_x. 0.4 billion tone NO_x contributed for the increase of N concentration of sea, and growth of plankton and fix of 1.6 billion tone CO₂ to increase production of 85.3 million tone fish. East China sea is now top fishing sea. Japan can increase fish production if Japan stop waste water purification stop NO_x elimination. Scatter fertilizer like urea, ammonium phosphate to sea. and use sodium tripoly phosphate as soap additives.

3 Rice and wheat plantation to increase CO₂fix

One hectare rice field produce 6 tone rice fixing $3 \times 6 = 18$ tone CO₂.

There is 0.81 million hectare (35 % of culture field) fallow field (kyukoudenn) in Japan. If plant rice at this field, we can produce $6 \times 810000 = 4.86$ million ton rice and we can fix $4.86 \times 3 = 14.58$ million tone CO₂ If we plant rice and wheat, we can get 9.72 million ton grain and we can fix 30 million tone CO₂

If we plant rice at all rice field $1.46 + 0.81 = 2.27$ million hectare, we can get $6 \times 2.27 = 13.62$ million tone grain will be obtained. and $13.62 \times 3 = 40.86$ million tone CO₂ will be fixed, In the process of rice production 27 million tone straw is also obtained. This straw is good food for cow. Livestock industry is also promoted Then this gives great contribution for protection of global warming and for regional revitalization.

4 Providing of N, and P to the sea, lake or river is better way to promote CO₂ fixing

4.1 Fish Production at Seto inland sea

At around 1980, red tide appeared at near fishery plant at Kagawa prefecture Japan. Then Japan government build 2200 water clean center at all over Japan and eliminated nitrogen and phosphorous completely by activated sludge process. Also NO_x in exit gas of all plant was eliminated by ammonia. Then nitrogen concentration of sea decreased. From 1980 0.40 mg/l to 2015 0.05 mg/l. Total phosphorus decreased from 60t/day in 1980 to 25 t/day in 2010. Sea weed do not grow. Plankton do not grow Nori growing plant stopped. Fish production decreased from 1980 0.45 millions tone to 2018 0.05 millions tone [ref 4, 5,13,14,16,19,75]. Official of developed countries consider NP in waste water as pollution substance and inhibited the waste water dumping by London dumping convention. Then NP concentration decreased [39].

Table 2 Relation of NO_x, NP elimination with Fish production at Seto inland sea

t/day	total phosphorous	N mg/l t/day	fish mill t	total nitrogen
60	1980	0.40	0.45	670
46	1985	0.40	0.45	620
42	1990	0.30	0.32	620
40	1995	0.22	0.22	620
39	2000	0.22	0.21	600
32	2005	0.15	0.22	450
25	2010	0.05	0.10	400
--	2015	0.05	0.08	--
--	2018	0.05	0.05	--

Hyogo prefecture demonstrated the decreased production of sand lance (ikanago) by the decrease of nitrogen concentration.(ref 70) Ikanago production decreased from 8000 tone in 1980 to 1500 tone in 2016 by decrease of N concentration from 12 micro mole to 1 micro mole as shown in Table 3. Decrease was observed at two times. First

decrease was at 1980 to 2000. Second decrease was observed after 2000. First decrease is caused by NP elimination of waste water and second decrease is caused by Bon fir inhibition and NO_x elimination(ref 33) as shown.

Table 3 Sand lance production at Hyogo Prefecture

	Sand lance (tone)	N concentration (micro mole)
1980	8000	12
1985	4000	5
1990	7000	9
2000	2050	5
2010	2530	3
2016	1500	3

5 Fish Production at Biwa lake

Fish production at Biwa lake is shown at Table 2 (Ref 76)

Fish like ayu and honmoroko are decreasing . I think this is caused by the scare of phosphorus

Table 4 Fish catch at Biwa lake

	Total fish t/Y	Fish t/Y	ayu t/y	honmoroko t/y	clam(shizimi)t/y
1955	10616	--	--	--	8000
1964	--	3000	--	--	--
1969	--	3000	--	--	2060
1979	--	2400	--	--	840
1989	--	2800	1760	209	520
2004	--	1520	--	--	70
2014	--	1060	--	5	---
2017	713	--	279	9	5.3

Fish(clam + fish) production at Biwa lake was 10616 tone In 1955. The production decreased to 713 tone in 2017. Fish production. 2400 tone in 1979, 1520 tone in 2004, 1060 tone in 2014. Ayu production decreased 1760 tone in 1989 to 279 tone in 2017.

Relation of fish catch with TP load (Total phosphorous load) is shown at table 5

Phosphorous concentration T P lord is decreasing yearly. Phosphorous load is decreasing after 1985 by NP elimination policy and waste water purification.

In 1990 fish catch was 3800 tone , In 1995 2200 tone, in 2005 1400 tone, in 2015 950 tone. TP load in 1990 was 440 tone, in 1995 420 tone, in 2005 280 tone, in 2015 220 tone. Fish catch decreased when TP load decreased. One phosphorous can fix 106 CO₂.

Fish production of Biwa Lake Shiga prefecture Japan decreased 1985 3000 tone to 2015 950 tone 。 Because phosphorous concentration decrease. I wish to ask to test how fish increase by addition of ammonium phosphate.(ref 57)

Japan is surrounded by sea. Sufficient CO₂ assimilation must be carried out at sea.. China is getting 80 million ton fish by complete recycling of nitrogen and phosphorous and fixing 1.6 billion tone CO₂.. Japan must do complete recycle of nitrogen and phosphorous and adding fertilizer to sea and increase plankton 2 billion tone and 50 million tone fish.

Table 6 Comparison of GWPR (global warming protection ratio),GDP of Japan at 1980, 2018,2022 and 2030

	CO ₂ em hmt	CO ₂ fix hmt	NO _x em him	NO _x con g/kWh	Wd	TPP hmt	Fertilizer hmt	Fish hmt	GWPR	GDP
1980	8	5.5	0.5	1.6	do	0.05	5	11	1.45	7
2018	12.5	3.8	0	0.1	no	0	0	2	3.3	1
2022	10	5.5	0.5	1.6	do	0.5	10	50	1.8	2
2030	10	12.5	0.51	1.6	do	0.5	20	80	0.8	7

CO₂em(CO₂ emission),CO₂fix, , NO_xcon(NO_x concentration at exit gas),Wd(Wastewater dumping), TPP (Sodium tripolyphosphate) , GWPR, GDP(GDP increase ratio)

7 Method to make CO₂ increase zero and to progress at world

At before 1975, CO₂ emission and CO₂ fix were same. $GWPR = CO_2 \text{ emission} / CO_2 \text{ fix} = 1$ Carbon neutral

At 1985, elimination of NO_x and NP started. Supply of N,P is stopped and CO assimilation is restricted. CO₂ fix is restricted. CO₂ fix become smaller than Emission. GWPR is over 1 since 1980. And reached to 1.33 in 1983 1.63 in 2018.

If we provide 100 hundred million tone fertilizer and stop NO_x, NP elimination, GWPR will become 1 and GDP will increase to 4% in 2022. If we provide 300 hm tone fertilizer and stop NO_x,NP elimination GWPR decrease to 0.9 and DGP increase to 10 %. In 2030. If we provide 600 hm tone fertilizer GWPr will drop to 0.8 and GDP will rise to 12%. These value is fit Paris agreement and countries will be rich. (ref 50).

GWPR, GDP of world at 1860,1980, 2018,2022,2030 and 2040 are shown in table 7

Table 7 CO₂em(CO₂ emission),CO₂fix, , NO_xcon(NO_x concentration at exit gas),Wd(Wastewater dumping), GWPR, GDP(GDP increase ratio)

	CO ₂ em hmt	CO ₂ fix hmt	NO _x em him	NO _x con g/kWh	Wd	Fertilizer hmt	Fish mt	Population billion	GWPR	GDP
1960	100	100	4	1.6	do	0	--	3.5	30	1
1975	170	170	6.8	1.6	do	0	--	--	40	1
1985	200	150	8	1.6	no	0	--	35	0.46	1
2018	360	220	14.4	1.0	no	0	150	73	1.63	1
2022	300	300	0.5	1.6	do	100	300	78	1	6
2030	300	330	0.51	1.6	do	300	500	85	0.9	10
2040	300	360	0.5	1.6	do	500	600	100	0.8	12

The earth is warmed up. CO₂ is increasing 20 ppm every year. 51 billion tone CO₂ is emitting but CO₂ fix is 36 billion tone. 15 billion tone CO₂ is remaining. If this 15 billion tone CO₂ become zero, then CO₂ increase zero as Paris agreement asking. This is Carbon neutral

To reach CO₂ increase zero

- Decrease CO₂ emission
- Increase CO₂ fix

- Decrease CO₂ emission: Global warming is produced by increases of CO₂. Almost all person related in environment organization, government are trying to decrease CO₂
- The author is insisting promotion of CO₂ assimilation to fix CO₂ for 49 years (ref 1-50)

To promote CO₂ assimilation, supply of nitrogen and phosphorus is essential.

If devoted countries stop NO_x,NP elimination, CO₂ increase zero can be realized before 2050.

CO₂ is increasing 20 ppm every year. Why CO₂ is increasing. The author investigated amount of CO₂ emission, amount of CO₂ fix, amount of NO_x emission, amount of CO₂, how CO₂ is consumed.

For plankton, grain, how CO₂ is used for the growth of fish, tree, how NO_x is used how NO_x,P in wast water are related with grain fish production. By static data and consideration about the relation of these data gave me conclusion (ref 1-50)

Global warming is due : Developed countries are eliminating NO_x and NP then scare of nitrogen and phosphorous is happened. CO₂ assimilation is retarded, CO₂ fix is retarded and food production is retarded and GDP increase is retarded.

Government are trying to deduce CO₂ emission by casting many thousand money. But no success.

It is better to study how to fix CO₂. The study to fix CO₂ is easy and possibility of success is high. And real merit is obtained soon. I recommend the study which valuable substances like grain, fish. are obtainable. The study to increase N and P concentration by stirring deep water and shallow water. Or considering Setoinland sea, Biwa lake as test field and add fertilizer and study how much fish, shizimi is harvested.

Table 8 Country, CO₂em, NO_x, NO_xcon, Wdump, Area, Fixable CO₂, GWPR, GDP

Country		CO ₂ em hmt	NO _x hmt	NO _x con g/kWh	W Dump	Area km ²	FixableCO ₂ bill t	GWPR inc ratio	GDP
World		510	16.5	--					
China		1.64	4.25	1.6	do	1.0x 10 ⁷	100	1.0	6.9
India		24.6	1	1.6	do	3.2x 10 ⁶	32	0.76	7.1
Indonesia		5.0	0.2	1.6	do	1.9x 10 ⁶	19	0.3	5.2
USA		51.0	2	0.5	no	9.5x 10 ⁶	95	0.53	1.48
Japan	(2018)	12.5	0	0.1	no	3.8x 10 ⁵	3.8	3.3	1.03
	(1980)	8	0.5	1.6	do	3.8x 10 ⁵	3.8	1.5	7.0
Russia		19.6	0.63	--	--	3.2x 10 ⁶	32	0.61	0.8
Germany		7.8	0.31	1.0	no	3.5x 10 ⁵	3.5	2.2	1.83
U. K		4.0	0.16	1.3	no	2.4 x 10 ⁴	2.4	1.7	1.8
Italy		3.5	0.14	0.5	no	2.0x 10 ⁵	3.0	1.2	0.88
France		3.3	0.13	--	no	6.4x 10 ⁵	8.4	0.4	1.2
Canada		5.6	0.22	1.3	no	1.0x 10 ⁸	100	0.06	1.44
Iran		6.3	0.25	--		1.6x 10 ⁶	1.6	3.9	2.6
Turkey		4.0	0.16	--		7.8x 10 ⁵	7.8	0.5	-2

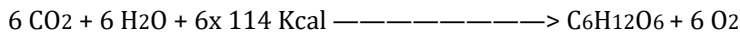
CO₂em(CO₂emission), NO_x(NO_xproduction), NO_xc(NO_x concentration at exit gas), W dump(Wastewater dumping), GWPR(global warming protection ratio), GDP(GDP increase ratio) of 13 countries are shown in Table 8 (Ref 49)

GWPR and DGP increase rate of many countries are compared. The countries who recycle NP, use NP as fertilizer are increasing food production, DGP, population and are prospering.

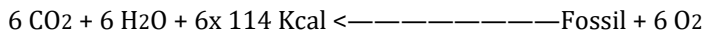
7 developed countries who do eliminating NO_x and NP and do not recycle nitrogen and phosphorous have high GWPR and low DGP growth rate and are sluggish. Global warming is induced by no recycling of NP of developed countries. Stop elimination of NP at developed countries is easy and short cut to recover from global warming.

All biology on earths are living by eating carbohydrate or derivatives produced by the reaction of CO₂ and water. CO₂ assimilation. Our human being is enjoying civilized life by burning of fossil fuel, coal, petroleum, natural gas.

CO₂ assimilation



Carbohydrate



Burning

Paris agreement was set up to protect global warming. Paris agreement asking us global warming gas emission must be equal as CO₂ fix by 2050.

The reason why global warming is CO₂ emission surpassed the CO₂ assimilation. To protect global warming, promotion of CO₂ assimilation is necessary. In 2020, 36 billion tone CO₂ is emitted by burning of fossil. One person produce 0.32 tone CO₂ by respiration. 7.6 billion persons produce 76x0.32=2.43 bill tone CO₂. Other animal produce 2.42 billion CO₂ Burning of wood produce 10.2 billion CO₂

Total 36+ 2.42 + 2.43 + 5.02 = 51 bill tone CO₂ is produced.

Author defined the ratio

CO₂ emission/ CO₂fix as GWPR (global warming protection ratio)

Paris agreement ask CO₂ increase zero is CO₂ emission is equal CO₂ fix

$$\text{GWPR} = 1$$

CO₂ emission of the world is 51 billion tone. CO₂ emission of Japan is 1.25 billion tone CO₂ emission can be obtained from internet. CO₂ fix can be estimated from area of the countries. W.Nordhaus(Winner of Nobel Economic Science 2018)proposed theory that global warming is due to increase of CO₂ and United nation, Japan government are trying to decrease CO₂ by store underground or finding of new reaction. But real reason is not increase of CO₂. Real reason is lack of nitrogen and phosphorous by the elimination of NO_x and NP which essential for CO₂ assimilation.

When we investigate how 51 billion tone CO₂ is used, 188.8 billion tone CO₂ is used for plankton formation. 6.6 billion tone for grain production, 25.6 billion tone is used for tree and glass formation. 18 billion tone CO₂ is remaining. 1.44 billion tone NO_x can fix 1.44x 25 = 36 billion tone CO₂. 0.5 billion tone NP in waste water can fix 0.5x 25 = 12.5 billion tone CO₂. 36 + 12.5 = 48.9 billion tone CO₂ can be fixed. Global warming can be protected.

8 Relation of Fish, grain production and CO₂ increase

Plankton are controlling food of biology in sea. 18.8 billion tone CO₂ is fixed by plankton. China producing 10.9 billion tone CO₂. 81.5 million tone fish is produced. 81.5X 20 = 1630 million, 1.63 billion tone CO₂ is fixed by plankton. Japan was producing 12 million ton fish and 0.26 billion tone CO₂ was fixed before 1980. But CO₂ emission increased to 1.25 billion tone GWPR is 1.25/0.38= 3.3 because NO_x emission become zero fish production decreased to 4.5 million CO₂ increase is 0.9 billion top in the world. And getting heavy criticism fro the world. When we compare GWPR, Japan 3.3, Germany 2.2, United Kingdom 1.7 Italia 1.2. If Japan return to the state as before 1980 when no elimination of NO_x, NP then no CO₂ increase.

9 Comparison of electricity price, GWPR and GDP of many countries

Countries who recycle NP: Electricity price is low, GWPE is low, GDP is high.

Countries who do not recycle NP: Electricity price is high, GWPR is high, GDP is low

Emission of CO₂ and NO_x increased since industrial revolution. As the result, CO₂ assimilation increased and growth of plant increased and harvest of grain increased. Grain production 1.1 billion tone in 1975 increased to 2.7 billion tone in 2019. CO₂ emission 20 billion tone in 1980, CO₂ fix was 15.5 billion tone in 1980, CO₂ emission 22 billion tone, CO₂ fix 14 billion tone in 1990. 25 billion tone emission, CO₂ fix is 15 billion tone in 2000. 36 billion tone emission, 22 billion ton fix in 2017. After 1980, CO₂ fix is much less than emission. This time is same as developed countries stated NO_x, NP elimination.. IF NP elimination is stopped, CO₂ fix will increase production of grain and fish increase. Japan increasing GDP 6 % and 2nd . But the increase stopped after 1985. No countries do NO_x ,NP elimination so perfectly. No countries reduce CO₂ assimilation and declining agriculture and fish industry than Japan. We should not do NP elimination. If we stop NP elimination, increase of CO₂ will stop and grain and fish production increase and stop local decline and can get national wealth.

Electricity price of the countries who recycling nitrogen and phosphorous are low. China 1.6-4.5 c/kWh, India 6 c/kWh, Indonesia 15 c/kWh. At these countries, production industry prospered and controlling economy of the world. To the contrary, The electricity price of the countries who do not recycle nitrogen and phosphorous is high. USA 12c/kWh, Japan 24 c/kWh, Russia 17 c/kWh, Germany 33 c/kWh, UK 15.4 c/kWh, Italia 25 c/kWh France 19 c/kWh. Factories are moving to developing countries and production is restricted and GDP increase stopped. GDP of China was 303 billion dollar in 1980, 1/9 of USA, 1/4 of Japan. After 30 years, in 2010 China surpassed Japan and now second big economy country and in 10 years, surpass USA and will be biggest economy country in GDP.

Green field can fix 1000 tone CO₂ at 1 km². Area of Japan is 380000 km². Fixable CO₂ is 380000 x 1000 = 3.8 hundred million tone. GWPR(global warming protection ratio) = 12.5/3.8 = 3.3...The countries who use NO_x, NP as fertilizer: China GWPr 1, GDP 6, India GWPR = 0.76, GDP 7.1, Indonesia GWPR 0.3, GDP 5.2.

Japan, Germany, United Kingdom, Italy are narrow countries. They cannot fix CO₂ produced at his countries. GWPR of Japan is 3.3, Germany 2.2, Italy 1.2. These countries are surrounded by sea. They should increase plankton CO₂ assimilation by increasing the concentration of NP by stopping of NO_x elimination and stopping waste water purification. Then GWPR will be lowered and GDP will increase ((Ref 2,3,5,45-50).

The law about bon fir ban should be abandoned Because burning of wood produce much NO_x. Burning of 100 kg timber produce 4 kg NO_x. 4kg NO_x can fix 4x25=100 kg CO₂ Burning of timber is contributing for global warming protection(ref 37).

Bon fir ban low give very heavy difficult embarrassment for the persons living at local house having tree.

Japan emitting 1.25 billion tone CO₂. 11.7 billion kWh electricity(1/3 of solar electricity), and producing 1.6 million tone CO₂. 0.1 billion tone CO₂ is produced for NO_x elimination. If and million tone NP, 0.06x25= 1.5 billion tone CO₂ elimination of NO_x, NP elimination, we can save the emission of 10.65 million tone CO₂. By using 50 million tone NO_x and 10 million tone NP, we can fix 0.06x 25 =1.5 billion tone CO₂ We can do CO₂ increase zero. Also we can produce 10 million tone fish, 640 billion dollar. GDP decrease at local district will stop and population decrease will stop and national wealth will increase.(ref 30-51)

London dumping treaty inhibit the dumping of pollution substance to the sea. When I was talking with ikanago officer who is negotiating about the loosening of waste water purification I recommended to throw in manure at Naruto channel. Then officer said ocean dumping is impossible by international rule.. Japan government define manure as pollution substance and set up rule to inhibit dumping of manure to ocean. As the result, harvest of agriculture and fish industry reduced remarkably. London dumping treatment is not inhibiting dumping of manure. By dumping manure, plankton increase and much CO₂ is eaten by plankton. Plankton is most valuable creator who reduced 75% CO₂ to 400ppm in several billion years.(ref 5.7).

Japan does not dump radioactive substance to sea. I talked with my intimate friend Dr Kunio Araki who worked at Takasaki atomic energy factory.. Ocean dumping of radioactive substance is impossible to throw in ocean by London dumping treaty. Japan keeping treaty most honestly. Therefore Japan is producing a large amount of CO₂ for the

treatment and storage to avoid troubles with other countries and yet Japan cannot eliminate radioactive substances. Japan is keeping radioactive substance in Japan. Electricity generation by atomic energy in Japan is almost stopping. Japan has no way to eliminate radioactive substances. The only way is dumping of radioactive waste to sea. Sea is wide and deep and infinite dilution is possible. Japan must find methods to dump radioactive substances in sea by safe methods. If we can dump radioactive substances without harm, this would be better than keeping radioactive substances that produce much CO₂ and activate global warming following London dumping treaty.

By dumping of waste water, we can save the emission of 10 billion tones of CO₂. We can obtain 1 billion tons of grain and fish. By dumping of radio active substances, we can save 2 billion tons of CO₂ emission. Dumping of these substances is better than keeping them in Japan producing much CO₂ and promotes global warming. (ref 39)

10 Proposal to Japan government

Japan government proposed plan to protect global warming at COP26 and CO₂ increase zero by 1950. But this plan is difficult to achieve..I wish to propose my plan .

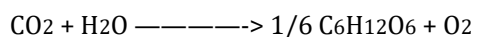
Government consider decarbonization, and reduction of CO₂ emission are most important subjects.

But many reports(ref 52-70) say increase of CO₂ is better for climate control.

I think that promotion of CO₂ assimilation to produce useful materials is most important subject.

We should know CO₂ assimilation is only method to reduce CO₂ getting useful materials. The government is trying to find better method than CO₂ assimilation. But CO₂ assimilation is best reaction because yield is 100%, quantum yield is 100% No other reaction can surpass CO₂ assimilation. We should limit research based on CO₂ assimilation. Research on decarbonization is wast of resources and research money (ref 7779,80)

Effective use of sun shine at all land , sea, river and lake is most important. Promotion of agriculture and fish industry by promotion of CO₂ assimilation is easy best way.



If we plant rice and wheat at all grain field $1.46 + 0.81 = 2.27$ million hectare ,we can get $6 \times 2.27 \times 2 = 27.2$ million tone grain and $27.2 \times 2 = 54.4$ million tone CO₂ will be fixed, This gives great contribution for protection of global warming and for regional revitalization .

Geothermal generation is used at Hungary. Hungary have many hot spring, Geothermal power generation is not done much in Japan. considering the benefit of hot sprig persons. We should consider about thermal generation Hot water after electricity generation can be used as hot spring.

Solar energy electricity generation is done by the sacrifice of wood. Light receiving power of panel is 1/3 of green leave. When we consider the cost for pairing panel, construction fee of panel, and rise of electricity price, Construction of solar electricity generation should not done [78-81]. Solar electricity generation is possible at desert district like Arabia and Xinjiang Wind power generation is impossible at Japan because of high speed typhoon 160 m/sec.

Japan government often do job to increase ratio of on job ratio and economy. These action increase CO₂ emission and electricity generation, Example of these is, reconstruction of building to increase anti earthquake., construction of dam, go to travel, construction of new linear motor Shinkansen Tokyo-Nagoya. When plan are set up, we must compare benefit and demerit how much CO₂ is produced.

Use of AI: Make soft to evaluate Global warming protection and how protect the increase of CO₂.

The plan of government is just plan to increase consumption. I wish to make plan to increase production of useful material like food. To increase CO₂ fix. The promotion of CO₂ assimilation is essential. To promote CO₂ assimilation. Supply of nitrogen and phosphorous is essential . To increase nitrogen and phosphorous, Immediate abandon of three bill is essential One is a bill to eliminate NO_x in exit gas Two is a bill about elimination of NP in waste water. Three is a bill to inhibit bon fire. By increase of material ,GDT and wealth of country. will increase.

11 Conclusion

Global warming is caused by scare of nitrogen and phosphorous by the elimination of NO_x and NP. If developed countries stop NO_x,NP elimination, CO₂ assimilation is activated and CO₂ fix and food production will increase, and global warming will stop and national wealth and DGP will increase.

Compliance with ethical standards

Acknowledgments

I wish to acknowledge Late Dr Okazaki Minoru. He was my most intimate friend since 1947. He developed the methods to make clean water and clean air. He gave me precious informations to write papers. I also acknowledge the editors of New Food Industry (ref 1), Eur J Exp Biol (ref 7), International J of Waste Resources (ref 16.19), International J of Earth Sciences and Biology(ref 29) who advised me to write papers without asking any publication fees.

References

- [1] Ozaki Shoichiro. Recycle of nitrogen and phosphorous for the increase of food production. New Food Industry. 1993; 35(10): 33-39.
- [2] Ozaki Shoichiro. Methods to protect global warming. Adv Tech Biol Med. 2016; 4: 181.
- [3] Ozaki Shoichiro. Methods to protect global warming, Food production increase way. New Food atIndustry. 2016; 58(8): 47-52.
- [4] Ozaki Shoichiro. Global warming can be protected by promotion of CO₂ assimilation using NO_x. Journal of Climatology & Weather Forecasting. 2016; 4(2): 1000171.
- [5] Ozaki Shoichiro. Global warming can be protected by promotion of plankton CO₂ assimilation. Journal of Marine Science: Research & Development. 2016; 6: 213 .
- [6] Ozaki Shoichiro. Method to protect global warming by promotion of CO₂ assimilation and method to reactivate fish industry. New Food Industry. 2017; 59(3): 61-70.
- [7] Ozaki Shoichiro. NO_x is Best Compound to Reduce CO₂. Eur J Exp Biol. 2017; 7: 12.
- [8] Ozaki Shoichiro. Protection of global warming and burn out of fossil fuel by promotion of CO₂ assimilation. J. of Marine Biology & Oceanography. 2017; 6: 2.
- [9] Ozaki Shoichiro. Promotion of CO₂ assimilation supposed by NO_x is best way to protect global warming and food production. Artiv of Pet-Envilron Biotechnol. 2017; 02: 110.
- [10] Ozaki Shoichiro. Promotion of CO₂ assimilation supported by NO_x is best way to protect global warming. J. Marine Biol Aquacult. 2017; 3(2).
- [11] Ozaki Shoichiro. Stopping of NO_x 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 NO_x elimination is clever way to reduce CO₂ and to increase fish production. J. of Cell Biology 6 Immunogy. 2017; 1e: 102.
- [13] Ozaki Shoichiro. Effective uses of NO_x and drainage are clever way to protect global warming and to increase fish production. Oceanography & Fisheries. 2017; 4(4).
- [14] Ozaki Shoichiro. NO_x 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; 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.
- [16] Ozaki Shoichiro. Method to fit Paris agreement for protection of global warming. International Journal of Waste Resources. 2017; 7-4: 318.
- [17] Ozaki Shoichiro. Method to protect global warming and to produce much fish by promotion of plankton growth. New Food Industry. 2018; 60(3): 88-94.

- [18] Ozaki Shoichiro. Method to protect global warming by promotion of plankton CO₂ assimilation. Rikuryou Science. 2018; 61 23.
- [19] Ozaki Shoichiro. Effect of NO_x elimination on electricity price, fish production, GDP and protection of global warming. International J of Waste Resources. 2018; 8(1).
- [20] Ozaki Shoichiro. How to fix carbon dioxide same amount as emission for the protection of global warming. Research & Development in Material Science. 2018; 3(5).
- [21] Ozaki Shoichiro. Stop of NO_x elimination and stop of waste water purification are easy methods to protect global warming. J of Immunology and Information Diseases Therapy. 2018; 11.
- [22] Ozaki Shoichiro. Climate can be regulated by effective use of NO_x and waste water NP. 2018 Biomedical Research and Reviews volume 1.1.
- [23] Ozaki Shoichiro. Promotion of Plankton CO₂ assimilation by effective use of NO_x 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 Shoichiro. Promotion of plankton CO₂ assimilation by NO_x is best way 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 NO_x 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. NO_x elimination should be stopped to produce much fish and to protect global warming Jacobs Journal 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; 2: 1-6.
- [28] Ozaki Shoichiro. NO_x and NP in waste water fix CO₂ and control global warming and climate. International J of Biochemistry and Physiology. 2018; 3(4):
- [29] Ozaki Shoichiro. The effect of of increase of NO_x 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.
- [30] Ozaki Shoichiro. Complete use of NO_x 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.
- [31] Ozaki Shoichiro. Why global warming is progressing. Promotion of CO₂ assimilation is best method to protect global warming. Rikuryou Science. 2019; 62: 16-18.
- [32] Ozaki Shoichiro. Increase of CO₂ and NO_x promote CO₂ assimilation, CO₂ fix and food production. Advances in Bioengineering & Biomedical Science Research. 2019; 2: 3 1-6.
- [33] Ozaki Shoichiro. Promotion of CO₂ assimilation by effective use of NO_x and NP is best method to produce much fish and protect global warming. EC Agriculture. 2019; 5(8): 492-497.
- [34] Ozaki Shoicjiro. Why fish production of Japan decreased. Why global warming is progressing. New food Industry. 2019; 61(10): 787-793.
- [35] Ozaki Shoichiro. In pure water no fish can live. Water purification promote global warming, decline of countries. Rikuryou Science. 2020; 63: 24-29.
- [36] Ozaki Shoichiro. NO_x elimination and NP elimination are promoting global warming. EC Agriculture. 2020; 6(1): 1-8.
- [37] Ozaki Shoichiro. Purification of water and air is promoting global warming and country decline. Journal of Marine Science and Oceanography. 2020; 3(1): 1-4.
- [38] Ozaki Shoichiro. Relation of London Dumping Convention and Global Warming. If Developed Countries stop NP and NO_x Elimination, CO₂ Assimilation Increase and Global Warming Will Stop. International J of Pollution Research. 2020; 3: 115-119.
- [39] Ozaki Shoichiro. Global warming will stop, if developed countries stop NO_x and NP elimination. J. of Environmental Sci. Current Research. 2020; 3: 022.
- [40] Ozaki Shoichiro. Stopping of NO_x, NP Elimination at developed countries is easy method to protect global warming. J Bacteriology and Myology. 2020; 7(4): 1137.

- [41] Ozaki Shoichiro. In pure water no fish can live. Water purification promote global warming and decline region and countries. *New Food Industry*. 2020; 62(8): 615-620.
- [42] Ozaki Shoichiro. Promotion of recycle of carbon, nitrogen and phosphorous is essential for protection of global warming and increase of national wealth. *American J of humanities and Social Science*. 2020; 5: 01-13.
- [43] Ozaki Shoichiro. Stopping of NO_x and NP elimination at developed countries is essential for the promotion of food production and protection of global warming. *J of Soil Science and Plant Physiology*. 2020; 2(2): 1-10.
- [44] Ozaki Shoichiro. Promotion of CO₂ assimilation by stopping NO_x, NP elimination is best method to produce much food and to protect global warming. *American J of Engineering, Science and Technology*. 2020; 5: 1-15.
- [45] Ozaki Shoichiro. Stopping of NO_x, NP elimination is easy method to protect global warming. *J of Research in Environmental and Earth Science*. 2020; 6(6): 12-21.
- [46] Ozaki Shoichiro. Method to protect global warming to fit Paris agreement and to enrich the countries. *Rikuryou Science*. 2021; 64: 32-38.
- [47] Ozaki Shoichiro. Method to protect global warming and to get long life *International Journal of Clinical Case Reports*. 2020; 8(2): 002-16.
- [48] Ozaki Shoichiro. Aquaculture of plankton and fish by fertilizer is best way to protect global warming *Acta Scientific Biotechnology*. 2021; 2(1): 13-22.
- [49] Ozaki Shoichiro. Promotion of CO₂ assimilation by NO_x, NP is easy method to protect global warming to get high GDP *Open access Research J of Biology and Pharmacy*. 2021; 02(02):063-086.
- [50] Ozaki Shoichiro. Promotion of CO₂ assimilation by sufficient supply of nitrogen and phosphorous is easiest method to fit Paris agreement and to protect global warming and to get national wealth *International Journal of Science and Research Archive*. 2021; 04(01): 092-105.
- [51] Zaichun Zhu, Shilong Piao, Ning Zeng. Greening of the Earth and its drivers *Nature Climate Change*. 2016; 6: 791–795.
- [52] Ziska LH. Rising atmospheric carbon dioxide and plant biology: the overlooked paradigm. In *Controversies in Science and Technology, From Climate to Chromosomes*. eds. Kleinman, D.L., Cloud-Hansen, K.A. et al. (New Rochelle: Liebert, Inc. 2008; 379-400.
- [53] de Graaff MA, Van Groenigen KJ, et al. Interactions between plant growth and soil nutrient cycling under elevated CO₂: a meta-analysis. *Global Change Biology*. 2006; 12: 2077-2091.
- [54] Jablonski LM, Wang X, et al. Plant reproduction under elevated CO₂ conditions: a meta-analysis of reports on 79 crop and wild species. *New Phytologist*. 2002; 156: 9-26.
- [55] Reich PB, Oleksyn J. Global patterns of plant leaf N and P in relation to temperature and latitude. *Proc. Natl Acad. Sci. USA*. 2004; 101: 11001–11006.
- [56] Martiny AC, Pham CTA, Primeau FW, Vrugt JA, Moore JK, Levin SA, Lomas MW. Strong latitudinal patterns in the elemental ratios of marine plankton and organic matter. *Nature Geosci*. 2013; 6: 279–283.
- [57] Reich PB, Oleksyn J. Global patterns of plant leaf N and P in relation to temperature and latitude. *Proc. Natl Acad. Sci. USA*. 2004; 101: 11001–11006.
- [58] Doney SC. Oceanography: Plankton in a warmer world. *Nature*. 2006; 444: 695–696.
- [59] Allen AP, Gillooly JF. Towards an integration of ecological stoichiometry and the metabolic theory of ecology to better understand nutrient cycling. *Ecol. Lett*. 2009; 12: 369–384.
- [60] Regaudie-de-Gioux A, Duarte CM. Temperature dependence of planktonic metabolism in the ocean. *Glob. Biogeochem. Cycles*. 2012; 26: 1–10.
- [61] Boyce DG, Lewis RM, Worm B. Global phytoplankton decline over the past century. *Nature*. 2010; 466: 591–596.
- [62] Thomas MK, Kremer CT, Klausmeier CA, Litchman E. A global pattern of thermal adaptation in marine phytoplankton. *Science*. 2012; 338: 1085–1088.
- [63] Ainsworth EA. Rice production in a changing climate: a meta-analysis of responses to elevated carbon dioxide and elevated ozone concentration. *Global Change Biology*. 2008; 14: 1642-1650.

- [64] Ainsworth EA, Rogers A. The response of photosynthesis and stomatal conductance to rising (CO₂): mechanisms and environmental interactions. *Plant, Cell and Environment*. 2007; 30: 258-270.
- [65] Leakey ADB, Ainsworth EA, et al. Elevated CO₂ effects on plant carbon, nitrogen, and water relations; six important lessons from FACE. *Journal of Experimental Botany*. 2009; 60: 2859-2876.
- [66] Long SP, Ainsworth EA, et al. Food for thought: Lower-than-expected crop yield stimulation with rising CO₂ concentrations. *Science*. 2006; 312: 1918-1921.
- [67] Poorter H, Navas ML. Plant growth and competition at elevated CO₂: on winners, losers and functional groups. *New Phytologist*. 2003; 157: 175-198.
- [68] Rogers A, Ainsworth E, et al. Will elevated carbon dioxide concentration amplify the benefits of nitrogen fixation in legumes? *Plant Physiology*. 2009; 151: 1009-1016.
- [69] Stiling P, Cornelissen T. How does elevated carbon dioxide (CO₂) affect plant-herbivore interactions? A field experiment and meta-analysis of CO₂-mediated changes on plant chemistry and herbivore performance. *Global Change Biology*. 2007; 13: 1823-1842.
- [70] Taub D, Miller B, et al. Effects of elevated CO₂ on the protein concentration of food crops: a meta-analysis. *Global Change Biology*. 2008; 14: 565-575.
- [71] Tada Kuniyoshi Environment at Seto inland sea. Symposium. 2016.
- [72] Yamamoto T. The Seto Inland Sea—eutrophic or oligotrophic?. *Marine Pollution Bulletin*. 2003; 47(1-6): 37-42.
- [73] Mainichi news paper Evening Edi. 2019; 11.
- [74] Seto inland sea is too clean Mainichi evening edit. 1 Dec 2019; 1.
- [75] Yahoo news. Gendai business Pro1 reported At. biwa lake Shiga pref Japan is dying because lack of oxygen. 1 Feb 2021.
- [76] 75. Yuichi Sato, and Kazuhide Hayakawa Effect of Nutrient Loads on Upper Trophic Level Species in Lake Biwa: Analysis Using Food Chain Model by Monte Carlo Method *Journal of Japan Society on Water Environment* 2019 Vol.42, No.4, pp.133-143
- [77] Nagare H, Somiya I, Fujii S. Influence of the Short- Period Disturbance on Phosphorus Concentration in Lake Biwa, Japan. *Proceedings of Taal The 12th World Lake Conference*. 2007; 231-236.
- [78] Watanabe Tadashi. Capriccio of global warming. Much Ado about nothing destroying society. Maruzen Publisher. 2018; 1-212.
- [79] Paul Hoawken Drawdown. 100 Method to reverse global warming Yama to Keikoku publishing. 2021; 1-432.
- [80] Komiyama Hiroshi, Yamada Koichi. New vision 2050 Global warming and few sons and high aging can overcome Nikkei BP. 2016; 1-338.
- [81] Sugiyama Taishi. Decarbonization is full of lies Sankei newspaper publisher. 2021; 1-282.