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Stopping of NOx, NP elimination is easiest method to stop global warming

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Abstract

Global warming is caused by the lack of N and P and decrease of CO_2 assimilation and decrease of CO_2 fix and decrease of heat absorption. Lack of N and P is caused by the elimination of NOx and NP in waste water.

Developed countries eliminating NOx by immersion of ammonia to the exit gas and eliminating NP in waste water. Global warming will stop if developed countries stop the elimination of NOx and NP. CO_2 assimilation is activated and Global warming will stop In addition production of grain and fish will increase and GDP, national wealth and population will increase. The goal "CO_2 increase zero and growth" described in Paris Agreement can be accomplished sooner than 2050. Stopping of ammonia addition to the exit gas and stopping of NP elimination in waste water can stop global warming.

Keywords: NOx; CO2 assimilation; NOx elimination by ammonia; Carbon neutral; Separate key words; Stop of global warming; GWPR

1. Introduction

Global warming is in progress. CO_2 concentration increasing 20 ppm every year.When I looked for the reason, I found that environmental measures at developed countries are eliminating nitrogen and phosphorous and CO_2 assimilation is blocked and production of agriculture and fish industry are blocked. GDP of these countries do not increase much. Stop elimination of NP will activate CO_2 assimilation and increase fish, grain production and increase GDP and protect global warming. (Ref 1-57).

2. Method to get carbon neutral

Paris agreement asking us: CO_2 emission is equal as carbon fix and progress by 2050. Author define ratio CO_2em and CO_2 fix as GWPR (Global Warming Protection Ratio)

$$GWPR = CO_2em/\ CO_2\ fix$$

Carbon neutral is CO_2em = CO_2 fix and GWPR = 1 Present GWPR of the world is 1.3. To lower 1.3 to 1, we can do by lower numerator CO_2em or increase denominator CO_2 fix. We can consider which quick method is.

Almost all government official and university personal are considering to lower numerator CO_2em. Considering CO_2 as resources, and tried to change various carbon compounds.

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And no report as to increase denominator carbon fix. To increase denominator, close waste water clean center and stop injection of ammonia to the exit gas. No money is necessary is this OK? Chemistry and Chemical industry, of Japan Chemical Society offered special issue for the production of compounds starting from CO_2 two times. Many chemist studying to synthesis compounds from CO_2. But industrial production is impossible, because concentration of CO_2 is 0.06 %.The use of 0.06% CO_2 is possible only by plant like tree, plankton. CO_2 assimilation remains as a method to decrease CO_2. To promote CO_2 assimilation, increase of NP is necessary. To increase NP concentration, stop of NP elimination is enough. By just stopping NP elimination, we can increase CO_2 assimilation. We can increase food production.We can increase GDP. We can improve economy. We can stop increase of CO_2. We can get carbon neutral and growth. We can protect global warming. (ref 1-57)

3. Influence of NOx elimination on CO_2 assimilation and GDP

Concentration of CO_2 at billion years ago when earth was born was 90%. Present CO_2 concentration is 0.04 %. Plankton CO_2 assimilation did this reduction. Fossil of plankton is oil. The reaction of CO_2 with water produce carbohydrate and oxygen.

$$6\ CO_2 + 6\ H_2O + 6 \times 114\ Kcal \text{ ——-> } C_6H_{12}O_6 + 6\ O_2$$

Biology contain 1/25 nitrogen of carbon, and 1/125 phosphorous of carbon. 1/25 nitrogen of carbon, and 1/125 phosphorous of carbon is necessary for CO_2 assimilation. However, developed 7 countries set up a rule" If NOx elimination by ammonia is not done operation is not possible."

$$4NO + 4\ NH_3 + O_2 \text{ ———> } 4\ N_2 + 6\ H_2O$$

This reaction is eliminating one fertilizer by one other fertilizer. CO_2 assimilation is inhibited seriously. Production of food is inhibited.

Economical damage and social influence are unmeasurable great. Using 72 million tone methane and generating 198 million tone CO_2 making 227 million tone ammonia and eliminating 400 million tone NOx. 400 million tone NOx can fix 400 mill t x25 = 10 billion tone CO_2 and can produce 10 billion tone rice, wheat.

W. Nordhaus (Winner of Nobel Economic Science 2018) proposed theory that global warming is due to increase of CO_2. Carbon emission reduction, decarboxylation is necessary (ref 58-61). Increase of CO_2 is reason of Global warming and decrease of CO_2 emission can protect global warming. Japan government considering that decrease of CO_2 emission and decarboxylation can protect global warming. But these ideas are wrong. Many reports that increase of CO_2 is favorable for increase of green area (ref 62-81) were published. CO_2 must be reduced by CO_2 assimilation. CO_2 assimilation can be activated by supply of enough nitrogen and phosphorous. Elimination of N, P retard CO_2 fix and food production.

It is wrong measure that hydrogen is a fuel which do not produce CO_2. Japan government is doing policy hydrogen as no CO_2 producing fuel. Hydrogen can be prepared from LNG, petroleum(CH2) , coal (CH) producing CO_2

$$CH_4 + 2H_2O \text{ ——> } 4H_2 + CO_2$$

$$CH_2 + 2H_2O \text{ ——-> } 3\ H_2 + CO_2$$

$$2\ CH + 4\ H_2O \text{ ——> } 5\ H_2 + 2CO_2$$

Therefor it is wrong to say hydrogen as no CO_2 producing fuel.

CO_2 produced in Japan is 1250 million tone. In this time, 1250x1/25= 50 million tone NOx (90 % is NO) is produced. To eliminate this NO, 28.33 million tone NH_3 is used.

$$4\ NO \text{ (molecular weight x4=120) } + 4NH_3\ (68) + O2 \text{ —-> } 4\ N_2 + 6\ H_2O$$

50 mil t 28.33 mill t
To make 28.33 mill tone ammonia, 5 mill t hydrogen is used.

$$3H_2 + N_2 \text{ ———-> } 2\ NH_3$$

5 mill t 28.33 mill t
To make 5 mill t H_2, 10 mill t CH_4 is used and 27.5 mill t CO_2 is produced

$$CH_4\ (16) + 2\ H_2O \text{ ——————> } 4\ H_2\ (8) + CO_2(44)$$
10 mill t 5 mill t 27.5 mill t

Japan eliminated 50 mill t NOx by spending 10 mill t LNG emitting 27.5 mill t CO_2.

If Japan do not eliminate NOx, Japan can fix 50 mill x 25 = 10 bill t CO_2.

CO_2 grow plankton 2/3 of his weight (30 1/6 of molecular weightC6H12O /44 CO_2 molecular weight). Fish growth by eating 10 times of plankton. 10 bill t CO_2 fix mean 10 billion x 3/4x1/10 = 75 billion kg, fish production. Fish price is 2 $ per kg. 2x 75 bill =150 billion $. But by the elimination of NOx, 150 billion $ fish was not produced Actually Japan was producing 12 mill t fish and 4 mill t rice before 1980 at that time no elimination of NOx and NP. The value of 12 mill t fish and 4 mill t rice are 240 billion $ and 14 billion $. By the elimination of NP such valuable products is not 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 on warm up earth but also give significant bud influence on economy. The law to eliminate NOx by blow in ammonia to the exit gas and to elimination of 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 and we can enjoy long life (Ref 82-89)

CO_2 produced at developed countries is around 10 billion tone. And around 10x 1/25 = 4 hundred million tone NOx is produced. To eliminate this NO (90% of NOx is NO), 226 million tone ammonia NH3 is used.

$$4\ NO\ (120) + 4NH_3\ (68) + O_2 \text{ ————> } 4\ N_2 + 6\ H_2O$$

400 mill t 226.7 mill t

To make 226.2 mills NH_3, 400 mill t H_2 is used.

$$3H_2\ (6) + N_2 \text{ ————> } 2NH_3\ (34)$$

400 mill t 226.2 mill t

To make 400 mill tone H_2, 80000 mill t CH_4 is used. And 220 mill t CO_2 is produced.

$$CH_4\ (16) + 2\ H_2O \text{ ————> } 4\ H_2(8) + CO_2\ (44)$$

8000 mill t 400 mill t 220 mill t

If developed country stop addition of ammonia to the exit gas, Consumption of 8000 million tone CH4 can be saved. And emission of 220 million tone CO_2 can be saved. And 400 mill t x 25 = 10 billion t CO_2 can be fixed. Accordingly 220 mill t + 10 bill t = 10.22 billion tone CO_2 can be fixed. CO_2 em (CO_2 emission) of developed countries is 10 billion tone.GWPR (CO_2em)/ (CO_2fix) = 1. Therefore, CO_2 increase is zero minus 0.22 billion tone. 10.22 billion Tone CO_2 produce plant like wheat. CO_2 produce wheat plant 2/3 (30(1/6 of molecular weight of C6 H 2O6) /44 Molecular weight of CO_2)) weight of his weight. Wheat contain 2/3 straw of his weight Wheat grain will be about 1/3 weight of plant. 10.22 billion Tone CO_2 can afford

10.22 billion x 30/44 x1/3 = 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.

Yahoo News reported. ICAO accession 193 countries agreed that aviation industry do CO. Increase zero by 2050. Aviation industry is emitting 110 h million tone CO_2 2.75 % of total CO_2 of the world. Aviation industry need 15 h million dollar investment is necessary for decarbonization. The author is proposing plan to make CO_2 increase zero by 2050 without investment. The plan is to stop blow ammonia in to the exit gas. Then 10.2 billion tone CO_2 emission will stop and CO_2 increase become zero.

It is difficult to reduce CO_2 but it is easy to reduce GWPR by increase of CO_2 fix. To increase CO_2 fix, by increase of NP. To increase NP, just stop the elimination of NP. To increase N and P, stop the elimination of NP. Developing countries like China、India and Indonesia are using NOx and NP as fertilizer. CO_2 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, CO_2 assimilation is inhibited and production of agriculture and fish industry is inhibited. Economic and social influence are immeasurable grate. We can compare developed country who doing NOx, NP elimination and developing countries who use NOx, NP as fertilizer.

CO_2em (CO_2emission), NOx (NOx production), NOxc (NOx concentration at exit gas), Dump (Wastewater dumping), Fixable CO_2, EleP(Electricity price),GWPR (global warming protection ratio),GDP (GDP ratio 2021/1991) of 13 countries are shown in Table 1.

Table 1 CO_2em NOx, NOxcon, W Dump, Fixable CO_2, EleP, GWPR, GDP of 13 countries

Country	**CO_2em**	**NOx**	**NOxcon**	**Dump**	**Fixable CO_2**	**Ele P**	**GWPR**	**GDP**
	Hmill t	**H mill t**	**g/kWh**		**Hill t**	**C/kWh**		**2021/1991**
World	510	16.5						
China	196.4	4.25	1.6	Do	100	1.6-4.5	1.0	51.1
India	24.6	1	1.6	Do	32	6	0.76	11.1
Indonesia	5.0	0.2	1.6	Do	19	10	0.3	
USA	51	2	0.5	no	95	12	0.53	3.7
Japan	12	0	0	No	3.8	24	3.3	1.1
Russia	19.6	0.63			32	17	0.61	
Germany	7.6	0.36	1.0	No	35	33	2.2	4.3
U.K	4.0	0.16	1.3	No	2.4	15.4	1.2	3.3
Italy	3.5	0.14	0.5	No	3.0	28	1.2	
France	3.3	0.13		No	8.4	17	0.4	
Canada	5.6	0.22	1.3	No	100	8.1	0.06	
Iran	6.3	0.25			1.6		3.0	
Turky	4.0	0.16			7.8		0.5	

Developing countries like China, India and Indonesia do not eliminate NOx and do not dump waste water and use NOx and NP..They can generate electricity with low price. The price of electricity at China is 1.6-4.5 c/kWh, India 6 c/kWh, Indonesia 10 c/kWh.Developed countries. Germany 35 c/kWh, Japan 24 c/kWh.

Developing countries like China, India and Indonesia do not eliminate NOx and do not dump waste water and use NOx and NP as fertilizer. They can accelerate CO_2 assimilation. They can fix CO_2 produced at their countries. Therefore, GWPR is less than 1. GDP ratio 2021/1991 is over 5. China GWPR 1.0, GDP ratio 2021/1991is 51.1 India GWPR 0.76 GDP ratio 11.1 Indonesia GWPR 0.3

Developed country eliminate NOx and waste water NP. Then GDP ratio 2021/1991 is low USA 3.7, Japan1.1, Germany 4.3, UK 3.3. Japan started NOx, NP elimination. Then CO_2 assimilation is blocked. Fish industry and agriculture are blocked and national wealth decreased much.

Developed countries are eliminating 30 h million tone NOx spending 12 h million tone LNG and emitting 33 h million tone CO_2. If no elimination NOx, 30 million tone NOx can fix 30x25= 750 million tone CO_2. 750 million tone CO_2 can become 30/44 x750 million tone plant like rice, wheat corn. Plant produce 1/3 grain. 2/3 of plant is straw. 750 million tone CO_2 afford 750x30/44x 750 x1/3= 170.4 million tone grain. Suppose 1 kg grain is 1 $, 174.4 million$ x1000 = 174.4 billion $,

Developed countries can get 174.4 billion $, by stopping NP elimination and can get high GDP and GDP ratio 2021/ 1991 will increase as China.

Not only elimination of NOx and NP are promoting global warming, but also retarding development of countries and industry.

Japan government consider that ammonia as a substance that do not produce CO_2 and using ammonia to eliminate NOx. CO_2 produced in Japan is 1.25 billion tone. NOx produced in Japan is 1/25 of 1.25 billion tone, 50 million tone. Japan is eliminating 20 times of synthetic fertilizer 2.5 million tone. Japan official are trying to make zero generations of CO_2. And trying to reduce CO_2 by many method.

Studies at Japan is decarbonization, decrease of CO_2, carbon neutral, carbon recycle (consider CO_2 as resources and separation of, recovery of CO_2, and reuse for various carbon compounds) But industrialization is impossible. Because CO_2 concentration is too low 0.06%.

Only plant can absorb such dilute CO_2. CO_2 assimilation by plant is only method to reduce carbon increase.

Activation of CO_2 assimilation and increase of CO_2 fix is easy method to make carbon neutral

But government policy do not change. I phoned and send mails more than ten times. to Ministry of the Environment, Ministry of Agriculture, Forestry and Fisheries. But they did not response. Official of ministry of fisheries say that we are glad to see such paper. Minister of Environment has stronger power to continue the elimination of NP suppressing the opinion of Ministry of agriculture and Fisheries. And continue the elimination of NOx and NP.

Elimination of NOx, NP suppress CO_2 assimilation and suppress the production of agriculture and fishery product and depress the economy and depress the increase of GDP. As shown In Table1,

GDP ratio of Japan 2021/1991 is 1.1 The GDP ratio of China who do not eliminate NOx, NP is 2021/1991 is 51.1 Therefore, we should stop elimination of NOx, NP and increase CO_2fix and become carbon neutral and develop.

Japan should change to the policy to increase CO_2 fix and increase food production. Japan should decrease the import of LNG (now Japan is top importer of LNG) by stopping the production of hydrogen. Also Japan should stop the investment to use hydrogen as new energy. And carry hydrogen from Australia. These investment do not contribute for the decrease of GWPR, protection of global warming. We can stop NOx, NP elimination by just stop ammonia addition and stop waste water purification center without investment. And we can change CO_2 to fish and grain. We can increase food production ratio from 37% to 70 -100 %. Contribution to the economy is so great. We can protect depression of country. We can accomplish the goal Increase of CO_2 is zero and develop before 2050.

4. NOx is good fertilizer and best compound to reduce CO_2 (ref 7)

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

I wish to insist that NOx elimination should be stopped. Because toxicity of NOx is not so serious compared with significant merit of NOx. NOx is essential for plant to grow and produce food. NOx is essential for the promotion of CO_2 assimilation and essential for the production of foods (ref 26, 27,41-54) and for the promotion of health and long life ((ref 83-89)

Thunder produce NOx from N2 and O2. (ref 7, 90-93). About 4 million thunder in one day and about 30 x 106 t NOx is produced by thunder in one year and about 20-80% of NOx 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 NOx. 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. Rice straw afford meat by reasonable price.

5. Heat balance of earth. Heat absorption by CO_2 assimilation (Ref 29)

On earth 140 billion tone fossil fuel is burned and CO_2 3.6 $x10^{10}$ t was produced. And 7.4 x 10^{15} kcal is produced. When we consider the heat produced by animal respiration, 7.4 x 10^{15} kcal x 4.6/3.6 = 9.45 x 10^{15} kcal is produced.

The earth is also warmed by the heat of atomic energy. Uranium produce 2 x 10^{15} 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 10^{15} x 2986/ 10868 = 2.02x 10^{15} 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 10^9= 2.8x10^{16} kcal in one year. Animal other than human being, caw, bird, whales, seal are producing heat. We can estimate as same as human being 2.8x10^{16} kcal. Therefore, total heat is fossil burning produce 7.4 x 10^{16} kcal, atomic energy produce 2.02x10^{15} kcal. Human being produce 2.8x10^{16} kcal. Other animal produce 2.8x10^{16} kcal

Total heat produced is (7.4+0.202 + 2.8+ 2.8) x10^{16}= 13.002 x10^{16}kcal. We must absorb 13.002x10^{16} kcal by CO_2 assimilation. CO_2 1 mole 44g and water 18 g absorb 114 kcal sun's heat to carbohydrate and 32 g oxygen. If 51 billion t, 5.1x 10^{16} g CO_2 do CO_2 assimilation, 114x 5,1x10^{16} /44= 13.136x10^{16} kcal can be absorbed. Heat production 13.002 x10^{16} kcal is almost same as heat absorption 13.136x10^{16} kcal.

CO_2 assimilation must be promoted by stopping of NOx elimination and by stopping waste water purification. By stopping NOx elimination. 1.44 billion tone NOx can fix 14,4x 25= 36.0 billion tone CO_2. Amount of N.P in drainage is around 0.5 billion tone. By using this 0.5 billion tone N.P, we can fix 0.5x 25= 12.5billion tone CO_2. By adding 36.0 + 12.5= 48.5 billion tone CO_2 can be fixed. And we can absorb 13.1 x 10^{16} kcal. And earth can keep comfortable temperature. Heat absorption by CO_2 assimilation is essential to lower earth temperature.

6. Method to improve Economy

- Best method to improve economy is activation of production of food. Activation of CO_2 activation will produce much food and economy will progress. Provide nitrogen and phosphorous is necessary. Like China, Indian and Indonesia and Japan (before 1980) No addition of ammonia to exit gas, no waste water treatment are good. If developed countries stop environmental measures, If developed countries stop NOx elimination. Consumption of 80 million tone LNG can be saved.220 million tone CO_2 emission can be saved. 40000x 25 = 10 billion tone CO_2 can be fixed. Accordingly 220 Millie + 10 billion tone = 10.22 billion tone can be fixed. CO_2 emission is 10 billion tone. CO_2 increase become zero minus0.2 billion tone. Paris agreement is asking development. Activation of CO_2 assimilation will increase food production. Economy will develop
- Use of geothermal (heat of earth) In the middle of earth, there are magnitude magma, huge energy. Japan and Hungary have volcanic mountain. Generation of electricity should be done at more large scale. Use of heat of earth is not done at enlarge scale by the resist of hot spring supplier. Reuse of hot water as hot spring or as room warmer after electricity generation will be useful. More deep digging to 1000 or 2000 m might produce very high temperature water as new energy source.
- Increase of nitrogen and phosphorous concentration of sea water and rain. Concentration of nitrogen in rain was 1.2 mg nitrogen in 1 L before 1980 in Japan. 88 μg nitrogen in 1L sea water. Before 1980. GWPR was 1.3. After 1980 NOx, NP elimination was carried out. Then nitrogen concentration of sea water become 0.1 μ g /L at Seto inland sea Japan. and no nitrogen in rain. GWPR is 3.3 now. Paris agreement asking GWPR = 1. We must decrease 3.3 to 1 or near 1. To lower GWPR, we must study the method to increase the concentration of nitrogen by mixing high nitrogen deep water with low nitrogen shallow water. Normally typhoon does this job. We must study the way to increase the stirring. We may be able to throw nitrogen and phosphorous fertilizer into sea and increase CO_2 fix and absorb heat.
- Japan is emitting CO_2 and using electricity large amount per person in compared with European country. Politicians are trying to make job to increase rate of working person to win election. Job like rebuilding of house and building, construction of dam, rail way, linear motor shinkansen between Tokyo and Nagoya, aquarium. Donation of electricity generation plant, bridge, clean center to developing countries. These job consume much electricity and produce much CO_2. These job should be stopped.
- Plantation of fruit tree at burned land. Wild fire and field fir are happening at USA and Spain,Australia and many countries. Tree and bush are burned. This ia a good chance to change kind of tree. Population is increasing and require to produce food is increasing. Plantation of fruit tree is recommended. Candidate tree is Kaki (persimmon), pear, orange, peach, apple, pine, banana, I recommend Kaki (persimmon). Because Kaki produce

very sweet fruit fixing much CO_2. 18 tone CO_2 is fixed per 1 hectare (100 m x100 m). The local house at Japan before 1940 planted 1 Kaki tree. I was a Professor at Shandong University. The trees of the university were all pear tree.

7. Control of climate

7.1 Control of temperature

Temperature can be controlled by CO_2 assimilation. CO_2 assimilation is heat absorbing reaction. 114 kcal is absorbed / mol. Global warming will not happen if developed countries do not do NOx, NP elimination. Then tree grow well and rain is well absorbed and do not frown to the river. The earth will be kept as green land The earth will be cooled by the absorption of heat by the activation of CO_2 assimilation as shown at heat balance part.

7.2 Control of rain fall

When rain fall is desired, burning of wood is dune as rainfall pryer at Japan. Hot air produced by burning of tree go up to heaven and low pressure is produced and new air containing water blow in and rain fall. In Europa, drought is now at Spain, France, Italy and Germany. Stopping of coal electricity generation at Germany. Generation of weak west wind does not blow in to Spain France and Germany. And rainfall was very small. But now electricity generation by coal restarted at Germany Then rain might start to fall next year. Drought is caused by the elimination of NOx, NP. Shortage of nitrogen and phosphorous retard the growth of tree. Land become no tree like desert. Desert give no evaporation of water and no rain. For the prevention of drought, elimination of NOx and NP should be stopped.

8. Electricity generation should be done by coal (Ref 29)

IPCC asking electricity generation by oil and natural gas than coal, because coal generate more CO_2 than oil. But I think coal is better for the generation of electricity to save the consumption of oil. The difference of CO_2 generation by both fuels is not so much different. CO_2 increase can be saved by the decrease of CO_2 emission by stopping NOx elimination procedure. When we compare buried amount, coal (132 years) is 3 times as much as oil (42 years) and natural gas (60 years). We can manufacture many kind of chemical and plastic from oil. Oil is more convenient as transportation fuels. Therefore, oil and natural gas are 3 times more precious than coal. Price of coal is 1/3 of oil. Therefor we can generate electricity by coal at low price. The price of electricity is very important for the competition of productive industry. The price of electricity at China is 1.6-4.5 c/kWh, and India 6 c/kWh. These countries generate electricity by coal. Germany 35 c/kWh, Japan 24 c/kWh.These countries generate electricity by natural gas.

The year of oil scare is coming in 50 years. Then we must do liquefaction of coal to get liquid fuel for transportation. In this process, about half energy of coal is lost. We can enjoy our civilized life longer by saving the consumption of oil and natural gas. Gasoline car is shifting to electric car. This is shift from oil to coal (electricity produced from coal).

9. Electricity generation by solar system should be done at no green land

Construction of solar mega system by the sacrifice of wood is not clever way. 1 hector, 1000 m^2 wood can absorb heart 3.8x 10^6 kcal and can fix 13.7 tone CO_2. Heart absorption efficiency of solar system cell is 1/3 of green leaf of tree. Solar system cell cannot fix CO_2. For the preparation of solar cell material, much fossil fuel is necessary generating almost same amount of CO_2 in compared with the generation of CO_2 and electricity by burning of fossil fuel. Therefore, construction of solar mega system by the sacrifice of wood is promoting global warming.

1000 m^2 cell can generate 114000 kWh and can save 7.5 t CO_2 and can absorb 1.3 x10^6 kcal For the production of 1000 m^2 cell 5 tone CO_2 is produced. Electricity generation should be done at no green land like Arabian Peninsula. China (top maker of electricity generation cell) constructed big solar electricity plant at high altitude no green Xinjiang.

10. Future Prediction (ref 51)

10.1 We must protect burn out of fossil

Since industrial revolution, mankind has been using a large amount of fossil fuel for manufacturing of food, iron, aluminium, plastic, and fertilizer. Global warming comes from over burning of fossil. Fossil fuel is a fossil of plants made

by CO_2 assimilation from CO_2 and water in 5 billion years. Mankind has been using this fossil fuel in 500 years. Yearly use of fossil fuel is estimated to be reduced 25% by COVID-19. Thus, the term of years when oil, natural gas, and coal can be used is extended from 42 to 56 years, from 60 to 81 years, from 121 to 162 years, respectively.

Until now, our human being has used 1360 billion tons of fossil which is corresponding to around a half of the total reserves of fossil buried in the earth. The remaining fossil is estimated as 1360 billion tons.

When fossil is burned out, we need not worry about global warming. We must worry how we can live civilized life. How can we drive car, airplane, and agriculture machine? How can we generate electricity? We must save the consumption of fossil. We should not spend precious fossil for the elimination of NOx and NP. We must protect burn out of fossil fuel as long as possible.

10.2 Prediction of fossil fuel and life at 2222 (200 years after now)

Human being is using now much fossil as exemplified in the use of 3.4 billion tons of natural gas, 3.1 billion tons of oil, and 5.6 billion tons of coal. About the same amount of remaining fossil as that used so far could be used in the future. However, the remaining fossil is limited. The amount of fossil used every year will become smaller than now. In 2222, a 1/4 amount of remaining fossil will be still available. We must limit the use of fossil to get food like agriculture machine and fishing boat. The number of sailing boats will increase. The number of cars and airplanes will become much fewer. Leisure trip must be limited. The use of fossil for air conditioning must be limited. We must depend on woods. There is 80 billon tons of wood in the world and increasing 1-2% annually. Tree grows quickly if sufficient N and P are provided. We must provide enough NP for the promotion of plant growth.

11. Discussion

11.1 Should develop ccuntries pay money to developing countries? Main discussion point at PC 27 2022 at Egypt was how much money should pay from developed country to developing country.

Correct answer is : Pay is unnecessary. Developed country must stop global warming by next PC 28. Global warming can be stopped by stopping of put in ammonia to the exit gas. Then CO_2 assimilation is accelerated and 10 billion tone CO_2 is fixed and$13.1x10^{16}$ kcal is absorbed. And earth will cool down. Global warming will stop as written at heat balance part. Then payment of developed counties become unnecessary. And much food is produced.

11.2 Should Japan pay money to developing countries?

Japan is proposing to pay some money to developing countries. But it is better to stop paying. Japan can stop global warming by stop put in ammonia to the exit gas and can stop global warming and absorb heat and cool down the earth and and stop global warming and get grain and fish. _Activation of CO2 assimilation is essential to stop global warming

11.3 G20 summit Electricity generation by coal

10 countries including US, Japan are planing to pay 20 billion dollar to Indonesia to change from coal electricity generation to LPG electricity generation. But I think electricity generation should be done by coal. Buried amount, coal (132 years) is 2 times as much as natural gas(60 years). LNG is more convenient as transportation fuels. Therefore, oil and natural gas are 3 times more precious than coal. Price of coal is 1/3 of LNG. The price of LNG is rising. Therefor we can generate electricity by coal at low price. The price of electricity is very important for the competition of productive industry. Then we should not pay 20 billion dollar to change from coal to LNG

11.4 Stopping of war at Ukurainen

War at Ukuraine is consuming much fossil and increasing much CO_2. Ukurainen reported at PC27. War is producing greenhouse gas hundred million tone, and it make difficult to fit Paris treatment. War at Ukuraine should be stopped

12. Conclusion

Stopping of ammonia addition to the exit gas and stopping of NP elimination in waste water can activate CO_2 assimilation and can produce much grain and fish and can get high GDP and growth.

Compliance with ethical standards

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