

Climate Can Be Regulated by Effective Use of NOx and Waste Water NP

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Abstract

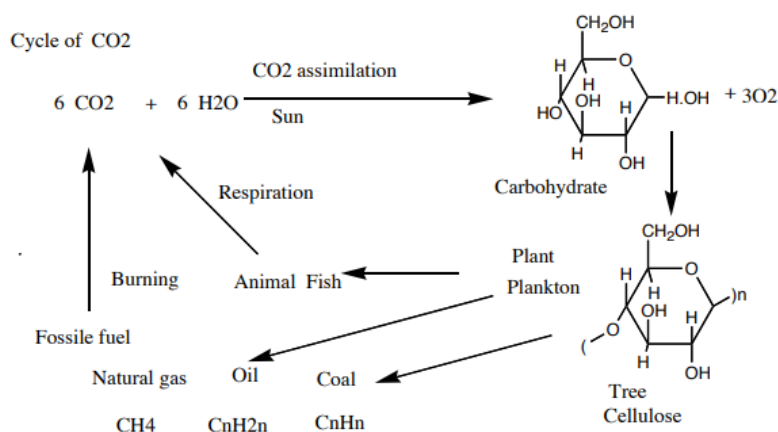
About 510 billion tone CO₂ is produced by burning of fossil fuel and respiration of animal. CO₂ 142 billion tone increased in 2017. If we can increase fixing of CO₂ by promotion of CO₂ assimilation, global warming will be protected. To promote CO₂ assimilation, supply of nutrient N and P is essential. 14.4 billion tons.

NOx is produced when 140 billion fossil fuel is burned. Many governments are eliminating NOx and NP in drainage as pollution substances. NOx and NP in drainage is promoter of CO₂ assimilation, fertilizer of plant growth. Therefore these actions are promoting global warming. NOx elimination is giving bad effect on grain, fish production, electricity price, GDP growth rate. By effective use of NOx and waste water NP, we can increase plankton CO₂ assimilation at sea. Stopping of NOx elimination and stopping of waste water purification is easy method to protect global warming and to regulate climate.

Introduction

The earth is warmed by the fossil fuel burning releasing CO₂ and heat. The plant is growing by CO₂ assimilation absorbing CO₂ producing carbohydrate and O₂ compensate the generation of CO₂ and heat with the absorption of CO₂ and heat by CO₂ assimilation, global warming can be protected [1-20].

CO₂ react with water by CO₂ assimilation to produce carbohydrate and oxygen. Carbohydrate turn to cellulose, tree, plant and plankton. Tree turn to coal, plankton turn into oil in many billion years. Our human being are using this fossil fuel and enjoying civilized life. Animal including fish can live by eating plant and plankton. Animal release CO₂ by respiration. Released CO₂ react with water to give carbohydrate. CO₂ is cycling in such way (Figure 1).



Much carbon dioxide is released by the burning of much fossil and global warming is progressing. Reduction of carbon dioxide is most important for the protection of global warming. To reduce carbon dioxide, promotion of carbon dioxide assimilation is best method to reduce carbon dioxide. 70% of CO₂ is used for the plankton. Plankton photosynthesis is studied by many investigators [21-30].

To promote carbon dioxide assimilation, supply of nitrogen fertilizer and phosphorous fertilizer is essential. About 14.4 billion ton Nitrogen Oxide (NOx) (1/25 of produced carbon dioxide 360 billion ton) is produced in the world. Therefore NOx is most abundant nitrogen fertilizer. About 50 billion tons excreta are produced in the world. An excreta is most abundant nitrogen and phosphorous fertilizer. These NOx and excreta are promoters of carbon dioxide assimilation. NOx and excreta promote the growth of plant and plankton. Plankton is playing most important role for fixing of CO₂.

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Many officials of developed country consider NO_x and excreta as pollution substance and established very strict law to eliminate NO_x and to eliminate excreta. Then CO₂ assimilation is retarded and CO₂ fix is retarded and CO₂ is increasing and global warming is progressing. I am insisting NO_x and NP in wastewater should be used for promotion of CO₂ assimilation. NO_x elimination should be stopped. Waste water purification should be stopped [1-20].

CO₂ assimilation and CO₂ cycle

Carbon dioxide assimilation is most important reaction for all geology on earth. CO₂ react with water producing carbohydrate and oxygen. Carbohydrate turns to plant, plankton, grain and tree. Our animal, fish eat these product and do respiration releasing carbon dioxide. Plankton gives oil; tree gives coal for many billion years. Our human being is burning this fossil, natural gas, oil, coal to get energy releasing much carbon dioxide.

About 360 billion ton carbon dioxide is formed.

Most Carbon dioxide formed by burning is used for the new carbon dioxide assimilation.

Production of CO₂:

1. Major production of CO₂ is burning of fossil fuel by the reaction
Fossil + O₂ ———> CO₂ + H₂O + 114 kcal

CH₄ 16g 44g

Oil CH₂ 14g

Coal CH 13g

Molecular weight of fossil.

Natural gas is methane Molecular weight of methane CH₄ is 16

Molecular weight of oil CH₂ is 14

Molecular weight of coal CH is 13

1. About 3 times weight of carbon dioxide is produced from fossil 140 billion fossils is burned and 360 billion ton CO₂ is produced.
2. About 50 billion ton CO₂ Is produced from burning of wood.
3. About 100 billion ton CO₂ is produced by respiration of person and animal.

Population of the world is 76 billion. One person release 0.5 ton CO₂. Therefore 38 billion ton CO₂ is released in one year. Also many billion cow and seals, whales and bird release CO₂, possibly 62 billion ton. Total animal release CO₂ will be 100 billion tons.

Total CO₂ release will be 360 + 50 + 100=510 billion tons.

This value 510 billion ton is 159 billion tons over than 360 billion ton of my previous paper [2-15].

CO₂ fixing: Almost all CO₂ produced is fixed by CO₂ assimilation.

Amount of CO₂ in the world is 28300 billion tons. CO₂ is increasing 2 ppm every year.

Increase of CO₂ is 28300 x 2/400=142 billion ton.

510-142 = 368 billion ton CO₂ is fixed in one year.

If we can fix 368+142=510 billion tons CO₂, we can protect global warming. But 368 billion ton CO₂ was fixed in this year. We must increase CO₂ fix. To increase CO₂ fix, we must promote CO₂ assimilation than now. For the promotion of CO₂ assimilation, we must increase the production of nutrient N and P than now.

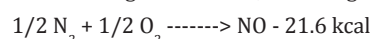
Heat balance of earth: On earth 140 billion ton fossil fuel is burned and CO₂ 3.6 x 10¹⁰ t was produced. And 7.4 x 10¹⁵ kcal is produced. When we consider the heat produced by animal respiration 7.4 x 10¹⁵ kcal x 4.6/3.6=9.45 x 10¹⁵ kcal is produced.

The earth is also warmed by the heat of atomic energy. Uranium produce 2 x 10¹⁵ kcal heat electricity generation capacity of the world is 16868 Tetra watt h. Electricity generation by atomic energy is 2086 Tetra watt h. Therefore 7.4 x 10¹⁵ x 2986/10868=2.02 x 10¹⁵ kcal evolved by atomic energy. The earth is also warmed by the heat evolved by animal. Human being eats 1000 kcal food every day and release heat 1000 kcal every day. Population of the world is 76 billion. Therefore human being is releasing 1000 x 365 x 76 x 10⁸=2.8 x 10¹⁵ kcal in one year. Animal other than human being,

caw, bird, whales, seal are producing heat. We can estimate as same as human being 2.8 x 10¹⁵ kcal. Therefore total heat is fossil burning produce 7.4 x 10¹⁵ kcal, atomic energy produce 2.02 x 10¹⁵ kcal. Human beings produce 2.8 x 10¹⁵ kcal. Other animal produce 2.8 x 10¹⁵ kcal. Total heats produced are 7.4 + 2.02 + 2.8 + 2.8=15.02 x 10¹⁵ kcal. We must absorb 15.02 x 10¹⁵ kcal by CO₂ assimilation. CO₂ assimilation must be promoted by stopping of NO_x elimination and by stopping waste water elimination. By stopping NO_x elimination. 14.4 billion tons, NO_x can fix 14.4 x 25=360 billion tons CO₂. Amount of N.P in drainage is around 10 billion ton. By using this 10 billion ton N.P, we can fix 10 x 25=250 billion tons CO₂. And we can absorb 15 x 10¹⁵ kcal.

NO_x is a gift from nature: NO_x is produced as a byproduct of CO₂, when something is burned. Amount of NO_x is 1/25 of produced CO₂. When 25 tons CO₂ are produced, 1 ton NO_x is produced.

Nature has systems to change N₂ to nutrient nitrogen. By thunder [31-32], the high temperature at fire place for cooking, warming up of room by burning of wood, by forest fire, by forest burning, by bonfire, and also burning of fossil fuel, following reactions proceed.

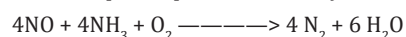


NO_x is a mixture of 90% NO and 10% NO₂. NO_x is dissolved in rain and give nutrient nitric acid and promote the growth of plant and plankton.

The earth was boon and plant appeared and plant eat CO₂, H₂O and nutrient N, P, and plant is burned then NO_x is produced to recover lost plant. When no burning material present, like sea district, thunder storms make NO_x NO_x is a gift from nature. We should not against nature. We should use NO_x as it is. In 2015 fossil 140 billion tons was burned and CO₂ 360 billion tons and NO_x 14.4 billion tons are produced.

If we use all NO_x for the fixing of CO₂, we can fix 14.4 x 25 x 10⁸=360 billion ton CO₂. As C/N ratio of plant is around 5/1-50/1 (average 25/1) [33].

But NO_x is hated as pollution gas causing illness. Many governments of developed countries like USA, Japan, Germany, UK, France and Italy set up very strict law to eliminate NO_x in burned gas and forced to eliminate NO_x using ammonia. Amount of NO_x is huge amount 14.4 billion tonne. To eliminate NO_x, huge amount of ammonia is necessary and huge amount of fossil is burned. These governments put emphasis on toxicity of NO_x than the utility of NO_x.



Elimination of NO_x is promotion of global warming three ways. One is retardation of CO₂ fix. Two is increase of CO₂ by using much butane. Three is consumption of precious fuel for the production of ammonia.

I wish to propose plan that if NO_x elimination is stopped and if waste water purification is stopped, global warming can be stopped.

Phosphorous is essential for fixing CO₂

Phosphorous P is important atom constituent of plants and animals. Phytic acid (Inositol Hexaphosphate) calcium salt is contained in every surface of grain such as rice, wheat and corn about 30%. Plant makes glucose by photosynthesis from CO₂ and water. Some of glucose is converted to Inositol. Inositol is converted to Phosphoinositides (PIP₂) and Phytic acid. PIP₂ is converted to IP₃ and Diacylglycerol. These two compounds are essential for signal transduction of plant [34], because P is an essential atom to make DNA. The seed store phosphorous atom as a store so that even when seed germinates at no phosphorous land. To make this phytic acid, plant absorbs corresponding phosphorous at harvest time. Lack of phosphorous give poor harvest to plant.

How phosphorous is supplied Phosphorous in drainage: About 60 thousand tons phosphorous were contained in drainage in Japan. Population of Japan is 1.2 billion. Population of the world is 76 billion. Therefore 76/1.2=63 times of 60 thousand=3780 thousands.

By using this phosphate, 60 x 25=1500 thousand tons CO₂ can be fixed and 1500 thousand ton plankton can be produced and fish

160 thousand tons will be produced. Animal eat food containing P and exclude excreta containing P. When toilet disposal and drainage are sent to excreta disposal treatment to plant. P in water was made to water insoluble mass, mixed with cement and made to concrete and buried in soil. Plant cannot use P anymore. This process use huge electricity and consume much fossil fuel. Around two hundred thousand ton fossil and producing five hundred thousand CO₂. For the elimination of one phosphorous, about 25 carbon fossils are used and about 25 CO₂ is produced. One phosphorous can fix 56 CO₂ [9]. The phosphorous elimination process should be avoided. Because without phosphorous no CO₂ assimilation is possible. Excreta are best food for plant. Ocean dumping, field dumping and forest dumping of excreta are recommended to increase the CO₂ assimilation.

Fish production and plankton CO₂ assimilation

When we look at the fish production of the world [10-16]. China produced 79.38 million tons fish and Indonesia produced 22.21 million tons of fish. India has 18.11 Vietnam 6.21 million t fish. They do not eliminate NO_x and do not do waste water purification they use NO_x and excreta as it is for production of plankton and fish. About 20 times CO₂ of plankton is fixed. China increased fish production. In 1970 2 million tons, in 1980 3 in 1990 4, in 1997, 16.33, 2002 16.77, 2015 79.38 million tons. 79.38 million tons fish production is corresponding 0.7938 x 20=16 billion ton CO₂ fixing. This increase is proportional to emission of CO₂ and NO_x. As industry increase production of CO₂, NO_x increased. NO_x promoted the plankton growth and CO₂ assimilation and CO₂ fixing and fish production. And protection of global warming and regulation of climate are carried out smoothly getting many fish. China can fix responsible CO₂ (15). Japan is emitting 12.5 billion ton CO₂ and 0.5 billion tons NO_x. CO₂ req is 4.95 billion tons [15]. Japan can fix 3.3 billion ton CO₂ at 3.8 x 10 km² area [13]. 1 billion tons CO₂ is emitting for NO_x elimination and 1 billion tons CO₂ is emitting for waste water purification. If these two treatment is stopped, emission of 2 billion ton CO₂ is saved and concentration of N,P increase and CO₂ assimilation is accelerated and 5 billion ton CO₂ will be fixed by 0.5 billion ton NO_x. Therefore 1+1+5=7 billion ton CO₂ can be decreased. 7 billion tons CO₂ are 2.05 over the responsible 4.95 billion tons [15].

70% of CO₂ assimilations carried out at ocean by plankton. Plankton grows infinitely if enough N and P are supplied. We should use NO_x and NP in waste water completely for the promotion of plankton CO₂ assimilation.

Summary

Promotion of plankton CO₂ assimilation by stopping of NO_x elimination and by stopping of waste water purification is easy method to protect global warming and to control climate.

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