



**Results of the 19th Annual
“Questionnaire on Environmental Problems and the Survival of Humankind”**

Exhibit A

***Respondents’ Comments on
“Simultaneous Achievement of Emission Reductions and
Economic Growth in Developing Countries”
(Question 6)***

September 2010

THE ASAHI GLASS FOUNDATION

Question 6:

Emission reductions by developed countries are indispensable to protect the global environment. However, alongside those efforts, emission reductions by developing countries (especially high CO₂ emitting developing countries like China and India) have surfaced as an important area to address. In order to attain this outcome, the simultaneous achievement of emissions reductions and economic growth for developing countries (especially high CO₂ emitting developing countries like China and India) has become an unavoidable obstacle. Please provide your thoughts about the possibility of attaining this outcome, and how it might be achieved.

We requested respondents to provide their opinions on a specific subject for the first time since the inception of this survey in 1992. We received valuable opinions from 228 respondents in 63 countries overseas as well as from 206 respondents in Japan, for a total of 434 comments. We would like to share these opinions, on the difficult subject of “simultaneous achievement of emission reductions and economic growth in developing countries.” The name, country and processing number of the respondent are included with the comment. Comments from respondents requesting anonymity are marked with an M or F to denote male or female.

Comments from Overseas Respondents**Developed Countries to Lead by Example**

The main responsibility to reduce emissions rests with the developed nations. They should set a convincing example, which must, in turn, be followed by China, India and other fast developing nations. Global warming is testing the limits of human intelligence. Can we act for the long-term common good or will we be forever locked into short-term thinking where individuals and nations strive to gain brief advantages at the expense of their neighbours until the living Earth becomes a wasteland?

J. Anthony Cassils, Canada, 014

Developed countries need to lead by example. Every nation should do what it can to preserve the environment.

Andrew B. Lindstrom, USA, 017

Carbon mitigation is in fundamental contradiction to economic growth. There can hardly be a balance between the consciousness of the human race and its ability to solve the problem, which is especially true for developed nations like the United States. One has to point out that the U.S. has not set a good example balancing its national interest and protection of the global environment. Hence it is natural that the developing countries will not do so either.

F, China, C030

The United States must set an example of serious response to the problem of climate change and 350 ppm as a goal! Why should others change if we don't?

M, U.S.A., 073

Market-based Approach

The implementation of carbon emission deduction in developing countries should coordinate with the corresponding funds. Instruments such as carbon trading should be taken full advantage of to provide necessary financial support for carbon emission reduction. Reasonable planning and transparent supervision is also essential.

M, China, C003

This outcome is possible for the simple fact that economic growth and emission reduction are linked in a long term symbiotic relationship. Science, the limitation of finite raw materials and population growth tell us that we have to attain this outcome if the human race is going to be able to sustain its current levels of wellbeing and development.

How might the outcome be achieved is the difficult part of this question as it is going to the same coordinated approach between all levels of Global, Regional, National and local Governmental, Institutional, Non Governmental and Business organizations with unified actions to achieve mutually beneficial outcomes in the same way that the Montreal Protocol was agreed. But it should be noted that the significant progress made under the Montreal Protocol was because a less ozone depleting chemical was readily available even with its own issues and problem. So the dilemma and our response is limited due to our ability to reassess, coordinate a unified approach across all areas, levels and spheres of human life. Basically we are currently locked into a cycle of resource consumption that is supported by the burning of fossil fuels.

So what can be said is that we need market led solutions that enable more efficient, less polluting and less resource hungry technologies that are design from a whole life cycle approach and they need to be rapidly deployed across all areas of the world. This approach needs to be complimented by a clear and coordinated approach to human poverty and disease, biodiversity protection and natural resource and capital conversation. Finally the approach needs to be delivered through the coordinated use of legislation, regulation, investment, support and education so that the right balanced is achieved between development, replenishment and restoration of the vital life supporting ecosystems of the world.

Poul Wend Hansen, Australia, 048

Reconciling emission reductions and economic growth is possible through massive expansion of the carbon market, including REDD and new incentives for technology innovation.

M, Switzerland, 053

Introduce economic or trading incentives to reduce emissions. Implement a listing of approved or preferred trading partners based on records of environmental concern and action.

Robert S. Anderson, Canada, 200

Promoting Renewable Energy

It can be rectified by using bio-gas instead of using petroleum products.

M, India, 114

Switching to natural daylight instead of using electric bulbs, using most efficient ways of cooking.

A. Sethunarayanan, India, 142

Emissions reductions are possible through the use of green technology. An honest approach only with transparency may help in achieving economic growth as well.

Dr. Laxmi Kant Dadhich, India, 164

It is not possible to make sustainable development compatible with existing models practiced by the world economic power. Except if these countries to develop other forms of clean energy, leaders of 192 countries commit to reduce global warming at 20 degrees centigrade over the next 10 years. If we destroyed all ecosystems for many species of life, they will disappear, even human life.

Ricardo Rocha de Sousa, Brazil, 194

Commitment by Developed Countries to Reduce CO2

A fair measure is the per capita emission and not the total! The industrialized world has already had its share. They should first drastically reduce their emission.

Alexander J. B. Zehnder, Switzerland, 103

Most of the CO2 in the atmosphere was put there by wealthy developed nations. They have an obligation (ethical) to take this first step. I don't understand why G-20 nations don't just pay the difference between state-of-art generation and cheapest generation plants required by developing nations.

M, Australia, 108

We think that it is imperative that developed countries commit to significant CO2 emissions reduction goals that enable the achievement of global mitigation and adaptation goals. This is to be accompanied by a commitments of developing significant emitters that will be consistent, but they shall not be measured by the same standards, for the current climate change crisis is the result of the action of developed country emitters. Further to this, it should be clear that mitigation goals set upon developing countries must no go in detriment of their development processes, consistent with the principle of common but differentiated responsibilities and respective capabilities.

Claudia Patricia Morapineda, Colombia, 183

As a matter of justice and ethics, it is the responsibility of developed countries to reduce their emissions and aid the countries in the process of development to achieve their development in a sustainable way. Act now, the moment is here. No more delays!

Elias C. Abramides, Argentina, 196

Need for Mutual Trust /Agreement/Consensus between Developed and Developing Countries

On the one hand, developed countries demand that emerging countries reduce their carbon emissions by threatening to impose economic sanctions for disobedience; on the other hand, developed countries continue to transplant industries

(e.g. 8th Naphtha Cracker Project, traditional manufacturing industries) with high energy consumption and high carbon emissions to emerging countries. These are the priority matters that need to be agreed upon in the conference regarded placing restrictions on developed countries.

M, Taiwan, T-006

There should be a consensus among both industrialized and developing countries: there is only one earth! Earth is home to all human beings. Wherever around the world, the human race is a single body. Any damage to one part of the body will also harm the other parts. Hence, all nations should share the responsibility of protecting the earth from the global perspective.

F, China, C012

Under the current global economic framework, it is difficult to pursue economic growth and carbon reduction at the same time without a breakthrough in key technologies. Developed countries and emerging countries cannot reach mutual agreement because both stick to safeguarding their own interests. They need to establish a mutual trust mechanism whereby the developed countries show their sincerity with practical actions, and the emerging countries comply with their promises. Unless the emergence of a new political economy model can overthrow the current economic lifestyle, the problem of global warming cannot be solved.

M, Taiwan, T-014

Agreements between OECD countries and the high-emitting developing countries, if India, China, and Brazil can still be considered “developing countries.”

Jeffrey A. McNeely, Switzerland, 015

A consensus must be reached that both developed and developing countries are responsible for maintaining their common homeland. No agreement can be reached without each party compromising and sacrificing some interests.

M, China, C023

It is necessary to find a mechanism for sustainable development, in this case should reach an international agreement to promote the growth economic of developing countries without increasing GHG emissions and reducing them where possible. Developing countries cannot grow at the expense of the environment

Agustin Abarca, Chile, 089

Strengthening Involvement/Pressure by International Organizations

Continuous dialogue needed

M, Norway, 040

International pressure on those countries and limited funding

M, Finland, 063

Keep on pressuring by the international communities.

M, Myanmar, 068

The Copenhagen Accord to be used as the basis for starting discussions towards achieving this scenario; The solution proposed needs to be based on the common but differentiated responsibility principle.

M, Thailand, 078

Acceptance of international verification of reduction measures.

Ajith Tennakoon, Sri Lanka, 102

Through international conventions where participants respect its legal nature and are required to comply with its guidelines.

Waldo I. Tapia Contreras, Cuba, 197

Such result may be obtained through long and effective international discussions.

F, Russia, 203

Promoting Environmental Education

Educational efforts must be increased to convince the peoples living in both the developing countries and the developed countries that, with respect to climate change, we live in a global society and must accept global responsibilities for

action in this regard. Climate knows no national boundaries.

Gene M. Owens, USA, 032

Better and more detailed education of the next generation.

M, United Kingdom, 049

I think we should drop the developed/developing country distinction and seek policies which look to universal long-term carbon reduction, e.g. by creating education/socialization systems where high-energy lifestyles (notably universal ownership of cars) are discouraged with more emphasis on values, probably traditional, other than blatant consumerism.

David Pitt, Switzerland, 054

Very little possibility at the present. Requires a holistic educational approach.

Geoff Mosley, Australia, 066

If we continue believing that to satisfy our necessities we must acquire material goods, we won't achieve emissions reductions. We must look for services as eco-efficiency suggests, but we have to change people's mentality through education and good examples.

M, Columbia, 075

Recognition by their people and governments that they will be seriously affected by global climate change: part of the problem and the solution. Public education essential!

Clive Wilkinson, Australia, 130

Establishing Tax/Tariff Systems

Establishing deadlines for International carbon and GHG taxes in a scaled system

M, Uruguay, 001

The problem won't be solved if long distance transportation is not adequately taxed

M, Belgium, 004

Imposing a carbon tax on carbon emitters can help to resolve the problem of carbon emissions.

M, Taiwan, T-019

World Trade talks must discuss tariffs on imports from intransigent countries.

M, Ireland, 022

Without the resolution of disputes among countries over narrow interests and resource use, it is impossible for any agreement to be reached or any effective solutions to be proposed. Perhaps it is better for each country to take economic measures such as tax and find their own resolution. More reasonable plans will emerge as each country becomes more sincere and honest.

F, China, C034

Developing countries must enforce carbon reduction because they make global warming even more serious. A compulsory carbon tax should be imposed and emission rights should be controlled.

F, Taiwan, T-042

Carbon taxes or other internationally agreed measures to prevent uncontrolled industrial growth and excessive increase in carbon emissions.

M, Austria, 086

The mechanism should be set up such as reduction tax and tariff trade for these high CO2 emitting to encourage the emission. The aid is also required.

Taweesakdi Manakul, Thailand, 160

Tariffs on Chinese and Indian products that are not part of industries that achieve the GHG emissions reductions.

F, Australia, 161

Commitment by Developing Countries to Reduce CO2

Most economic growth models of emerging countries are following the experience of developed countries and huge green house emissions are anticipated in the future. Therefore, emerging countries should try their best to develop green economic models of low energy consumption or use natural energy to avoid such dilemmas in the future.

M, Taiwan, T-005

Education and law are the best constraints. Developing countries should establish the goal for carbon mitigation and adhere to its implementation. It is necessary to improve the enforcement through legislation when needed.

F, China, C024

Emissions from non-OECD countries have already surpassed emissions from OECD and continues to grow at high rates. Without a very serious engagement of developing countries, efforts to limit the global temperature to 2 degrees by 2050 will fail.

José Goldemberg, Brazil, 071

The developing countries have to give more importance to the issue and make it as a national agenda for these nations.

V.J. George, India, 144

Only a real fulfilling of the principle of sustainable development by developing countries (especially China and India) could allow to attain the outcome, to reverse the divergence between economic growth and environment protection.

Nowacki, Poland, 147

It is needed to convince these countries, (and others countries as well) to reduce the CO2 emission of their countries as much as possible to save the Earth, our common home, to save our life.

Vo Quy, Viet Nam, 154

Some of these countries have basked in the status of being developed or in transition whilst they have multiplied their level of emission. They must be put to check and be classified in the category that indicates their level of emission. Whilst their stubbornness is imminent it is still possible to promulgate a negotiated settlement that hinges their commitment to greenhouse gas reduction.

Tawanda Collins, Zimbabwe, 157

One way is to develop mechanisms to aid developing countries in achieving that outcome, but more important is that developing countries must strongly decide about that and be committed to achieve it!

F, Croatia, 166

These countries need to recognize their contributions

F, Belire Andabor, 202

Developing countries with high emissions should be made to indicate how they will minimize their emissions and sign such an agreement. If no indication to counteract emissions, then such funds should be denied to such countries.

M, Kenya, 205

Rethinking Economic Growth

The economical system of development based on continuous growing of consumption should be revised. Earth cannot satisfy the glooming consumption of 9 billion people tomorrow. We should make a cultural change in that way. But before that we should moralize and revise the international financial system. It's the goal of President Obama.

Tewfik Hasni, Algeria, 002

In the face of global warming as potential threat to human beings, we must develop low-carbon economy, industry and lifestyle. Low-carbon economic growth must be integrated into national development strategy. Make plans and implement assessments at state, entrepreneurial and public level.

M, China, C011

First and foremost all countries and their citizens must realize that the comprehensive national strength does not solely rely on the level of economic development, but should be based on natural resources and ecological environment as well. We should recognize the ultimate goal of economic growth, which is healthiness and happiness, I think. If we could maintain this understanding, it would be easy to handle this problem.

M, China, C013

Different actions affecting GHG emission are mostly sourced from the process of “development”. Currently too much unnecessary development is approved. It is suggested that pre-evaluation of economic development and GHG emission should be strengthened in terms of space planning and control.

Taiwan, T-027

Establish an economy where carbon emissions can be reduced.

F, Taiwan, T-039

Economy should be restructured (for environment protection).

F, China, C037

Go more slowly.

M, Germany, 039

Pursue double-track development policy: 1. Poverty reduction with CO2 emissions reduction; 2. Striving for development goal to raise GDP. Reduce number of poor; reduce CO2 emissions.

Emil Salim, Indonesia, 042

Developed countries and developing world are at different stages of economic development. For the latter carbon mitigation is in conflict with economic growth. Hence its pattern of growth must be reformed and improved in order to achieve both goals.

M, China, C047

It is still not yet clear for me why there should be only one way how to develop. This actually means that all mistakes in the development of the Western world are repeated again and again by other countries that are going through the corresponding stages of development. The most important consequence should be a learning process to avoid mistakes.

M, Switzerland, 065

Rapid economic growth in high-emitting developing countries is reaching its limits. Environmental issues—soil/water/land/fiber shortages in both developed and developing countries will bring together environment and economic limitations, with great national and international distress.

E.F. Roots, Canada, 159

The present model of economic development, which consists of an obsession with redundant notions of growth, will always be an obstacle to environmental improvement and it is this that must change.

David Black, U.K., 162

The needs of socio-economical progress should not be the only driven force behind any country (regardless of developed or emerging), environmental issues should be in the forefront of any planning for development, taking into consideration the survival of mankind and a long term environmental services to mankind.

M, Guinea-Bissau, 173

The answer is: sustainable development, i.e. decoupling GDP growth from material resource inputs and environmental pollution.

Udo E. Simonis, Germany, 198

China and India

Both China and India have realized that they are being affected by climate change (desertification, floods, and storms). Both countries have started to take part in the COPs, so they will be part of a framework to be agreed on at one of the next COPs.

Christiane Von Finckenstein-Wang, German, 024

Both China and India have pledged serious efforts to slow the rate of increase in their emissions for the near-term period. No doubt further negotiations will be necessary to get those countries (and others such as South Africa, Brazil, and Mexico) to reach a peak in emissions and begin to reduce them.

F, USA, 027

China and India should no longer be addressed as developing countries !!!!!!!!!!!

M, Netherlands, 047

Mount non-mischievous world education for governments and industries in China and India.

Ketiboa Blay, Ghana, 056

China, India will come on board only when they are convinced that the richer countries are locked into real commitments to reduce their greenhouse gases.

Mark Halle, Switzerland, 069

Both countries have to be part of the solution since they have large share in contributing pollutants.

Geetachew Eshete, Ethiopia, 093

China and India are growing so rapidly that they can afford to invest in low carbon energy; they will also benefit from avoiding some of the impacts of climate change which would arise from failure to deal adequately with this issue.

Kenneth Ruffing, France, 104

Total support by the international community to assist India and China develop the optimum energy solutions - new technologies are capable of lower emissions from fossil fuels - waste to energy is a good start esp. in India.

Carole Douglas, Australia, 106

China and India will have to collaborate - there is a need for more support from developing countries to help them meet the goals.

M, Canada, 123

It is necessary to establish some mechanism to control emissions in developing countries like China and India. At the same time, it is necessary to abandon the idea of a "right to development" and enter an era of consistent responsibility.

M, Mexico, 127

As long as China/India have a GNP per capita of just a fraction of what the OECD inhabitants have achieved (through decades of growth and CO2 emissions), it can't be required that they limit their emissions on the cost of their growth. Limitation of emissions must be defined in percent of existing emissions per capita.

Erik Dammann, Norway, 131

Developing countries like China and India should accept a certain level of reduction obligation.

Ximena Londoño, Columbia, 158

By convincing countries like China and India it is in their own best interests, if they take a view of the next 10 to 20 years.

M, U.K., 167

China and India will surely work for emissions reduction as otherwise these countries wouldn't have shown their commitment. Both the countries should work in collaboration on various projects of Clean Development Mechanism and also make their industries environmentally friendly.

Zia Ul Islam, Pakistan, 174

With the economic growth China and India have experienced in recent years, particularly China, it is high time for them to stop siding with the G-77 that is, rightfully, asking for economic support to address climate change. They have enough economic resources, intellectual knowledge and know-how skills within their nations to address these problems now -- it is a matter of prioritization. The time has also come for them to accept responsibility the way in which industrialized countries have now done for a few decades, to reduce their own emissions, as well as support other, poorer countries in doing so. The leadership in China and India have to be persuaded that if they keep taking a passive role, resisting taking proactive action, the fate of their nations will be to experience amazing economic growth for a few decades and then see their nations collapse because economic growth can no longer be generated from a collapsing

environment. The state of the environment in these very large nations will also have global effects, producing negative effects for all nations. The leadership is key here, if they are not convinced no action will be taken. Researchers, NGOs and think tanks in China and India have an important role in educating and communicating with the leadership to make this change happen. It is a difficult task, but it has to happen. There is no alternative.

M, Sweden, 189

It's difficult to achieve the objective unless China and India subjugate their development for a sustainable model, where the application of Agenda 21 items and clean technologies can be given higher priority.

M, Ecuador, 191

Development Aid (Technologies, Finance, Education, etc.)

Developed countries ought to show their sincerity by assisting emerging countries to reduce their emissions of carbon dioxide as well as to pursue their objective of economic growth.

M, Taiwan, T-003

Developed countries should provide both financial and technical support to developing countries to carry out emission reduction.

M, China, C004

Necessary financial, educational and technological support should be provided to the developing countries, so that new and advanced technology could be applied to maintain economic growth.

F, China, C006

If developed countries cannot actually reduce emissions, then it may be even more difficult for developing countries to do so. Developed countries should offer developing countries reliable and effective technologies for emission reduction and demonstrate the methods of emission reduction by setting themselves as good examples.

Taiwan, T-008

Technology transfer and financial assistance is essential to help these countries leapfrog into a more sustainable economy.

David Vernon, Australia, 009

Developed countries should support the developing world through technology transfers. Successful transfers could be reflected by emission reductions on both sides. The adoption of technological progress could alleviate the problem.

M, China, C010

The issue of emissions reductions by developing countries is a stalling tactic by developed countries, especially the US and Canada. Social equity requires that the largest GHG emission reductions must come from developed countries. Developed countries must lead the way in reducing emissions and must provide assistance to developing countries to improve living conditions while keeping emission increases to a minimum

Colin Isaacs, Canada, 012

The confrontation between the developing countries and the developed world is a prisoners' dilemma. It is impossible for both parties to cooperate and solve the problem without technological transfers and economic aid from the developed countries to the developing ones.

M, China, C015

Currently most problems related to global warming are caused during the development of developed countries. Therefore, it is the inevitable obligation of developed countries to assist developing countries (especially emerging countries) to reduce emissions and achieve economic growth at the same time. Only when developed countries take on their responsibilities will all human beings be able to survive the crisis of global warming.

ZhongWei, Taiwan, T-017

Developed countries ought to assist developing countries to establish or develop low carbon-emission economies and societies.

F, Taiwan, T-020

Industrialized countries should facilitate transfer of cleaning technology (to developing countries).

M, China, C020

Developed countries should voluntarily offer technology and capital to assist developing countries to reduce carbon emissions.

M, Taiwan, T-022

Industrialized countries should transfer advanced technologies to the developing world and meanwhile provide them with financial and market assistance.

M, China, C025

Economic and technological support shall be given to developing countries for them to carry out carbon emission deductions.

F, China, C026

Industrialized nations must provide financial and technological assistance (to developing countries).

M, China, C028

The developed countries shall make plans first and provide economic assistance to developing countries.

M, China, C031

Developed countries need to provide free or low-cost technology transfer to developing countries in order to promote industry restructuring and lifestyle alteration.

M, China, C033

The industrialized countries do not have to face the dilemma between carbon mitigation and economic growth, which is confronting the developing countries. They have entered the post-industrial stage. Long before this, people did not recognize the serious environment issues, and there was neither strong awareness of being endangered nor strict regulations as there are today, when greenhouse gases were massively produced and emitted. At present, however, there are substantial problems of poverty among most developing countries, and economic development for them is about the provision of food, health care, education and employment opportunities. It remains difficult to address the environment issue, though their governments have devoted much effort and determination. Financial and technology assistance are much needed from the industrialized countries. Cooperation around the world is of equal importance.

F, China, C035

The pattern of economic development shall be transformed and improved. More effort and resources should be devoted to the development of science and technology. The economic aid to developing countries should be strengthened.

Wei, Huizhang, China, C036

Financial assistance from industrialized nations as well as encourages by United Nations, World Bank and IMF are needed.

M, China, C039

Developed countries have the duty and responsibility to offer free technology and R&D funds for emission reduction (or even elimination).

M, Taiwan, T-043

The problems of the earth should certainly be resolved by all of the countries on earth, and the problems troubling emerging countries should be resolved with the assistance of developed countries.

Taiwan, T-049

Developed countries should help the developing world to improve the pattern of economic growth and control the expansion of high-energy-consuming and high-pollution industries.

M, China, C051

We should take into account a figure for per capita emissions in each country in order to establish corresponding quotas and, in addition, establish aid for the development of renewable energies for countries in the process of development.

M, Spain, 052

Developed countries should provide financial assistance and technological support to help carbon mitigation in developing countries.

M, China, C054

Developed countries should provide financial assistance.

M, China, C055

Developed countries should subsidize the developing countries in carbon mitigation, in order to compensate the resulting economic slowdown. Meanwhile more of their advanced technologies should be shared with the developing world.

M, China, C056

Transfers of best available technologies are the best solution in my opinion.

Cingal Georges, France, 070

Industrialized countries must actively support emerging economies in organizing a transformation towards a low -carbon economy within the next two decades. Means are technology transfer and financial support.

M, Germany, 115

By hugely investing in developing Low CO2 technologies by USA, Europe and Japan, and by investing significantly in transfer of these technologies to all developing countries quickly

M, Pakistan, 118

In order to get developing countries to reduce emissions, renewable energy technology (e.g.wind) needs to be transferred and subsidized.

Perry Polar, Trinidad, 122

Not very optimistic about the possibility to convince these countries to take strong action; some progress might be obtained from systematic technology transfers on resource efficiency and renewable sources of energy.

M, France, 124

Developed countries must provide conditional aid to high CO2 emitting countries to ensure control on CO2 emissions.

M, India, 135

Make new technologies available to developing countries. Aid is important, but developed countries must take the lead.

M, U.S.A., 146

Plural Approaches

- 1 Developing countries should stop the pollution transferred from the industrialized countries and no longer bring in those enterprises with high carbon emissions.
- 2 Developing countries have to build carbon emission pre-evaluation systems for newly established enterprises and phase out the old assessment system. Experts from all over the world shall be invited to participate in the evaluation and results shall be accessible to the public.
- 3 Those who accept the assistance of international organizations should also be subject to their supervision and sanction.
- 4 Give full play to the supervisory role of the environmental organizations and the public.

Ming Wang, China, C001

A number of approaches can be adopted:

- 1) Establishing scientific data of the impact of emissions from these countries and ways to limit them;
- 2) providing technical solutions for them to replace outdated production technologies;
- 3) providing a flexible but verifiable time plan for reductions

Moses Mengu, Denmark, 003

Developed countries must first submit solutions to reduce emissions, focusing on the huge amount of total greenhouse gas emissions and emissions per capita, and take the lead in doing so. International communities are attempting to force developing countries or countries outside Annex I to cooperate to propel emission reduction through international conventions or protocols, which is unfair and unjust in regard to the economic growth and global environment sustainability issues. Besides, the CDM or NAMAs mentioned recently are mostly economic means attempting to create

business opportunities; whether there are positive benefits to climate change is still in doubt.

M, Taiwan, T-004

Developed Countries have to take their responsibility and cut their emissions, giving space for the developing countries to develop. At the same time both developed and developing countries have to change life style aspirations...

M, Switzerland, 006

Plans should be made for financial assistance, mitigation supervision, carbon trading and technology transfer step by step. Some countries should play the leading role in carrying out the plan, though a small step could be taken each time.

M, China, C008

The developed countries should provide reasonable financial support. A goal of carbon mitigation should be established. Tariffs could be levied on countries with large carbon emissions.

Liwen Shi, China, C009

Economic growth should not occur at the expense of the environment, poor workers and children. The same set of recognized environmental and social rules should apply worldwide. Given cultural differences this is not easily achieved. Production of goods should also shift back to developed countries where poverty and unemployment still exist. We should all expect to pay more for goods, particularly luxury items.

M, Canada, 013

The key issue is the formulation and implementation of the policy. The policy should be pragmatic and taking full consideration of the nature and characteristics of each industrial sector. It should also be operational, as well as conducive to the development and application of new energy efficient technologies. A healthy lifestyle should be popularized. Environment protection should also be promoted in the production process.

F, China, C014

It is necessary to build an economic development perspective with richer meanings. At present, the concept of service capability must be given equal importance and attention as production capacity, so that developing countries can invest more resources in the development of public services and tourism, instead of the simple pursuit of productivity and GDP. Developed countries should introduce more high-end industries to the developing countries, in addition to exploiting their natural resources. They should also provide a good institutional background for the cross-border movement of personnel, so as to establish an integrated system of human resource development and circulation for globalization. International remittance is an importance source of income for developing countries, and service export has less negative impact on the environment than resource export. Meanwhile the government should consider the results of outflow of human resources and take actions accordingly.

M, China, C016

Developed countries should transfer low-carbon technology to newly industrialized countries at low cost. Greenhouse gas emissions can be substantially reduced with the alteration of energy use and economic growth pattern. It is neither desirable nor possible to stop economic development in poor countries and lower living standards in rich countries. The solution is to reduce the gap between developed and developing countries in economic growth and provide technological support to the latter.

M, China, C018

The developing countries should control population growth and accept technological and financial assistance from developed countries, while sharing the responsibilities with them. The patent threshold should be lowered and technologies that are not environment friendly have to be suppressed.

M, China, C019

There is inevitable conflict between economic growth and carbon emission reduction, but the conflict is reconcilable. The "low carbon economy" is a good solution. New forms of clean energy must be found to replace the traditional polluting energy; emission standards must be established. Both measures have to be taken at the mean time of economic growth rather than after the pollution. It is of equal importance to improve the public awareness of environment protection. "Low carbon travel", "Drive as less as possible". Educate the masses to save energy. The consideration of science and technology, monitoring of the environment as well as lower consumption must be incorporated into the strategy of sustainable development. Change the pattern of economic growth, people's consumption style and perspective on wealth.

F, China, C022

We must accept responsibility for inter-regional and inter-generation inequities as first step. Secondly we must develop a policy framework to facilitate technology support and transfer. Thirdly we put in place enough funds to help emerging economy countries to switch over to clean technologies, and 4th but not least, help developing countries to jump start their economies without using the model of the past century -as used by UK, France, etc)

M, Kenya, 026

When emerging countries are setting types of industries, experience from developed countries can be referred to and introduction of low carbon-emission industries are recommended. International funds should be used to aid emerging countries in establishing green industries.

F, Taiwan, T-026

Promote the use of renewable energy. Improve the lifestyle of the public with extensive and prolonged efforts. Public consciousness of environment problem should be established. The government should implement a series of policies.

F, China, C032

We need a global program of emissions reduction covering all nations. Less developed nations have a right to economic development that does not destroy the global environment. Therefore, we need a global alternative energy and greenhouse gas emissions reduction policy that provides assistance to all to achieve a low greenhouse gas emissions future, including financial assistance for lower income countries and proportionally higher emissions cuts from high emissions countries. We need equal rights to emissions.

Michael Keating, Canada, 036

Environment protection has become a dilemma. First, economic development is an issue of chief importance to developing countries. Second, vast amount of pollution will be generated during economic development. Third, low level of pollution is not possible before certain level of economic growth has been achieved. This has started to take place in the eastern part of China where the economy is relatively more developed. For example, in my hometown Wuxi, a new lifestyle of low carbon level is now being promoted and popularized. Fourth, in order to achieve the goal of carbon emission deduction while maintaining economic growth, there should be sufficient technological and cultural support, as well as change in the pattern of economic growth, entrepreneurial innovations, new carbon standard for production, formation of new lifestyle, protection of water and forest resources, etc.

M, China, C038

Though it is part of the obligation of the developing countries to reduce carbon emission and protect environment, there are many practical issue to be resolved. From a historical perspective, industrialized countries must assume most of the responsibilities for the worsening earth environment. The COP conference has turned into a political game/show and will eventually lose its authority. More explicit international cooperation programs must be put forward, in order to improve the education of environment in developing countries. The alteration of lifestyle is also necessary.

F, China, C040

- 1 Developed countries should honor their commitments of emission reduction and accept international supervision.
- 2 Developed countries shall promise to transfer technology and fund to developing countries and provide corresponding blueprint and timetable.
- 3 Implement supervision of emission reduction for large developing countries provided that the second proposal is put into practice.

M, China, C042

Industrialized countries have to reduce carbon emissions and provide financial and technological assistance to developing and newly industrialized countries to support carbon mitigation. Developing countries need to seriously consider carbon emission problem in addition to purely pursuing economic interests.

Lejun Zhao, China, C043

The developed countries like the U.S. should take the lead and join on-board to second commitment period under the Kyoto Protocol. Meantime, China and India should seriously work on NAMAs and accept the MRV concept.

Dago Tshering, Bhutan, 045

Strengthen communication and mutual trust. Establish institutional framework including carbon tax, financial support and international supervision, etc. Cooperation in terms of technology and funds should be encouraged and promoted.

M, China, C046

Mutual compromises. On the one hand, increase assistance toward developing countries; on the other hand, developing countries should target more stringent emission reductions.

M, China, C048

1. Contraction and convergence
2. Technical & financial support from developed countries
3. Set different target for developed & developing countries

M, Taiwan, T-048

Establish carbon emission reduction standards and promote innovation. GDP as an orthodox measure should be replaced by HDI (Human Development Index). Encourage the newly industrialized nations to reduce emission.

M, China, C049

- 1 Transfer part of sovereignty and establish a global government on the basis of consultation and equity.
- 2 Industrialized nations should lead the world in carbon mitigation.

M, China, C050

Increase the financial and personnel input in environment protection, and ensure the implementation of policies. Government should provide guidance for the development of relevant industries, and suppress projects with out-of-date technologies and heavy pollutions. Industrialized nations must provide financial and technological support accordingly.

M, China, C053

Carbon taxes and emissions trading schemes on an international level

M, Australia, 060

1. Developing countries should reject pollution transplantation from developed countries and reject enterprises which introduce industry of high carbon emission.
2. Developing countries should establish a pre-estimating system of carbon emissions of newly-established enterprises as well as the evaluation and elimination system of old enterprises; the results of these measures should be assessed by domestic and overseas specialists and announced publicly.
3. Supervision, investigation or sanctions from international organizations must be accepted at the same time that aid from them is accepted.
4. Maximize the supervisory role of green environmental organizations and the general public.

Taiwan, T-060~T-067, T-070~T-075

- 1 Every person on the earth should be given equal right of carbon emission according to the principle of equity. The mitigation target is calculated from the population of each nation.
- 2 Carbon emission trading is an effective way for both developed and developing countries to coordinate carbon emission reduction.

M, China, C052

Common, but differentiated responsibilities remain key. 20 to 30 major economies must make compromise. Developed countries take larger share. Voluntary technology development and innovation will contribute a lot but not fast enough. Lack of trust is a major problem.

M, Canada, 061

1. Set up an international carbon tax, from which income can be used to encourage developing countries and their people to move toward a low carbon-emission economy.
2. Supervision, investigation or sanctions from international organizations must be accepted at the same time that aid from them is accepted.
3. Maximize the supervisory role of green environmental organizations and the general public.

T-068, T-069

Firstly I don't really buy the idea of stopping developing countries from realizing their potential to be developed, so I don't believe that developed countries should argue based on China and Indian emissions, but rather provide for development, finance and technology transfer for these countries to develop along a clean path. Secondly I don't think its correct to judge bulky country emission, instead of per capita emissions as these are a true reflection of how countries are performing because it only makes it fare for developing countries to escape from vicious circles of poverty by providing employment and other social benefits to their long time suffering citizens through clean industrial developments

and other economic fronts. Developed countries should stop hiding behind a finger and show the world that they also care about the world and the poor, there is a lot of damage already done on the ground that needs to be adapted to by vast developing nations populations

Lennon Madzamba, Zimbabwe, 080

I think carbon trading mechanisms, capacity building and awareness raising through international organizations and promotion of south-south cooperation through the UN system may help.

M, Iran, 085

Creating new agreements for development. Avoiding capitals concentration in the entire world. Sharing new technologies

F, Uruguay, 088

Global Focus should shift from economic growth to ecological conservation, shift from unsustainable lifestyle to sustainable lifestyle and population control mainly in India, China and other developing countries.

P. C. Kesavan, India, 107

International emissions trading schemes to make renewable economic, and aid to developing countries.

M, Australia, 117

Negotiations, assistance and carbon taxes, emissions trading, and other schemes.

M, Tanzania, 119

1. By using stronger international legal actions against countries regularly exceeding emission limits; 2. By creating commercial obstacles, e.g. banning the international trade with certain products coming from highly polluted technologies.

Roman Krajcovic, Slovakia, 125

1. Immediate transfer of low/no emission technology to developing countries.
2. International carbon taxes.

Senoo Rawat, India, 141

1. Non-carbon based industries like it can be expanded.
2. Methods to improve efficiency can be adopted.

K.M. Unnikrishnan Nambeesan, India, 143

It could be achieved by approaching to/and using renewable energy, recycling, population control, and being loyal to old traditions of developing countries in conservation of natural resources and convincing them not to follow and imitate western style of life. China is going rapidly on a western path, India too is following China and this is dangerous.

Hamid Taravati, Iran, 150

Eco taxes as well as the financial crisis in the western world and economic growth - hopefully combined with responsible politics - in the emerging countries.

M, Austria, 155

Other Approaches

The development of consciousness (of the environment issue) should precede the development of corresponding laws and regulations.

M, China, C005

Apply the emerging energy efficient technologies at large scale and improve the current industrial and energy system.

Jianfei Qi, China, C007

The inconvenient fact is that the global society already has resource use and pollution rates far above sustainable levels. So there will have to be reductions - either jointly agreed upon or forced on us by the physical realities. So there is no realistic way for 7 or 9 billion people to achieve further economic growth.

M, USA, 008

This is flawed logic – the focus should be on reducing pollution and that includes human population growth.

F, Australia, 010

Emission reduction is basically in conflict with economic growth and it is difficult to achieve both simultaneously. It depends on national policy to set the direction and priorities. If the policy sways, the possibility of solving the problem will not be high.

F, Taiwan, T-011

I have no idea, because countries conduct policies of National not global interest.

Sani Dawaki Usman, Nigeria, 011

Economic growth and environmental protection have been unable to achieve equilibrium ever since the beginning, which is especially obvious when encountering the current issue of global warming. The only way to solve this issue is for each central government to establish a powerful policy in view of the entire nation macroscopically, rather than merely deluding itself by playing number game like an armchair strategist.

M, Taiwan, T-013

The contribution China made to the world is not her GDP, but the pattern of sustainable economic growth. Preserve the nature and refrain from desires. An end must be put to the “mass production-mass consumption-mass throwaway” production pattern and life style. Natural resources must be used rationally. China today has achieved the economic and political conditions to carry out the motto of “Chinese Learning for the Foundation, Western Learning for Practical Use”. We should summarize our past experience from the perspectives of technology, market, politics and culture, in order to achieve a sustainable growth. We need many resource management experts as well as practitioners of green lifestyle. We need Longping Yuan in our management positions; otherwise our agricultural output will be squandered.

F, China, C017

This is a problem of one’s own making that will entail woe for later ages.

Juson, Liu, Taiwan, T-021

Much as star wars and the quest to put a man on the moon led to major technological advances, money needs to be poured into developing and encouraging truly innovative, breakthrough technologies rethinking automobiles, the way we consume electricity, how we consume and dispose of so many goods, etc.

F, USA, 021

Economic development is the most important global issue for all countries, but the precondition is the maintenance of the environment that future generations live on. Environment protection must be given chief importance. Eco-friendly industries are much needed.

F, China, C021

Use of alternative technology that is sustainable and less polluting.

Salvador Agina, Kenya, 025

The issue has to be addressed from the legal perspective.

Haiyan Guo, China, C029

Better cross fertilization of experience and technical knowledge.

M, UK, 029

Though not simultaneously, developing countries will achieve emission reductions so as to ensure economic growth, conserve the environment, and improve the quality of life of their own population. The goal of protecting the global environment will be attained through a staggered approach.

Karl E. Weber, Thailand, 031

It is now a fact that China and India are amongst the biggest emitters of GHGs, and some other developing countries are heavy emitters of GHGs. Having been following the issue of climate change and GHG emission reductions since the mid eighties of the last century, I would like to observe that in the past the USA refused to accept commitments under the UNFCCC and its Kyoto Protocol to reduce its emissions, and was strongly criticized for this by the rest of the world. Those who criticized the USA, tended to ignore the principal justification provided by the USA for its refusal, namely, that as long as the developing countries do not commit themselves too to GHG emission reduction,

the Climate Convention will not achieve its goals. It seems now that the position of USA was correct. There is hope that now, as the developing countries agree that they cannot be exempted anymore from committing themselves to GHG emission reductions, efforts to enhance the GHG emission reductions by all countries of the world, developed and developing, will increase.

Michael Graber, Israel, 035

Political will

Alan F. Mark, New Zealand, 037

Human beings should review their lifestyle and consider returning to a simpler life. They should not merely pursue speed, convenience and enjoyment, nor regard "humans" as the main living beings on the earth, but rather consider the life of all creatures! Attaining a simple life and enriched soul are the objectives which should be arduously pursued.

F, Taiwan, T-040

I suggest all countries be categorized according to HDI (Human Development Index) issued by UNDP (United Nations Development Program): high HDI (>0.80), unconditional mitigation; medium high HDI ($0.65 < \text{HDI} \leq 0.8$), conditional mitigation through technological support or transfer; medium low HDI ($0.5 < \text{HDI} \leq 0.65$), promote mitigation; low HDI (≤ 0.5), mitigation under support by international community.

F, China, C041

The developing as well as developed countries will have to put efforts to get the goals achieved regarding emission reductions, at the same time the quality life of developing countries is to be ensured.

R. K. Garg, India, 041

Establish an emission reduction framework according to per capita income.

M, China, C044

Construct a macro framework of global governance. Each nation should play common but differentiated roles and assume common but differentiated responsibilities.

M, China, C045

The international community can use both tough and soft tactics by awarding countries with good performance on one hand and supervising countries with bad performance on the other hand to improve the current situation.

M, Taiwan, T-047

All countries (developed and developing) must have the commitment and responsibility to act on the reduction of global warming.

Nimfa C. Chen, Philippines, 055

There are good reasons to fear that emissions reduction measures (in developed countries, China and India) that are big enough to combat climate change will only take place when disaster is too close to avoid. But one must nevertheless hope that this will not be the case.

Kåre Olerud, Norway, 064

It is unreasonable to expect that emissions will not grow from developing countries, but there needs to financial assistance in providing high level of emission avoidance and containment; both the developing countries and the developed countries need to make a contribution to the costs.

M, Switzerland, 076

Emissions reduction is NOT an obstacle for economic growth - it may slow economic growth at the moment but makes it more long-lasting and sustainable. It forces to more intelligent usage of any type of raw material

Stefan Taigner, Poland, 077

It will be a great challenge to achieve this outcome, but every effort must be made using a variety of approaches in order to get movement in both developed and developing economies in the right direction. There is no possible one size fits all approach to this. Ultimately, the planet will decide if we have been good stewards and all countries will suffer if we are not.

Paul M. Koch, Canada, 079

Developed countries are the main obstacle. They are not & will not participate in protecting the global environment nor will they adhere to the rules & regulations will be set by the United Nations or any organization.

M, Kuwait, 082

There needs to be a wider diplomatic effort to bring all players to the same game whether large emitters or small and whether developing or not; a better distribution of resources among countries remains a central tenet of the global equity discussion. Without a common front and greater transparency and discussion, attaining a meaningful reduction in emissions is likely to remain elusive.

Adrian Mallia, Malta, 084

Good possibility if improved technologies are provided free or at low cost - but challenge of changing how people consider success relative to consumption still remains.

Edward. W. Manning, Canada, 087

Economic growth at all cost is not an option. Developed nations need to take a hard look and accept that “consumerism” is not good for environmental health. Developing nations need to recognize that in order to improve standard of living it must be done with a sustainable focus, not leveraging antiquated technologies such as coal fired power.

Scott Meakin, Canada, 090

The breadth of the problem is daunting. BRICs make up a huge part of the global population. Economic goals seem to be based on current G8 standards of living and economic policies. Given the per capita emissions in developed countries, and notwithstanding the remarkable achievements in reducing per capita emissions and specific emissions related to individual activities, like per KM emissions emitted by autos, achieving such reductions will require policy focus well beyond current intensity. I have yet to see this level of political will. but remain hopeful.

Arthur Goldsmith, Canada, 092

Incorporate adequate scientific and technological advances. Governments must invest in proper ways, and not in inadequate ways influenced by convenience, corruption, or narrow economic interests.

Maria Cristina Bo, Argentina, 094

The view that developing countries should adopt emission commitment carries the implicit assumption that such action would lead to a better global environment outcome.

F, Kuwait, 097

Men chose technology! And nothing will change!

Niede Guidon, Brazil, 096

“Actions are louder than words.” Developed countries are promoting trade to emerging markets, e.g., South America, Africa, China, India, with their resource extraction, mining, river diversions, log exports, coal burning, causing those countries increased gas emissions, pollution, et cetera.

F, Canada, 109

Using ecosystem based approaches in climate change mitigation and adaptation measures. Conserving biodiversity and thus maintaining ecosystem services would contribute to solve climate issues.

Veronika Kiss, Hungary, 165

In view of the absence of desire or will of developed as well as some developing countries to reduce emissions, they should be persuaded to contribute to measures that will ease the suffering of people affected by calamities caused by climate change.

Virginia S. Cariño, Philippines, 169

Global growth of multi-egoism is major obstacle for developing states.

Dukhovuy, Uzbekistan, 170

Step one would be to subject any new projects of a significant size to reach a CO2 emission limit.

David Rodier, Canada, 171

There should be a precise method of determining emission reductions expected from every major contributor.

T. A. Coleman, Ghana, 172

On achieving with pollution reduction for developing countries, it would technically be able to provide Best Practice, Technological Transfer and Knowledgeable Integration in order to enhance the way of learning regionally and internationally.

M, Thailand, 180

The demands of developed countries are resulting in high emissions in developing countries as they produce goods for export. Environmental laws need to be the same in developed and developing countries.

Veronica Irene Joy Royes, Jamaica, 186

It can only be achieved if alternative efforts are put in order and be placed as the best and be evaluated from time to time.

Selosilwe Mokubukubu, Botswana, 187

Cooperation of the BRICs with concerned UN agencies and NGO.

Cheikhna Aidara, Maulitania, 190

Sustainable land management and development.

M, Papua New Guinea, 192

India's economy is based on forest agriculture. India must follow Mahatma Gandhi's idealism of promoting cottage industries which do not contribute to pollution and GHG generation. Other countries may also follow.

Sundara Narayana Patro, Working President, Orissa Environmental Society, India, 193

The sea must be brought into the land and abundant water must be provided for the people to distill for drinking and cooking and desalinating for washing and irrigating.

Felix Ryan, India, 204

This is emissions reduction versus economic growth. A difficult topic, but the suggestion is to reduce greenhouse effect by increasing forests.

Yucabeth Ongondo, Kenya, 207

Dual Achievement is Difficult/ Impossible

I think the reduction of carbon emission is in irreconcilable contradiction to economic development, especially in developing countries. The idea is too good to be practical at the current stage.

F, China, C 002

Economic growth and emissions reductions are incompatible.

Bernardo Alvera, Spain, 023

I am pessimistic (about the future of environment protection).

M, China, C027

Difficult and complicated, but any developments in this regard are significant and valuable.

Evan Bozowsky, Canada, 030

Yet it's impossible to attain this outcome

Paulius Kavaliauskas, Lithuania, 051

Not even disasters such as the 2010 Gulf oil spill seem to awaken awareness. Therefore, I have little hope for the future as long as the US and major developed countries continue self destructive suicidal behavior.

F, USA, 091

No possibility of achieving.

M, UK, 101

With considerable difficulty. The developed countries are strongly of the view that the developing countries, who are

major emitters, should participate as well in reducing greenhouse gas emissions.

M, New Zealand, 105

It's impossible.

Festus Anjera Ashisoms, Kenya, 208

Comments from Japan

Self-Help Efforts by Developing Countries

Emissions trading has already become commercialized. Suppressing the emission levels of developing countries should not be difficult if environmental technologies from countries like Japan can be implemented. But unless developing countries decide to relinquish their emissions permits, it provides them with easy profit and they will continue unabated with economic development without effort. This is an extremely unfortunate outcome for developing countries. They need to recognize that fundamentally this is a self-help effort.

M, W008

Instead of providing economic aid including global warming measures through mechanisms like the ODA, emerging countries in their early stages of development should be required to implement such tactics on their own.

Taketoshi Yamamura, W062

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Taketoshi Yamamura, W062

Responses to Poverty

As long as there are economic discrepancies, I believe it is difficult to prevent the prioritization of economic growth. How we respond to poverty is an important subject.

M, 058

Until poverty in developing countries is abated, developed countries should strive to reduce emissions equitably to the level of Japan's marginal abatement cost.

M, W080

Awareness Transformation

Solving this problem is impossible unless both developed and emerging countries come to recognize that they are on the same boat and transform their awareness from me-ism to we-ism.

M, Japan, 023

Countries should not fixate too much on its own benefit, but should instead try to share the sense of crisis for the Earth as a whole. The problem in question 5 also requires a more clear and deliberate examination.

Kazuo Tomizaka, 086

In advancing the economic growth of developing countries, there needs to be a transformation in awareness of the people of those countries like requiring as a precondition the implementation of energy conservation technology.

Eiichi Hamatani, W034

The Establishment of an International Fund

This comment may seem to serve my own interests, but I would like to dedicate my efforts to the realization of the merits (for example, proportional carbon taxes and an international fund for atmospheric stabilization) that would allow for sustainable economic development grounded in the principles of social common capital.

Hirofumi Uzawa, 022

The introduction of a low but wide range of taxes for the movement of people, products, and money between countries. The establishment of a fund under the United Nations, and its operation under the Framework Convention on Climate Change (for the support and verification of national programs for adaptation and amelioration). I don't think these have a high likelihood of feasibility but it might be possible if there develops a common recognition that the Earth truly has serious problems. Emissions trading is a palliative approach, with significant indirect costs.

Daisuke Yamada, 107

Further enhancement of international funds to aid developing countries.

Ryuichi Nagatsu, W042

Strengthening CDMs

I believe that the simultaneous development of the environment and the economy is only possible through technological progress. To this end, I think it is imperative to carry out technological transfers from developed to developing countries as expeditiously as possible through project-based means like CDM. In addition, in order to prevent the weakening of international competitiveness of companies in developed countries who partake in technological transfers, I think that it would be effective to provide incentives, like granting some sort of preferential status.

Hidemichi Fujii, W105

Enhance and strengthen the current framework of CDM. Relax the additional requirements, and increase projects particularly in the field of societal infrastructure construction like transportation systems and building construction, which can have a significant effect.

M, W095

Deepen understanding among developing countries of Clean Development Mechanisms, which has merits to those countries if they engage in emission reduction endeavors.

Yasuo Murata, W111

International Agreement

Instead of fundamentally accepting the increase in emission levels that accompany economic growth, there should be an international agreement to further strengthen the position to combat it through technological innovation and emissions trading.

M, W061

Economic growth and CO2 emission reduction in emerging countries have a paradoxical relationship; nonetheless, it is an issue that must be resolved under an international agreement. I believe it is not possible to solve this problem in the short term. Instead, I think we need to persistently negotiate policies that emerging countries can accept, under a long-term strategy that maintains a vision of what should be in 2050. These policies include emissions trading systems, the transfer of best practices technologies based on a preferential structure, and the implementation of low carbon technologies from the stage of private sector infrastructure development.

M, W081

As developing countries grow, it will not be possible to gain their understanding if they are unilaterally restrained from following the same path of development and industrial cultivation that developed countries once took because of the growing seriousness of environmental problems. As such, financial and technological aid from developed countries are crucial so that developing countries can implement environmentally advanced processes for their growth and industrial development and avoid the deterioration of the environment. To this end, I believe it would be effective to adopt international regulation systems to incentivize developed countries to provide aggressive support. Further, the world today faces not only environmental problems; those issues are intertwined in a complex web with population, resource, and disease problems as well. So I think we first need to establish a grand vision (international agreement) that articulates how the world together will approach these multiple problems.

M, W109

For the peace and security of the planet and all of its lives, political leaders of each country first need to have a sense of crisis towards the current situation, as well as for there to be vigorous activity at international organizations. In order for countries to not be blinded by short-term profits and agree to a sustainable growth, developed countries must significantly increase their foreign aid and be prepared to take full responsibility for the future of the planet. It is possible to take a large step forward by promoting investment into renewable energy development and implementing tax reforms.

Katsuhide Kitatani, W114

Environmental problems should not be considered on a per country level. Even if it is difficult, we need all countries to have the steadfast commitment to resolve the problem together as the whole world.

F, W141

Information Disclosure/Education/Public Relations Activities

I would like to appeal to the country's public opinion, which only asserts national interests, that we humans are all riding on the same common destiny known as Spaceship Earth and have that be widely reported.

Takashi Nitta, 056

1)Promote research, information gathering and analysis in order to make sufficiently clear the crisis the Earth is in and convince emerging countries. 2)The development of low cost emission reduction technology, information sharing, and the provisioning of aid.

Nobumasa Ogushi, 118

Dialogue to bring about mutual understanding. Education to raise environmental awareness. Do not force emission reduction.

Yasuyoshi Tanaka, W020

A close relationship between developed and developing countries and information sharing.

M, W148

Communicating accurate information to citizens. Because we are dealing with pollution problems, which are closely intertwined with a country's internal affairs, it is important to cultivate domestic public opinion.

M, W088

The Establishment of Emissions Intensity

It seems that the lowest hanging fruit of compromise would be to immediately implement the top runner program that Japan had previously put forward, provide aid to emerging countries, and have emerging countries also continuously improve their baseline emissions intensity.

Shigeru Saito, W060

Due to the large discrepancy in per capita greenhouse gas emissions between developed and emerging countries, it seems impossible to gain acceptance from emerging countries as long as we use current emission levels as the premise. In order to gain the understanding of emerging countries, we should establish a per capita emissions intensity that also takes into consideration movements through trade (the amount of greenhouse gas emitted abroad for manufacturing purposes). I think it will be necessary to take an approach in which developed countries aim to reduce emissions towards this baseline while emerging countries use it as the ceiling against which they suppress emission growth. However, the adoption of such an approach implies the lowering of living standards in developed countries where the baseline level of greenhouse particle emissions is currently very high, like in the United States. So then a significant question remains, of how we gain the cooperation of the citizens (and industries) in these countries.

Satoshi Fujioka, W078

The establishment of an emissions intensity grounded in the latest technologies throughout developed and emerging countries. In addition, the establishment of a gross target in developed countries. Based on a shared but tiered set of responsibilities, have developed countries commit to "gross + baseline" targets, while emerging countries commit to "baseline" targets.

Ryutaro Yatsu, W101

I believe that rules need to be formed to govern emission quantities (creation of consistent standards), for example, the standardization of CO2 emissions necessary for economic growth in common units that measure emissions throughout the world.

M, 114

Technological Development

Technological development and international cooperation.

M, 091

Going forward, it is impossible for developing countries to strive for economic growth based on the premise of mass consumption of fossil fuels. As such, it is necessary to further advance technological development that does not rely on fossil fuels. I believe we should pour more efforts to increasing the efficiency of tested technology like hydraulic and solar power generation.

M, 093

I think what would be most effective are the aggressive engagement of developed countries and technological development tailored to emerging and developing countries.

Akira Morishima, W027

Develop technology that minimizes CO2 emissions.

M, W043

I believe that there has to be a way that we can develop technology that doesn't emit CO2 (like the use of solar power, electric vehicles, and development of natural materials) if we bring together our collective human knowledge. If we reduce waste, we will reduce the amount we are burning; in other words, we will also remove the wasteful use of energy. This is also human wisdom. If we were able to link environmental conservation to business opportunities, emerging countries would line up to participate in such schemes. I feel the answer is in that area.

Minoru Yoneda, W092

The promotion of technological development in developed countries and technological transfer (does not have to be the latest technologies) from developed to emerging countries.

M, W058

Rethinking Energy/Increasing Efficiency

We must change the current situation, which is dependent on energy derived from coal and petroleum.

M, 005

The effective use of natural energy.

Shiro Nishi, W054

We must strive to improve the energy efficiency of emerging countries while encouraging policies that suppress emissions increase as much as possible.

M, W091

Impose improvements in energy efficiency as a numeric target.

M, W100

We must accelerate endeavors to graduate from fossil fuels, like promoting the use of renewable energies.

M, W127

The reality is that both developed and developing countries are unable to undertake emission reduction in earnest. There needs to be a fundamental recognition that the reason lies in our inability to stop energy consumption, and therefore, CO2 emissions. Then, we should root out all of the wasteful uses of energy consumption from top to bottom. Win-win situations cannot be achieved through economic activity alone, like technological support and financial aid. We need to root out waste, and think through technological aid to this end.

Hajime Oshitani, W149

Pros and Cons of Emissions Trading

We need to implement a system of international emissions trading as advocated by Mr. Mutsuyoshi Nishimura or Mr. Akinobu Yasumoto.

Toru Ishii, 008

Cap and trade.

Toshihiko Yano, 063

In order to protect the global environment, not only developed countries but all of the countries of the world including emerging countries need to engage in greenhouse gas reduction. If a cap and trade system of emissions trading is implemented among developed countries and emitters from fossil fuel use are imposed a emission reduction target,

developed countries can provide the funds to carry out emission reduction in the industrial sectors of developing countries and earn credit for the amount of emissions they help to reduce. These are methods that need to be considered moving forward.

Toshirou Kishikawa, Japan, 135

Encourage citizens of developing countries to reduce emissions even as they reach standards of living similar to developed countries. Transform lifestyles and develop technologies such that in developed countries, standards of living are maintained and emissions do not increase. Provide the know-how and technologies to developing countries and attain an amount of emission reduction as a whole. I am opposed to achieving reduction through purchasing emissions permits. In particular when purchasing emissions permits from areas like Eastern Europe, no real reduction will be achieved and the result is a simple mathematical puzzle.

Miwako Sakano, W022

Schemes like emissions trading that view carbon dioxide as a product will only lead to discussions in the near future about the treatment of carbon dioxide produced by the products that are traded. In fact, what is ideal is to maintain a situation like the one we have in which transfers of technology that contribute to ameliorating global warming can take place without restrictions that in the end lead to reduced production of greenhouse gases.

M, W059

Technological innovation is the only way to achieve emission reduction. Currently, there may be a temporary decrease in emissions with the collapse of excessive credit creation. But on the other hand, I have doubts that treating emission reduction as a tool in a money game on the emissions trading market will lead to a meaningful reduction. Without having to go through an emissions market, countries can create powerful regulatory programs that transform the structure of national energy strategy to one based on sources like solar power, upon which companies can develop and bring to market technological innovation, and accomplish emission reduction through improved shifts in technology. Self-sustenance for Japan comes from self-sustenance in energy, and that technology also corresponds with an environmental strategy that will help developing countries to sustain themselves. This is the most important task.

M, W139

Establishing Reduction Targets

The declaration of voluntary targets by developing countries themselves.

Takaaki Moroto, 020

First, have developing countries establish reduction targets at levels that would not hinder economic growth, and grant emission permits for the amount in which they come under the goal. I would like to see more progress in deliberating a sector-based approach in which targets are established and measures are put in place for each field, like steel and cement.

Satoru Kitajima, Japan, 059

What is needed is the creation of a staged plan that links economic growth with emission reduction, and for the entire group of developing countries to share and adhere to the plan.

Kazushi Yamada, 088

We should first ask each developing country to submit a plan for economic growth and emissions forecast for the coming 10 to 15 years. And based on these plans, it seems appropriate to convene COP sessions and other multilateral discussions on reduction targets and methods to make them possible.

M, 090

I doubt that we would be able to gain the acceptance of developing countries without setting a target that equalizes per capita emission levels.

M, W131

It all boils down to the response to question 4. In other words, we must mutually finalize the emission reduction targets in high energy consumption societies of the West, led especially by the United States. At the same time, I believe it is necessary to create a structure to support moderated development and growth of developing countries by providing technological aid from developed countries.

M, 108

At the most fundamental level, the greatest problem lies with the assumption that a gap exists between developed and developing countries. When considering the problem at a global scale, we should calculate figures based on a global per capita basis, and then convert those numbers for each country.

Junichi Kato, 073

Developing countries should establish reduction targets at levels that would not hinder economic growth. Along with that, there needs to be a support structure that would, for example, grant emission permits for the amount in which they come under the goal.

M, Yamanashi Prefecture, Japan, W142

1. The first step is to focus the emission reduction target of developing countries to one country (with the condition to not dwell too much on the figure), for example, if a developing country were to host a COP session.
2. As a condition of acceptance, developed countries should concentrate their aid of environmental technology and products to that country. In addition, nurture the private sector in order to create jobs.

Naoshi Yokoyama, 001

Developed Countries to Lead by Example

There is no other way than for developed countries to first lead by example and take actions.

M, 007

Without developed countries first leading by example, it is not possible to convince developing countries. Additionally, implement environmental technology (which do not necessarily have to be expensive, high technology items but ones that build on local technology) and extend education about true wealth (as in Bhutan, for example, where economic wealth is not the only form of true wealth).

Konoe Fujimura, 055

Developed countries should achieve the transition to a low carbon society as soon as possible and prove that economic development and emission reduction can be achieved simultaneously.

Toshihiko Goto, W046

The first priority is for developed countries to achieve a low carbon society breaking away from the patterns of the 20th century. This can serve as a base upon which developing countries can break from the past and set upon a path of non-20th century development that they together can demonstrably follow with the cooperation of developed countries.

Masaharu Yanagishita, W051

It is difficult to deny the desires of the people of developing countries that they want to be enriched like the people in developed countries. But taking the average “wealth” of all human beings and aiming to converge towards that standard is also unrealistic. I think the only way to resolve this is to have developed countries far outdo developing countries in their efforts to combat problems and pay a sacrifice.

Takeshi Nonaka, 075

In today’s world, everything moves forward upon the premise of economic growth. There is nothing I can do to deny this, and this is precisely what emerging countries are seeking. I think that accomplishing objectives may be difficult unless developed countries decide in earnest to seriously close the North-South divide.

Masatoshi Tsukuda, W075

Rethink the relocation of high energy consuming operations from developed to developing countries. Reduce the consumption of high mileage foods in developed countries and strengthen local production for local consumption. Put into place cultural and lifestyle practices that don’t fit mass energy consumption patterns. Create international benchmarks.

Naoshi Okumura, 080

Clarify the degree to which developed countries have thus far “contributed” to global warming, and publicize their own responsibilities. Then there needs to be a process that allows a discussion on what can be done in developing countries.

Yu Yamada, W094

It is completely within the right of developing countries to desire economic growth. If developed countries want emerging countries to achieve emission reduction, they should as an alternative support the economic growth of developing countries, and as a result should accept even further emission reduction responsibilities. Without the creation of rules that aims to average out the emission level per capita, I believe it would be difficult to achieve reduction targets.

Hirokazu Yamamoto, W113

If we are to seriously reduce the emissions of emerging countries, developed countries will need to alter their own lifestyles and provide large amounts of economic aid. The first question is whether or not there can be a consensus to do so among and within developed countries.

Hisayuki Keida, 134

Treating China, India, and BRICs Separately from Other Developing Countries

There is a limit to treating developing countries as all the same. There is a great difference between countries like China and India, and countries like Tanzania.

Hideo Obara, 039

With a combined population of approximately 2.5 billion people, China and India comprise about 37 percent of the approximately 6.7 billion people of the world. As this is an extremely high proportion of the world's population, there is little that can be done without suppressing these two countries. Further, it seems that the United States, a developed country, is acting as a bottleneck.

M, 100

The discussion should start with clearly differentiating the treatment of developing countries between major emitters like China and India, and poor and island countries like the Maldives.

M, W013

How about convening a COP session with China as the host country? Because it is a country that values prestige and reputation, perhaps giving China the initiative would lead it to re-recognize its international responsibility.

Naoya Sawazu, W044

The movements of countries like China and India, which are expected to emit massive amounts of CO₂, is key. I believe it is important to provide and exchange information like about successful cases in Japan.

M, W055

Emerging countries like BRICs (especially China) are acting as part of the group of developing countries. But a new system should be developed as soon as possible to treat emerging countries separately from developing countries.

Makoto Hoshino, W070

There is something extraordinary in the rise in emissions by China and other developing countries. I think that developed countries and developing countries approaching them (BRICs) should prepare to play on the same field. Sources and levels of national income differ by country based on whether they are industrial or not. But rather than differentiating reduction levels based on whether a country is developed or developing, I think there needs to be a cap on emissions by establishing a range, for example by setting a cap for every trillion yen in GDP.

M, W077

There is a way to establish objectives by differentiating between the economic giants of BRICs like China and developing countries; there should be three or more categories including developed countries.

M, W107

This is a difficult problem, to which it is not possible for me to provide an adequate response. But I do have serious doubts about treating China and India as developing countries, in the same category as other developing countries.

Yoshio Yoshida, W129

It is essential for China to further recognize that the country's rapid economic growth has led to massive greenhouse gas emissions and subsequently, environmental pollution. This in turn is causing significant damage within China itself. It is imperative for Chinese industries to make a significant shift towards technological innovation and product development that incorporates awareness for environmental conservation.

M, W135

Rethinking Economic Growth

What if we tried zero economic growth one time, simultaneously throughout the world?

Akira Moriki, 002

Share the recognition that “simultaneous achievement” is not realistic, and either instill the idea that emission reduction should be undertaken even if economic growth is sacrificed to some degree, or conversely, in light of how difficult it is to reduce emissions, place more emphasis on climate change adaptation strategies. Have this discussion in earnest.

M, Japan, 014

Stop rapid economic growth.

Kozo Ninomiya, 050

I think that first, economic growth targets can be formulated taking into consideration population problems. Strategies for emission suppression and reduction can be developed accordingly, and countries can aim for their dual achievement.

Hirota Sano, 095

Although economic growth based on mass consumption of resources should be reconsidered, the specific means for achievement are difficult. But there should be economic and technological aid in that direction.

M, 106

Both developed and developing countries should deliberate their economic growth strategies while guaranteeing to meet their obligation to reduce CO2 emissions. If they cannot balance the two, they should halt economic growth itself.

Fumio Shimizu, 130

Require emerging countries to meet greenhouse gas emission reduction targets based on a comparison of past economic growth rates of developed countries and the growth rates of emerging countries. Developed countries must, as a matter of course, lead the world in demonstrably reducing its own greenhouse gas emissions, in excess of its past economic growth rates. To this end, research must be conducted to accurately gather numeric data on the greenhouse gas emissions of each country, and there must be a process by which each country endorses these figures each year. If countries do not agree to such processes, simultaneous achievement is difficult. I think each country should start by forming research teams to accurately determine its greenhouse gas emission levels.

M, W071

Point out the past mistakes developed countries have made in energy intensive industries and lifestyles to once again show emerging countries the direction arbitrary economic development leads.

Hiroshi Takeda, W120

I think that economic development in developing countries is following a natural path. The increase in the amount of future energy consumption by developing countries will lead to the increase in greenhouse gases, but developed countries also followed a similar path. Technological development and the distribution of resources and wealth in developing countries will continue until they reach the same levels as developed countries. Given this, what if developed countries slowed down their pace of economic growth and technological development?

Shuichi Takanashi, W126

Building a New Framework/System

To establish a framework for aid from developed to developing countries, and the clarification of roles between the public and the private sectors (for government to support what the private sector cannot provide). Possibilities for success will increase with the clarification of a specific, mid-term road map.

M, 060

It is necessary to create a legitimate system to evaluate environmental aid to developing countries through mechanisms like the ODA.

M, 061

It is necessary to clarify the incentives for which emerging countries should execute emission reduction, or the benefits they can receive after carrying them out. In addition, we need an international system to verify and evaluate these efforts.

Masanobu Fujiwara, 083

Require technological transfers for emission suppression. I believe we should consider an international system through which emission suppression technology can be used as an international public property.

Takayoshi Sakai, 116

We need a system in which the responsibility for greenhouse gas emissions falls on the shoulder of those benefit from it. For example, countries and citizens who consume resources and products should make aggressive efforts to suppress emissions as well (through the development and aid of technology, providing financing and information).

M, W011

Although technological aid from developed countries is key, there won't be any agreement if they are asked for both money and technology. Currently, CDM has too many restrictions; there needs to be a new system in which reduction amounts are also distributed to developed countries.

M, W023

The United States and developing countries are taking opposite stances and are each acting egocentrically. We need a mechanism in which countries act for the good of the whole Earth.

M, W025

There needs to be a combination of aid including NAMA and MRV, and in addition, we need a large-scale system of cooperation like the CDM program.

Shuzo Nishioka, W039

I believe developed countries need to provide the latest technologies like those in energy conservation as well as economic aid to suppress emissions. At the same time, they also need to lower their own emissions by lowering their standard of living, thereby closing the gap in quality of life between developed and developing countries (lower the standards in developed countries and raise them in developing countries). I also believe we need a system to distribute limited resources (emissions levels).

M, W063

I believe that numbers have taken priority in emissions targets, while an examination of technological potential, economic potential, and potential for societal demand is not very emphasized. Although the phrase "no-regret options" is an old one, I wonder how much can be accomplished within this concept. Questions like this one and how much can be accomplished if we were to apply the precautionary principle are ones I think researchers should discuss more. For politicians to play with numbers without being grounded in analysis is to reverse the effect and delay solving environmental problems. Although it is said that it would be difficult to further reduce the greenhouse gas emissions in Japan, I think there are options. For example, if the Japanese electricity transmission network is connected to Russia, Korea, and China and electricity can be shared, it seems that we would be able to reduce emissions caused by electricity generation. In order to bring this to fruition, it will likely be necessary for example for Russia to ratify the Energy Charter Treaty (or to join the WTO). In other words, we cannot just rely on the progress of technology, but rather look at ways in which regulatory systems and frameworks need to change. On the other hand, when considering the consequence that it is developing countries that will bear more damage from climate change, it seems that their proactive engagement is something that will benefit them. Even if developed countries were to play a leading role, if countries like China and India are going to prioritize economic development, climate change will worsen even with the efforts of the developed world and will adversely affect developing countries. In other words, it seems to me that we need to construct a framework in which we can have more dispassionate discussions.

Keiichi Yokobori, W069

A framework in which developing (and emerging) countries can anticipate profit by reducing emissions should be furthered so that they are incentivized.

M, W93

Each country should enact an environmental tax based on their economic strength (GDP, etc.) and emissions level. As such, we should first debate and formulate standards of calculating taxes per country, and based on these standards, each country can extract and collect taxes based on emissions levels.

M, W099

I think that with developing countries, it is best to avoid overall targets; it is likely that improving energy efficiency or implementing a set of energy conservation measures is all they can do. However, it is desirable to set those energy efficiency and conservation standards as high as possible. In return, developed countries can promise to help implement

those technologies. In addition, we should encourage the acceleration of this effect by establishing a way that allows developed countries to calculate as their own the emission reduction they help to realize in developing countries.

M, W012

- Both developed and developing countries agree and acknowledge that temperature rise must be limited to an average increase of two degrees Celsius if we are to avoid catastrophic damage from global warming and climate change.
- According to the IPCC, in order to limit the temperature rise to two degrees Celsius, we must reduce global emissions by at least 50 percent from 1990 levels by the year 2050. This is the equivalent of a more than 70 percent decrease per person from 1990 levels after considering population increases.
- These numbers signify the following: 1. Significant emission reduction is essential not only in developed countries, but also in developing countries, in particular in large emitters like China and India; 2. Technologically, rather than improving on current kinetic energy systems based on thermal methods, which rely on fossil fuel resources, we need to break away from thermal systems regardless of whether we are a developed or developing country. Instead, we need a fundamental transformation into a kinetic energy supply system based primarily on non-thermal energy, which relies on renewable sources of energy. 3. We only have 40 years until 2050. In order to achieve a fundamental transformation, we need all facilities that are going to be newly built, whether added or rebuilt, to utilize non-thermal energy relying on renewable sources of energy. 4. Japan (and likely the developed countries of Western Europe and the United States) is trying to balance global warming countermeasures and economic growth by providing development support. The development support includes implementing advanced thermal power technology (such as IGCC, USP, combined cycle), and improving the efficiency of the internal-combustion engine with hybrid systems and increasing the construction of light water nuclear reactors (nuclear power also has significant problems like radioactive waste and the risk of catastrophic accidents that are separate from global warming). But these technologies do not go beyond fossil fuel use and simply improving thermal energy. In addition, many of them require enormous technical plants that, once built, will be used for 40 to 50 years and are inappropriate considering #2 and #3. 5. In order to realize #3, developed countries and developing countries need to form an international mechanism as a joint enterprise.
- I believe that the key to the economic development of developing countries (the improvement in people's lives and welfare), the continuation of economic activity in developed countries, and accomplishing reduction goals while building a sustainable society, in other words, the balance of emission reduction and economic growth, lies in #3 and #5. It seems to me that the direction of discussions beyond COP16, which seem to have reached an impasse, can become clearer when seen from the standpoint of #5.

Eiichi Nishikawa, W122

Particularly in developed countries, there needs to be a transformation from lifestyles based on massive energy consumption to lifestyles based on minimal energy consumption and low carbon use. Further, efficient use of limited human and financial resources at a global scale is indispensable. When thinking along these terms, the competition to establish reduction goals at the United Nations over the last 15 years is in effect an attempt to accomplish goals through regulation, which in reality has its limits and will not be a lasting effort. The most important factor is to forcefully appeal to corporate and industrial capabilities, which are the forces that provide products and services to the marketplace and therefore society, which in turn leads to lifestyle transformation. There needs to be a significant framework of competition to encourage the development and bringing to market of low carbon technology and high energy efficiency technology on a global scale. Policies should play the role of supporting and rewarding such endeavors. Citizens should be encouraged to try to choose these products and systems at the marketplace. In addition, in the case of Japan, it should try to bear the fruits of emission reduction in the Asia Pacific region in areas that are economically efficient, for example through a loose regional agreement involving countries like United States, China, and India. The ones who can truly transform lifestyles are not politicians nor researchers, but companies, industries, and citizens. What is desired from politics and policymakers is to first start with themselves; simply demanding results from the public is something any fool can do. Japan should also aggressively utilize ODA. And it needs to advance the development of energy efficiency technology and low carbon technology, and contribute to neighboring countries and to the world. In other words, rather than making stringent demands and resulting in an impasse, I believe it is more important to accomplish reduction results wherever possible, and advance efforts within a realistic and flexible framework.

Teruaki Masumoto, W123

Sift through and identify the reduction measures that are the most cost effective. And while developed countries provide financial and technological aid on the one hand, implement a framework to evaluate their contribution towards the effectiveness of the reduction and at the same time, have primary emitters accept some level of regulation. Global warming is not an issue that can be considered on direct emissions alone, but rather, it is important to consider the lifecycle assessment of goods and services. This will strike the balance between economics and the environment towards a low carbon society, and will solve the leakage problem. We should deliberate a path towards emission reduction based on lifecycle assessment on a global scale.

Koji Toyama, W128

Based on the scientific demands gathered by the IPCC, it is first essential for developed countries to clearly indicate their plan to move towards an aggressive target as part of their political objective, while also demonstrating through real actions that it is possible to build a sustainable economy. In addition, construct the necessary support system to allow emerging and developing countries to easily implement technological and societal systems. To this end, it is necessary to develop a system to demand compensation for imposing environmental burdens, including past emissions. In doing so, it is necessary to build into the system costs for future environmental burdens brought on by emerging countries (including “graduating” from the category of a “developing” country).

M, W140

At issue is how people of the world imagine the ideal, “sustainable society” and whether or not they can share that vision. This is the same question as “can world peace can be achieved?” and can be cause for both optimism and pessimism. In its final form, it is sensible to have global emissions trading, but until that goal is reached there needs to be both a system that encourages voluntary reduction efforts, as well as one that combines those efforts with mandatory requirements.

Tomohisa Yamaguchi, W151

Based on Shiga Prefecture’s proposal, the World Lake Conference has been held in various locations throughout the world. Along with the importance of the application of technology in developing countries, I have been impressed through this process by the importance of bringing as close as possible the relationship with people’s lives and the creation of a system of resident participation.

Yukiko Kada, W153

It is difficult to create a treaty. First, we are finally at the stage when a consensus about a direction is beginning to emerge. We need to set up a scheme in which countries like China participates, instead of sitting on the sidelines, and gradually develop such programs.

Masato Saito, 079

First, regardless of whether reduction responsibilities are to be imposed, I believe each developing country should be required to calculate their greenhouse gas emission levels. I think that the next steps should be determined based on an understanding of the greenhouse gas emission levels of the whole world.

M, W097

Developed countries have no right to outright deny the per capita increase of emission levels caused by improvements in living standards in emerging countries. Instead, developed countries should provide ideas and methods to ease the speed of emission growth and reduce them as well.

M, Teijin, W132

Technological Transfer and Aid to Developing Countries

A system of aid in environmental technologies should be considered so that they can be transferred from countries like Japan, who have advanced equipment, to those who lack them.

M, 003

It is important to disseminate Japan’s excellent environmental technology abroad, to BRICs for example, in particular energy conservation technology. There may be a return to Japan in the form of emission credits based on the reduction in greenhouse gas emissions in the recipient countries. In addition, it is necessary to cap greenhouse gas emissions from developing countries. Data on the origins of CO₂ and CH₄ emissions gathered by the satellite Ibuki can also evolve into important international strategies.

Hiroyuki Harada, 006

Technological transfer from our country to developing countries, which successfully allowed Japan to overcome the oil crisis and prevent pollution. Therefore, transfer of energy conservation technology and the top runner method is expected.

M, 009

Technological aid by developed countries in areas in which they each excel, for example, the excellent automotive environmental technology that Germany and Japan possess.

Ryota Maruyama, 012

The aid of advanced technologies by developed countries is essential though progress is too slow with financial aid alone, leaving a long road ahead to ameliorating global warming. If the whole world comes together for the planet, there is a high likelihood that the problem will be solved faster.

Yoichiro Masuda, 024

There needs to be aid from developed to emerging countries in scientific technologies that would tangibly help with environmental preservation.

Setsuo Okuda, 025

The transfer of technology is essential; I believe it is important to have discussions on a global scale to create a framework that allows for such aid to take place smoothly.

M, 027

Developed countries should aggressively provide technological aid to developing, especially emerging countries for emissions reduction.

M, 034

Although it would be ideal to achieve the dual objectives of emission reduction and economic growth in developing countries, for the foreseeable future, developed countries should focus on advancing technological aid to contribute to emission reductions.

Toshio Hiroi, 046

First, there needs to be a revision in how we define developing countries. There are far too many countries that don't fit this label. Upon completing the revision, developed countries should provide technological aid and introduce equipment with little environmental burden to those truly deemed to be a developing country.

Sukekazu Iwata, 049

11. Developed countries should turn themselves into low carbon societies as soon as possible, and quickly provide those technologies to emerging countries.

Shin Hidaka, 064

Perhaps the public and private sectors come together to even further promote the transfer of technologies and systems from advanced energy conservation countries like Japan to developing and emerging countries?

M, 070

One method is for developed countries to aggressively unveil new technologies with low environmental footprints to developing countries, and propose conditions for the aid that would make it easier for developing countries to utilize them and thereby spread their use.

Kimihiko Sato, 071

Aggressive technological aid from developed to emerging and developing countries is important.

Norihisa Sasatake, 072

Reduction of CO2 emissions is indispensable to solving global warming. Developed countries should not only reduce their own emissions, but I believe aggressive technological aid is essential.

M, Japan, 087

A system to provide technologies from developed to developing countries, as well as to support and evaluate them is needed.

F, 113

Technological transfers from developed countries as well as a rational, corresponding framework that provides objective feedback into the system about their effectiveness in reducing emissions.

M, 129

In order to protect the environment, it is not only developed countries, but the whole world including emerging countries that need to reduce greenhouse gas emissions. Greenhouse gas reduction measures in countries continuing significant economic growth like China and India is an urgent priority, and the role that developed countries should play, with their superior environmental technologies, is paramount. In Kanagawa Prefecture, we would like to publicize to the world

our public-private cooperation model of development and dissemination of electric cars.

M, 133

I think it is necessary to foster energy and resource conservation technologies in developing countries, and to create and disseminate successful case studies.

Tomoyori Ando, W004

I think that providing not only the latest, most expensive technologies but also moderately priced medium technologies is a possible approach.

Tetsuya Kusuda, W005

I think it is important to both implement advanced technologies and divide the economic burden in doing so. The technologies already exist; my understanding is that the key is how quickly and widely we can disseminate them.

Hiromi Asahi, W026

Provide the energy conservation technologies of developed countries to emerging countries, and persuade emerging countries to use them for economic growth.

Ryoji Suzuki, W037

Further accelerate technological innovation, and develop a system in which it is easy for developing countries to implement the fruits of these efforts. This includes the easing of the economic burden for developing countries to implement the technology.

M, W049

Technological transfers are indispensable for improving productivity and energy conservation. For technologies to become established in developing countries, it is necessary for companies to make direct investments, construct facilities, and manage and provide instructions in the day-to-day operation of the equipment. Public resources should be concentrated on capacity building, the establishment of legal and societal regulations, and the construction of infrastructure in order to promote direct private investment.

M, W073

Developed countries do not have the mandate to suppress economic growth and population increases in emerging countries. I believe that bold decisions at a global scale are necessary, like providing emissions reduction technology regardless of economic principles (for free, at the extreme end). But these decisions on the other hand may have the adverse effect of accelerating population growth; whether they will lead to a reduction in CO2 emissions is impossible to forecast.

M, W076

It is required that advanced environmental technologies and systems support by developed countries.

M, W84

Support should be provided in a way that makes economic growth possible with low CO2 emissions. To this end, economic and technological aid from developed countries is indispensable. In particular, it is essential to create a system that allows for the implementation of superior technology from developed countries and to support them technically.

Keiichi Uchida, W115

In order to avoid repeating the same mistakes that developed countries made, it is important for developing countries to utilize the emissions reduction technologies of developed countries and advance the use of natural, renewable sources of energy.

Tukuru Isobe, W136

It is mandatory that the transfer and granting of the latest technologies from developed countries.

Soichi Ashizawa, W138

I believe that the implementation of a sectoral approach on a global scale would be effective. In this scheme, experts from different industries and fields of study would analyze the energy use of developing countries and offer a technological menu that allows the utilization of the superior technologies of developed countries.

M, W145

It is desirable for developed countries to undertake emission reduction even if it requires some amount of economic loss. In the long term, this approach may lead to economic profit. But this logic will likely be unacceptable in emerging countries, necessitating a way to reduce emissions without economic loss, as described in the question. But because it is likely that the price of crude oil will rise in the future, energy conservation and new sources of energy will likely lead to economic gain for emerging countries, which are importers of oil. That is where the provision of energy conservation technologies by developed countries like Japan becomes important. But if emerging countries master energy conservation technologies, it will make them more competitive, making free technological aid difficult. There needs to be a framework for international aid.

M, W146

It is a fact that emission reduction dampens economic growth. So what becomes key is to determine how to finance the cost of emission reduction. Developed countries possess advanced emission reduction technologies, and a balance will become possible if their utilization in emerging countries becomes widespread.

M, W150

Developed countries should make widespread a culture of considering and evaluating both the economic growth (the pluses) and the effects on the environment (the minuses) in developing countries and take measures accordingly.

Technological development for emission reduction is advancing in developed countries. However, I imagine they are difficult to implement for developing countries due to their high costs and prerequisite to have a level of infrastructure already in place. If developed countries are to provide technological aid, they should assist by developing and disseminating technologies that meet the regional conditions. Or, they could also provide financial assistance to offset the cost of implementation and provide the high-cost technologies.

F, W83

Aid from Developed Countries to Developing Countries

Verification for emerging countries is necessary. But fairness must be guaranteed as a prerequisite to verification, and it will likely be necessary to offer various types of aid to gain the acceptance of emerging countries.

Hidehiko Kishi, W116

Aid to developing countries and proactive self-awareness among developing countries are necessary.

M, 004

Aid from developed countries is necessary.

M, 018

Only when a country has economic development and stability can it turn its attention to other matters. Aid from developed countries is necessary.

M, 031

When providing aid for the economic progress of developing countries, it is imperative to require developed countries to also provide as much as possible the environmental conservation and climate change prevention strategies that they possess.

M, 040

In addition to providing aid and supporting economic growth, develop a system of financial exchange (buy out) for strategies that companies and other entities in developing countries successfully utilize to reduce CO2 emissions.

Hirofumi Itakura, 067

Aid from developed countries, both financial and technological, is important.

M, 068

Assistance in technology as well as know-how from developed countries. Just providing financial aid is ineffective. Developed countries must provide environmental technologies and know-how with a clear purpose.

Kiyoshi Koike, 069

The level of emissions by emerging countries is increasing steeply, and it is necessary to suppress as much of it as possible. I believe these countries should further emission reduction using increasingly sophisticated technology, while also supporting economic growth through collaboration with developed countries.

Kenji Kita, 077

I can't help but think that the value and concept of "economic growth" is chasing a long ago dream based in the days of the Industrial Revolution, technological innovation, and financial revolution. What does true wealth mean? Without becoming a society that creates and transforms this sense of wealth, I wonder if we can stop the destruction of the environment.

Tsutomu Mizutani, 078

Financial support and technological aid is needed such as expansion of CDM, and the formulation of effective development mechanisms.

Hiroshi Hagino, 084

Developed countries should offer their knowledge, and support developing countries without stopping their economic growth.

M, 085

Economic support by developed countries coupled with the acceptance of international verification of emission reduction activities in emerging countries.

Isahiko Fujiwara, 094

Developed countries must provide even more aid to emerging countries.

M, Japan, 097

I believe it is important to turn our attention to the environmental conservation efforts of the G-77 and island nations, support them, and to verify their effectiveness.

M, 098

Technological and financial loans at very low interest rates for developing countries to reduce emissions.

M, 099

Developed countries should accept as their own responsibility the technological instruction, support, and education for environmental strategies, and these efforts should be linked to economic aid.

Yumi Nakayama, 119

Developed countries, which are the very source of global warming, should provide the technology and economic prowess they possess whether in bilateral relationships or in other forms, to achieve results.

Takeshi Ahiru, 120

Strengthen governmental support for environmental businesses, and thereby increase their competitiveness. Such trends will naturally become important in developing countries.

M, 122

I think that a two-pronged approach would be beneficial, including 1. The transfer of environmental technology to the extent that the donor country doesn't lose its international competitiveness; 2. Soft aid, like providing educational programs. On the other hand, greenhouse gas reduction measures that require an extremely high level of management capability, like nuclear technology, should not be provided to regions that lack those technologies and capacities.

Nobuhiko Harada, W001

What is necessary is for developed countries to provide aid to developing countries in a way that isn't affected by economic downturns like the recent one.

M, W014

Aid from developed to developing countries is the key for success.

M, Suntory Holdings, Japan, W016

By obtaining the environmental amelioration technologies of developed countries, I believe developing countries can balance economic growth and emission reduction (like the utilization of systems using solar and wind energy in China). Developed countries should transfer more of these technologies to help developing countries.

Akihito Yoneda, EM Director, BM Division, PM Service Operations, NTT Urban Development Builservice Co., Japan, W018

While aggressive aid to reduce emissions in developing countries is essential, at the same time, some corresponding binding force is also necessary.

M, Kirin Holdings, Japan, W028

Developing countries are following the same path Japan once took. While their development is desirable, I believe it is necessary for developed countries to provide the latest technology and reduce the expanding consumption of fossil fuels as much as possible.

F, Japan Waste Research Foundation, Japan, W031

I believe technological and financial aid from developed countries are essential.

M, W033

When considering the subject of the global environment, I think that the role of developed countries is to recognize economic growth in developing countries and support that effort. But in supporting economic growth, countries need to agree to the following two conditions. The first is that the aid should be used to protect the global environment. The second is to help children, who will be the ones actually shouldering environmental protection, out of poverty and enhance their education. Even if it means that developed countries have to slightly lower their own goals, I believe that reallocating resources to these types of aid for developing countries (unlike CDM in which developed countries expect a return but aid in which all resources lead to emission reduction in developing countries) would be more effective, with countries coming closer aligned on a global level and leading to a way forward that is more sustainable.

Takao Ishii, W036

I think it's necessary to formulate policies that can be accepted by developing countries. Developed countries should provide technological and economic aid to correspond with a declaration of emission reduction (either by a gross or per unit amount) after a close examination of the plan. It is important to formulate these policies such that the greater the amount of CO2 emissions developing countries manage to reduce, the greater the economic benefits are that they receive.

M, W045

Rather than relying on CDM, which are difficult methods that require significant time and effort, we should proceed with emission reduction through local, NGO-based efforts. Aggressively introduce equipment and technology, and ask governments for indirect support whereby they provide funds but not opinions.

Yusuke Sakuragi, W066

Developed countries should collaborate with each other to reduce emissions in developing countries by providing technology and funding.

M, W079

Success depends on redistribution of resources on a global scale, specifically to the degree to which economic and technological aid can be made to developing countries. The first obstacle will likely be how equitable the redistribution of resources can be made within the developed countries themselves. Annual incomes in excess of 100 million should be made public and progressive taxation should be strengthened. Poverty makes citizens extremely antagonistic towards using the country's tax income towards development aid.

Soki Oda, W125

Developing countries are facing pollution problems as well. Those governments recognize that it is essential to prevent pollution from causing adverse effects in the health of their citizens. As developing countries move forward with the process of addressing pollution, I think it would be effective for developed countries to guide them through economic aid and emissions trading schemes so that these pollution endeavors spill over into global warming countermeasures.

M, W087

When taking into consideration the fact that the responsibility for the current accumulation of greenhouse gases lies primarily with developed countries, it is necessary for them to unfailingly provide technological and economic aid for both the economic growth of developing and emerging countries, as well as for the reduction of greenhouse gases and environmental strategies. In developing countries as well, rather than remaining fixated on a sense of victimization, there needs to be a common consciousness raising to acknowledge the need for cooperation on a global scale as well as to advance discussions on creating a reliable framework for aid.

M, W119

Other Approaches

Use the amount of emissions reduction being achieved by developed countries to cover emission reduction quantities by developing countries.

M, 010

Poverty and economic growth remain complex problems. Japan also remains obstructed, and is consumed with its own survival, which is precisely when it should consider environmental problems, affirm what it can do, and put into action what it can achieve on a daily basis. But I think it is undesirable to call into question large assumptions like with the e-mail problem raised in question 5. (As someone involved in science, climate change by CO₂ is in the atmosphere, and I'm not sure that seawater temperatures, which is thousands of times greater in volume than the atmosphere, would change so easily.)

Susumu Maebata, 032

Implement the PPP (the polluter pays principle). To this end, carry out a scientific quantification.

Masayuki Seto, Japan, 054

I think we will need to continue with current efforts for the foreseeable future (for 10 years). At that point, there will need to be a significant review of the way forward.

Kenji Ishihara, Professor, 065

I think that the most effective approach is to reduce the distribution of goods. As such, we should minimize the transportation of food.

Shinichi Koizumi, 102

The compatibility of the relationship between the objective and the methods to achieve that is extremely important. But in reality, I can't help finding negative aspects being emphasized on the floor of international negotiation.

M, 111

Thoroughly adhere to strategies to combat the source of generation and for energy conservation. At the same time, absorb and isolate carbon in the forests once again by each of the 6.8 billion people planting at least three native seedlings as part of an environmental renewal project. When these trees grow, use them aggressively (coexistence with the economy). Bury into the earth what is not used, and plant anew on the same ground.

Akira Miyawaki, 242

All countries of the world, beginning with the developed countries, should be called upon to participate in the next COP session where strategy-neutral discussions can unfold. I think that the role that the United Nations can play will also be indispensable.

Hiroshi Hirata, 136

Countries classified as emerging are in many different stages. There needs to be a system in which each can bear responsibilities to correspond with their situation.

M, W002

The massive capital of developed countries is being poured into the large markets of emerging countries at a rapid rate. By requiring environmental conservation regulations as a condition for investment into emerging countries, and imposing environmental taxes, I believe it would be possible to attain both environmental conservation and economic growth. This is the direction that Japan has taken after the 1970s. However, I believe there also needs to be a policy to eliminate income disparities within emerging countries. Even if it results in a slower pace of economic development in emerging countries, I think that the frustration towards the speed of development can be dissipated by an even distribution of wealth and an improvement in the standards of living of all citizens of those countries.

M, W010

The best approach is to skillfully combine the advancement of scientific technology with a transformation in lifestyles. I cannot imagine there is any other way.

Hiroshi Nagano, W019

Regardless of whether it is a developed country, emerging country, or a developing country, there needs to be some kind of incentive for reducing emissions. It is clear that nothing can be resolved through belief systems like the environmentalism of the past.

M, W024

There needs to be principles grounded in reality that are unaffected by corporate wrangling and political maneuvering; policies and improvements committed to the situation on the ground; and mid- and long-term planning. I feel that COP has its limits. We need to rethink organizations as a way to break through from the present impasse. As a conference of contracting parties for international treaties, the material being discussed is far too unclear (and the process from discussion to conclusion lacking in transparency). We need organizational reform by which the conference is given legal enforceability, with tangible numeric figures they can point to.

Shinichiro Namiki, W041

Emission levels of emerging countries, whether seen through the acceleration in their growth or for the amount they are contributing to global warming (China has had a massive effect when looking at its contribution for the last 100 years), cannot be left free of some form of carbon regulation just because negotiation over a framework is running into difficulties. I commend the Copenhagen Accord for demonstrating the possibility of forming an implementation agreement, though modest, under these conditions. On the other hand, in order to firm these grounds, conventionally there would need to be bilateral and multilateral negotiations. But the path to its realization is murky with domestic debate in the United States at a standstill, and the countries in support of the Copenhagen Accord including our own taking a lukewarm position. I also understand that the negotiating stance of developing countries is also growing more rigid. It is important to not only have discussions but to turn them into actions over the next several years by establishing programs of action for each country based in high efficiency use and becoming a low carbon society (or forest preservation) and forming an implementation agreement to define a system of international verification. We need to recognize that the highly efficient use of energy and a transformation into a low carbon society are not counter to economic growth. It would be desirable to gradually impose carbon restrictions by managing the supply chain of products.

M, W048

I think it would be important to establish an agreement of basic principles among developed countries to “start with ourselves” while the Obama Administration is in place. The United States took a despicable step when going from the Clinton to the Bush Administration by abandoning the efforts, but I don’t think they would do this ever again.

Akira Tsubouchi, W053

The co-benefits approach concept and advancing the spread of tangible tactics are essential.

Joji Yoshikuni, W056

I think it is crucial for countries to have a guarantee of mutual development under a climate of cooperation that overcomes historical understanding and regional conflicts. But as it may be too early for this, I think what is necessary is a persistent exchange of opinions. Further, exchanges of opinions and debate should be open, and also separate from the profits of one’s country or whether it is developed or developing. But funds are necessary in order to advance strategies. And while it seems it would be difficult to pursue objectives given the current global economic situation, it is important to continue discussions so that we don’t lose sight of the true issues.

M, W064

The reduction of CO2 emissions is suspect to begin with. The simultaneous achievement of economic growth and energy conservation is both necessary and possible from both the standpoint of reducing the cost of corporate and human activities for economic growth as well as the management of limited resources.

M, W072

It is crucial to conduct negotiations placing an emphasis on emerging countries taking the first step to reduce greenhouse gas emissions no matter what, with the goal to achieve a green growth that decouples the economic development of developing, and in particular, emerging countries and increases in greenhouse gas emissions.

Hisakazu Kato, W082

We should immediately take on REDD+. In addition, it is important to resolutely protect the prerequisites of economic development by strengthening the maintenance of ecosystem services (for example, soil, water resources, microclimates, and food). From a technological standpoint, I think it would also be important to develop business models in which the BOP principle is expanded and new technologies are aggressively marketed to developing countries (rather than simply selling cheap items on the mass market).

Yasushi Hibi, W104

The simultaneous achievement of emission reduction in developing countries and their economic growth is indispensable to solving environmental problems. In the process, I believe one of the issues is that there isn’t a clear definition of the objective for economic growth. This is also the other side of the same coin as reduction objectives of developed

countries. Perhaps we need to strive for a new, shared value system that is a measure of happiness across all people of the planet.

Hiroshi Maeda, W110

I think it is crucial to suppress population growth in emerging countries.

Harutoshi Yamamoto, W121

It is necessary to restrain powerful countries and multinational firms from exploiting others.

F, W134

As long as we continue with our current socio-economic system in which economic growth alone is linked to improved standards of living, the Earth will be bankrupt by the time emerging countries feel as though they have earned a level of happiness similar to developed countries. We need a new standard of living that can be accomplished with low-carbon methods.

Naobi Okayasu, W137

A trusting relationship between developed and developing countries must urgently be established for them to cooperate on the use of energy conservation and other technologies.

Masaaki Kado, W057

In reviewing the last year, I feel it is necessary to develop different principles from the prevailing awareness of environmental preservation, which has shifted exclusively towards global warming. We must accelerate the transition to a lifestyle based on resource and energy conservation. Otherwise, we will face even more extreme natural disasters than with the CO2 problem, like extreme differences between heat and cold, earthquakes, and the explosion of volcanoes. And with the depletion all forms of energy, I feel that continued human survival will approach a critical point.

Michiko Imai, 109

Fully possible. Developing countries have the advantage of using the experience and technology of developed countries. All comes down to the thinking of the leaders of developing countries.

M, 017

The furthering of a fair and equitable discussion is fundamentally important. However, there hasn't been the creation of a roadmap for processes. There is a significant difference in the awareness between developed and developing countries as well as among different countries. So when considering the urgency of the problem, the leadership should first advance realistic programs while waiting for an agreement.

F, W112

With the fall of socialist regimes, the entire world is now following the singular path of capitalism based on principles of competition. I see today's environmental problems as the expression of the expansion of the negative aspects of a capitalist economy. As such, I believe that the only way to solve environmental problems is to establish new philosophies and economic models that break away from the past and aspire to a different set of values and world views.

Manabu Kamiya, 028

Developing countries cannot all be lumped together. Each country has a different climate and culture, and also has different technologies and systems that require focus. Developed countries cannot force aid on developing countries at the pace of a large company. How about creating an organization to help with aid-related questions as part of the United Nations?

Toshiko Nakamura, 051

Dual Achievement Is Impossible

The problem is that mankind is unable to make the dream of possibility come true. There is no meaning in discussing a goal that cannot be achieved.

M, W106

Impossible.

Nobuyoshi Fugono, W108

**Results of the 19th Annual
“Questionnaire on Environmental Problems and the Survival of Humankind”**

Exhibit A—Respondents’ Comments on “Simultaneous Achievement of
Emission Reductions and Economic Growth in Developing
Countries” (Question 6)

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