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By the end of this century, we will live in a world that is sustainable, peaceful, and just, or we will live in a world that is unstable, violent, and insecure. We have the opportunity to make the choice, and thus we have the responsibility to do so wisely and well.

The 21st Century will be characterized by massive and rapid change – a time of great danger and great opportunity.

Educational institutions will be the crucible in which both individual and societal responses to this challenge are shaped.

The challenge we face is epic in nature, but so is the opportunity, and so, as educators, we have an unprecedented responsibility

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It is difficult to find the words to express how deeply I am honored by the opportunity to address this conference. There is no collection of individuals anywhere on this planet that will touch more of the lives of tomorrow's leaders than International Baccalaureate educators.

Your theme alone, *Educating for Environmental Sustainability*, sends a message to educators everywhere. As you consider all that you hear here, I hope that you will consider it in its broadest and most fundamental context. Sustainability is about more than the environment – it touches every aspect of our future together. Those of us here today come from an amazing variety of cultural, religious, social and national backgrounds, and the world we seek to introduce to our students is complex and diverse. And yet we have one thing in common with every other soul on this planet – we will share the future.

As I read your program, and listened to many of the presentations here so far, I have been impressed and inspired by the creativity and commitment of those who are gathered here – so much so that I am tempted to resort to the vernacular of the American teenager, and respond, “what they said”. Just to read the summaries is to learn, and to be encouraged.

This morning I hope to provide some context to this theme you have selected and addressed so very well, a sense of the dimensions of the challenges we face, and some suggestions as to how educational institutions can respond.

WE FACE A TIME OF CHALLENGE AND CHOICE

When the history of the 21st century is written, it will be dominated by a single characteristic -- the exponential increase in the pace and magnitude of change. To keep up with the changes human action is etching on the face of this planet, the company which supplies largest online geographical data base, the one which underlies the vast majority of GPS applications, employs 50 people, 24 hours a day, just so it can revise the information it provides every three and one-half minutes.

In the last years of the 20th century, a number of factors have interacted to create an environment of revolutionary change never before experienced by humans or natural systems.

We have already claimed one-half of the earth's land surface for the service of human beings, and humans now appropriate 40 percent of nature's net photosynthetic productivity and are the primary users of one-half of the available fresh water in the world.

We are the first generation of humans to become a force of geological proportions. We no longer affected just weather, we affect climate as well. No major natural system of this planet remains untouched by human activity.

We no longer affect just crop yield on a regional basis, we affect the very process of photosynthesis.

We have synthesized endocrine disruptors Bcopycat hormones -that invade the bodies of animals including humans and disrupt the endocrine system, changing life's basic processes in ways we cannot imagine or anticipate.

We destroy natural habitat -- and thus the biological heritage of the earth B each day. With the loss of both, we reduce our capacity to respond to the stresses of everyday life, not to mention the extraordinary stresses that occur from time to time.

Even as we make the planet's natural systems more fragile, we are increasing our demands on them, and upon our social and political systems.

We share this planet with far more than six billion people, each one of whom needs 1400 calories and four pounds of water a day to survive. Each second, three new souls are born. Of the 180 people born each minute, 120 will be born in a city -- 160 in a developing country. Of those who live to adulthood, one of three will be uneducated, and there are already more people living today who cannot read or write than there were people living in the world in 1900.

When my oldest child was born, there were more people living in cities than there were on the planet when my father was born. When my first grandchild was born, there were more people living in cities than there were in the world when I was born.

One-half of the people in the world live on less than US \$ 2 a day, and 1.2 billion people live on less than US\$ 1 dollar per day. The assets of the richest 200 people exceed the combined wealth of the poorest 40 percent of the world=s population Balmost 2.5 billion people. Of these 2.5 billion people 70 percent are women and children.

Forty percent of the world=s food production depends on irrigation, but 3.5 billion people face chronic water shortages. Agricultural productivity in an area larger than China and India combined has been significantly degraded in the past 20 years, there are no major food fish stocks that are not already stressed or in decline, and more than two billion people go to bed hungry each night.

The potential for violence and the imperative for peace have never been greater.

Each of these effects is the result of human choices. The world in which we live is the world we have chosen. If we are to reverse them, we have a limited window of opportunity.

No phenomenon exemplifies the challenges we face more than that of global warming.

There is a story told of an admiral, on the bridge of his flagship, who is told by his helmsman that there is a light on the starboard bow and that it is on a collision course. The admiral sends the message: we appear to be on a course for collision; suggest you change course. The response comes back: suggest you change course.

The admiral, with some asperity messages back; My entire fleet is on this course. Request you change course. The response comes back; suggest you change course.

The admiral responds: I am an Admiral, and I demand you change course. The response comes back: I am a lighthouse.

Apocryphal though this story must be, it captures well the reaction of most of our institutions to climate change. There is virtual unanimity in the scientific community that global warming, driven by human actions, primarily the burning of fossil fuels, a non-renewable resource, is real and that the consequences of staying on our current course are grave. Yet the vast majority of our institutions seem unable to slow down, much less change course.

As we choose our future, we face a time of the greatest moral choice in human history. There are four major dilemmas which are essentially moral choices:

- Alleviating poverty
- Removing the gap between rich and poor
- Controlling the use of violence for political ends

- Changing our patterns of production and consumption and, and achieving the transition to sustainability

The world in which future generations live will, in large measure, depend on how we respond to each of these challenges, and we are philosophically and institutionally unprepared for the decisions we must make and implement.

The societal institutions available to us to meet these challenges are demonstrably incapable of long-range planning, dominated by peculiar and special interests, fragmented in authority and responsibility, and designed to allocate abundance not scarcity. The achievement record of these institutions, measured both in terms of human well-being and ecosystem well-being, is not encouraging.

If we are to hope that business as usual will lead us to a sustainable world, we must believe that the same institutions and processes which have led us to this point in human history can lead us somewhere else in the future. Moreover, we must argue that substantial inequities in distribution of political power and material wealth are either inevitable or just.

On the other hand, to abandon our dominant institutions and attack the status quo indiscriminately would have tremendous implications for natural systems and human well-being as well. Neither slavish adherence to the arrangements of the past nor unthinking rejection of them will guide us through the transition to a world that is sustainable and just. We must reject neither our history nor our future.

THE ROLE OF EDUCATION IN ACHIEVING SUSTAINABILITY

It is the institutions of education that are most essential to actively challenging the forces which threaten both human and natural system well-being. We have reached a point where we must seriously postulate the existence of discontinuity between our values and our institutions. It is in the academy of practitioners and scholars that we will be able to debate and clarify our basic values, and develop a broad understanding that institutions are only the vehicles for those values. If we hold firm to the values, the institutions will respond. If we hold rigorously to the institutions, our values will deteriorate. The purposeful, conscious and active evolution of our values and institutions must begin with education.

The task before us will be difficult, yet it is necessary; no other societal institution can play this role. "All experience hath shown that mankind are more disposed to suffer, while evils are sufferable, than to right themselves by abolishing the forms to which they are accustomed" (American Declaration of Independence).

C.P. Snow, writing about the dissolution of the British Empire, observed:

I can't help thinking about the Venetian Republic. Like us they had been fabulously lucky. They became rich, as we did, by accident. They had acquired immense political skill, just as we have. A good many of them were tough-minded, realistic, patriotic. They knew, just as clearly as we know that the current of history had begun to flow against them. Many of them gave their minds to working out solutions – but it would have meant breaking the pattern into which they had crystallized. They never found the will to break it.

Education is the force which will enlighten, enable and empower our choices.

If we are ultimately successful in negotiating the transition to a just sustainability, it will be because of what we – you and I – do.

We educate.

There are competing etymologies for the English verb “educate”, but the one I prefer considers the word itself to be based on the Latin word, "ducos" – to lead, and the prefix “E” – out or out of. In the ancient foundation of the very word is the challenge of our future.

Higher education must move beyond the responsibility to prepare students to live in the world as it will be -- we must embrace the responsibility to prepare students to shape the world in which they will live.

AND SO, HOW MUST WE RESPOND?

We must look carefully at how we organize and present knowledge.

We must realize that our institutions reflect our values in ways that are just as influential on our students as the lessons in our classrooms.

We must acknowledge and assert our values and our purpose.

We must develop and embody an ethic for the 21st century ... an ethic that holds that the opportunity to make a difference is equal to the responsibility to make a difference.

COLLEGE OF THE ATLANTIC AND HUMAN ECOLOGY

Robert Kennedy paraphrased George Bernard Shaw to say, “There are those that look at things the way they are and ask why. I dream of things that never were, and ask why not?” At College of the Atlantic, the investigation of both questions is our quest.

In 1969, College of the Atlantic was incorporated and received its Maine Charter to award the Bachelor of Arts degree. The college opened its doors in 1972 with a class of 32; the New England Association of Schools and Colleges (NEASC) conferred candidate status to the institution in 1973, and full accreditation was granted in May 1976, one week before the college awarded degrees to its first graduating class.

The founding trustees had dual purposes in mind for a new college. First, they hoped that a year-round college would enhance the culture and economy of Mount Desert Island (MDI). Second, the Vietnam War and the prevailing concern about an ecological crisis influenced their goals. As a result, the trustees designed a college expanding on the liberal arts, one that prepared students to practically apply their learning to improve prospects for a sustainable, peaceful, and just society. This vision committed the college to an interdisciplinary, problem-centered curriculum, and resulted in a distinctive focus on the relationships among humans and the environment—human ecology.

Human ecology as practiced at College of the Atlantic (COA) has its roots deep in the liberal arts tradition: Since knowledge has intrinsic value, the central aim of education should be to educate students broadly in a range of academic disciplines and traditions. But human ecology does more: It extends the liberal arts tradition in four distinctive ways.

First, environmental and social problems are at the center of the curriculum, co-curriculum, and student life.

Second, the college seeks to not only teach about environmental and social problems, but also actively prepare students to develop and implement solutions to these problems. In this sense, the college has an action-oriented approach—an approach not typically found in liberal arts education.

Third, the academic program is strongly self-directed. All students work with their academic advisors to design their own major in human ecology, choosing a sequence of courses best suited to their particular interests and goals. With this freedom to construct their own academic program, comes the development of responsibility and self-reflection. Thus students' learning is intentional and deliberate, better preparing them to be more effective agents of positive change.

Fourth, the college is strongly interdisciplinary. A liberal arts education values learning from different disciplines, whereas COA's focus on human ecology encourages students to combine understanding and methods from different disciplines to produce new kinds of knowledge and new solutions to problems facing people and populations. The college believes that the complexity of many of today's problems requires fresh approaches and that in many instances the boundaries of academic disciplines serve as a barrier to understanding situations and achieving solutions.

To encourage interdisciplinary collaboration, the college chose not to form academic departments and to have an unranked faculty. The selectivity and size of the college was designed to promote excellence, increase interaction between students and faculty, foster interdisciplinary exploration, and facilitate more personalized programs of study. All members of the community were encouraged to engage in the institution's governance in order to learn about democracy, cooperation, and leadership.

Since its inception, College of the Atlantic has believed in the indivisibility of the life of the mind and a life of action. COA is devoted to learning for its own sake and eliciting and nurturing in its students the spirit of creativity and life-long learning. Art is studied and practiced not just as a tool for communication but on its own terms as a means of self-expression and celebration of the creative spirit and a way of understanding the world and our place in it. Similarly, the sciences are pursued not just as a tool for social and environmental progress, but as part of the human exploration of the universe and an attempt to find meaning.

We are a small and essential element of a global network of thought and action focused on improving the relationships among humans and between humans and the environment. We believe that these relationships can be made more sustainable, more peaceful, and more just. We believe that humans are firmly and inextricably embedded in the natural world, and that each person can make a difference.

At College of the Atlantic we study the relationships among humans and the natural world. The province of human ecology is no more – and no less than that. We focus on the interaction of four worlds -- the natural world, the social and cultural world of humans, the virtual world that permeates our lives, and the world of the imagination. Our commitment to teaching and to a pedagogy of high-value, personal interaction is magnified by our singular focus on human ecology.

Why have we chosen this singular focus?

It is no accident that problems with clean air, clean water, toxic pollution, genetically-modified organisms, extermination of species, nuclear waste, overpopulation, desertification, deforestation, and global warming have emerged in the same, incredibly brief moment in human history. Nor is it an accident that human ecology has emerged as a new academic focus in this same period. The historic role of education has been to provide society with the capacity to understand, anticipate, and respond to the needs of society. We now live in a global society, and there is no natural system which our actions do not affect. The responsibility of education is no longer just to help understand the world in which we will live, but to shape the world in which we want to live.

We have also committed ourselves to practicing what we teach.

All of our college ceremonies and special events – commencement, convocation, parent's weekends, earth day – are zero waste. We are reducing our energy consumption with a wide variety of efficiency and conservation measures, and all of our electricity comes from renewable sources. We have committed ourselves to 100% reliance on renewables, including transportation and heating, by 2015. The food we serve on campus is organic and locally grown for the most part, and much of it is produced on our own organic farm, managed and operated by students and former students. We neither purchase nor sell bottled water. We purchase only Energy Star appliances. Almost all the materials we use, from paper products to furnishings, to shingles for the roofs of our buildings are recycled.

The paints we use contain no volatile organic compounds. Even our marine vessels use E85 ethanol fuel.

And, by the end of this year, we will have achieved NetZero in green house gas emissions, through a combination of avoidance, conservation, and offsets.

We have taken these steps not only because we believe them to be the right thing to do, but also because they are the smart thing to do.

And just as important, we have taken each of these steps as a community in which students, staff, and trustees share the commitment, and participate in the implementation.

In our curriculum and our co-curriculum, we emphasize that all actions are the embodiment of choices, that all actions have consequences, and that it is the responsibility of an educated person to understand those relationships, and to learn from each mistake.

A TIME OF MORAL CHOICE

In the beginning of my remarks, I mentioned that we face a time of Moral Choice. No one of imagination and insight can sincerely assert that business as usual as of the end of the 20th century can produce a world in which we want our children and grandchildren to live at the end of the 21st century.

We live at a remarkable time in history. We are the first generation to have the realistic possibility of achieving a just and sustainable society. We have the skills and knowledge, the technology, and we have the clear demonstration of the penalty we will pay and impose on our children, if we are not successful. What remains to be seen is whether we have the will and courage to do that which we know in our heart is necessary.

May I suggest to you an ethic that I believe must dominate our choice of behavior in the 21st Century; it is that the opportunity to make a difference is precisely equal to the responsibility to make a difference. If the achievement of sustainability with justice is within our power, then it is our responsibility. And it is a solemn responsibility, for if we are the first generation to have this opportunity, it is also true that we may be the last, for at least a very long time.

It is our actions that will write the future across the face of this planet. We have it in our hands and in our power to choose the future. This is both the lesson and the legacy of this marvelous world in which we live, of the systems and the processes which we call nature. The individual is both acting and acted upon. Our actions as humans are what we choose them to be and thus we, as individuals, can make a difference.

I believe that we construct the world of the future with our every choice. We can choose wisely, and in ways that allow future generations to have that same right to choose the world of their future. We can choose unwisely and foreclose for our children the options

that our grandparents left to us. For the most part, these choices will not be made in moments of high drama, with decisions of great magnitude. They will be decided in the day-to-day choices of real people in real places. The wisdom of Albert Camus is apropos; “I shall tell you a great secret, my friend. Do not wait for the last judgment. It takes place every day.”

It is appropriate that we approach radical ideas and rapid changes conservatively and skeptically, but it is necessary that we approach them. Our dream must be that our future will be worthy of the best of our past. This is the challenge of our time, it is the challenge to education, it is the challenge of human ecology, and it is the aspiration of College of the Atlantic.

I hope it is one that will be shared by every educational institution, and I hope that these remarks will be helpful to you as you consider the specific challenges you face.