



Ways of Knowing: Sustainable teaching for a sustainable world Andrew Watson, Board of C

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With thanks to Professors Richard Calland and Will Day of the University of Cambridge Programme for Sustainability Leadership



UWC in Mostar



"Life defining experiences...to discover the possibility of change through courageous action, personal example and selfless leadership".





UWC in Mostar

Three *United World College in Mostar* professional development programmes reflect the UWC Mission and UWCiMostar's **moral purpose**; "Education as a force to unite people, nations and cultures for peace and a sustainable future".

- UWC Sustainability Leadership Programme
- Leadership in International Education





Cathy Berger Kaye Words – Ideas - Action

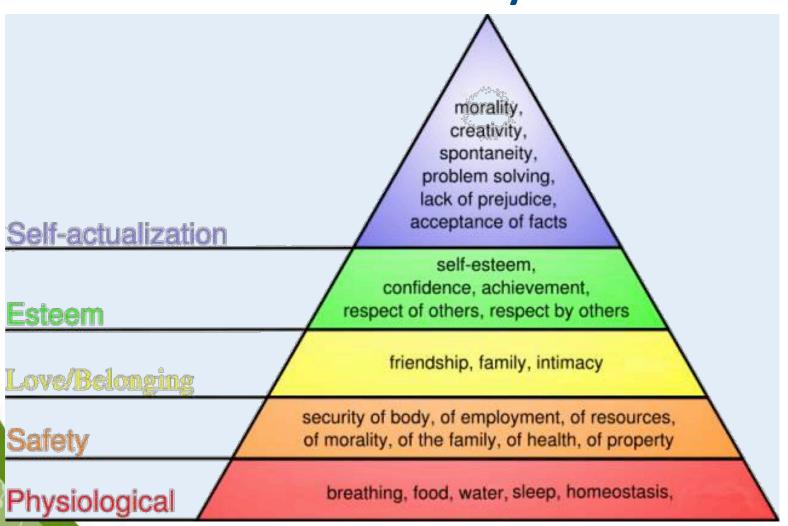


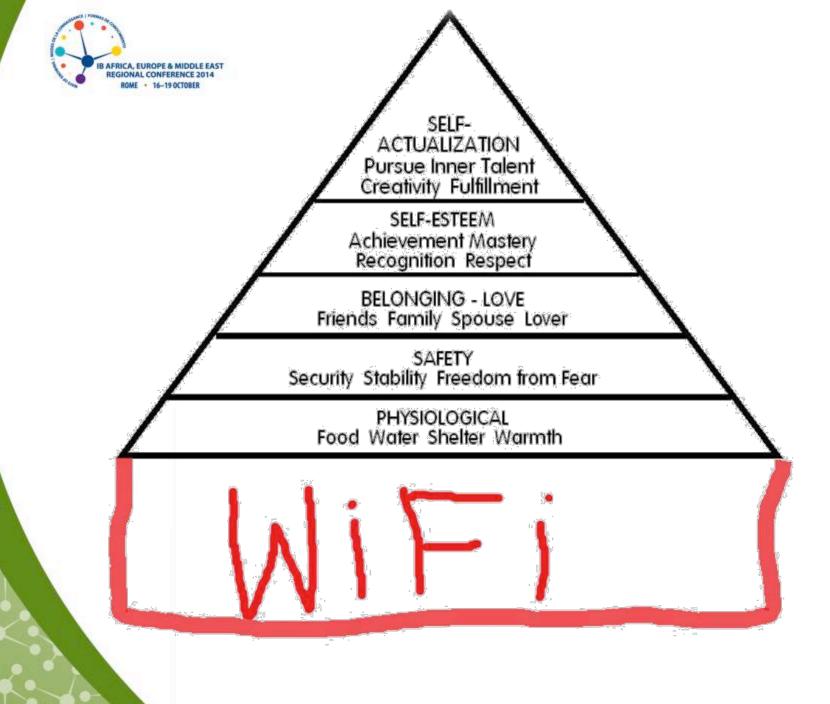
International Mindedness: Ubuntu From the general to the specific: We are all connected...

• At Nelson Mandela's memorial service (10/12/13) President Obama cited the South African philosophy of "ubuntu" - the idea that humanity is bound together and expressed by caring for each other - to great cheers from the crowd. He said Nelson Mandela embodied the spirit of "uBuntu", which means "I am because you are".



How different are we really?







our way of life is being threatened by a dark force.







we must defend our way of life.







WHAT IS THIS
DARK FORCE WHICH
THREATENS OUR WAY
OF LIFE?







of life...



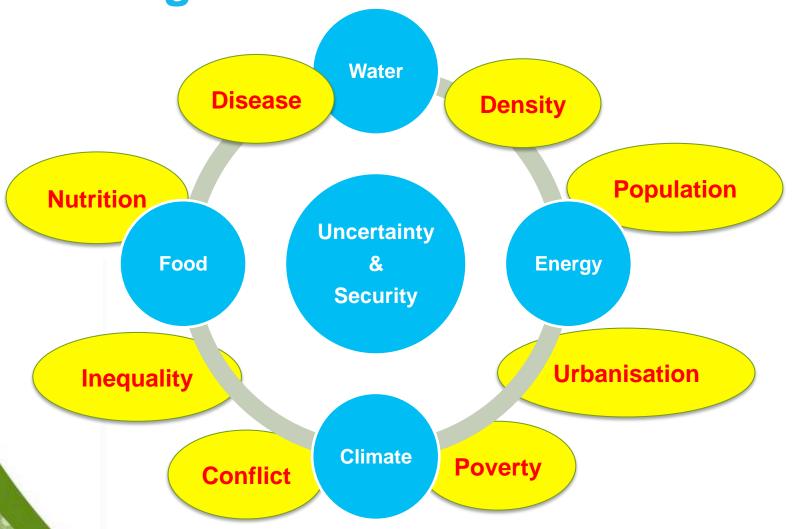




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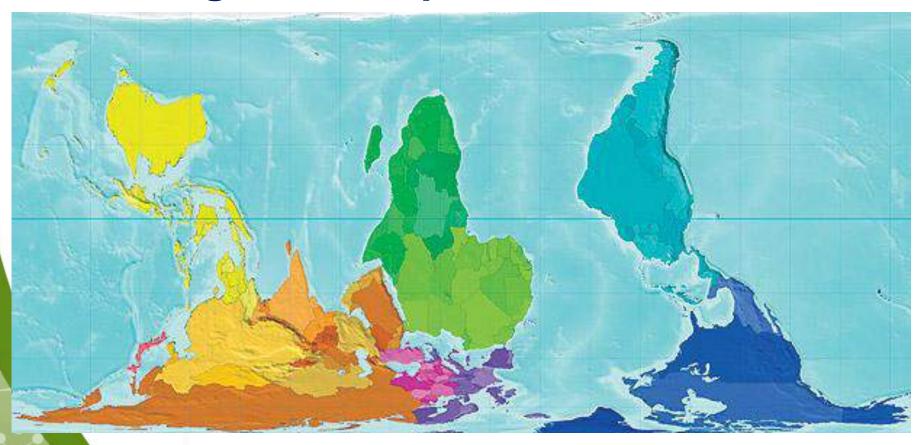


Making the connections





Knowledge as a map



What is wrong with this map?



Ways of Knowing: Making the connections Theory of Knowledge:

Personal knowledge

Shared knowledge "I know because..."

"We know because..."

Organising our ideas to make sense of the world



Ways of Knowing: Theory of Knowledge: "divergent thinking" encouraging creativity of thought



Given half a chance, what could this banana be?



What is ToK? You can't do the thinking for your students

"If he is indeed wise he does not bid you enter the house of his wisdom, but rather leads you to the threshold of your own mind".

> Gibran Khalil Gibran "On Teaching" (The Prophet, 1923)





The state of the world today... but what about the world tomorrow?

Unstoppable force meets immovable object

'Prediction is very difficult, especially about the future.'

Niels Bohr, Danish physicist (1885 -1962)

Of course I could be wrong...so where is the evidence?
UNEP, World Bank, UNDP, CPSL...it's all out there...



The world is changing fast

- We are living in a world that is changing faster than ever and facing unprecedented challenges
- Two driving forces of change =
- technological innovation
- population growth.



Technology: the past 3000 years

- Imagine the past 3000 years as the face of a clock with each of the 60 minutes representing 50 years
 - 11 minutes ago: printing press (1440)
 - 2.7 minutes: telephone (1875)
 - 1.6 minutes ago: black and white TV (1929)
 - 54 seconds ago: fax (1966)
 - 41 seconds ago: personal computer (1977)
 - 38 seconds ago: analog cell phone (1979)
 - 25 seconds ago: WWW (1990)
 - 13 seconds ago: broadband (2000)
 - 1 second ago: 3-D TV (2010)



Population Growth

- It took to mid 18th Century for population to reach 1 billion people
- It took 130 years to reach 2 billion (1930)
- It took 30 years to reach 3 billion (1960)
- It took 14 years to reach 4 billion (1974)
- It took 13 years to reach 5 billion (1987)
- It took 12 years to reach 6 billion (1999)
- By 2050 it will be 9.2 billion that is more people than have ever lived on the planet at the same time



City Life

- In 2050 over 60% of the population will be living in cities – many in mega cities (of over 10 million people)
- By 2050 over 50 mega cities with populations of over 50 million
- Today largest city = Tokyo (34.6 million more than entire population of Canada)



Is the way education happens now fit for purpose?

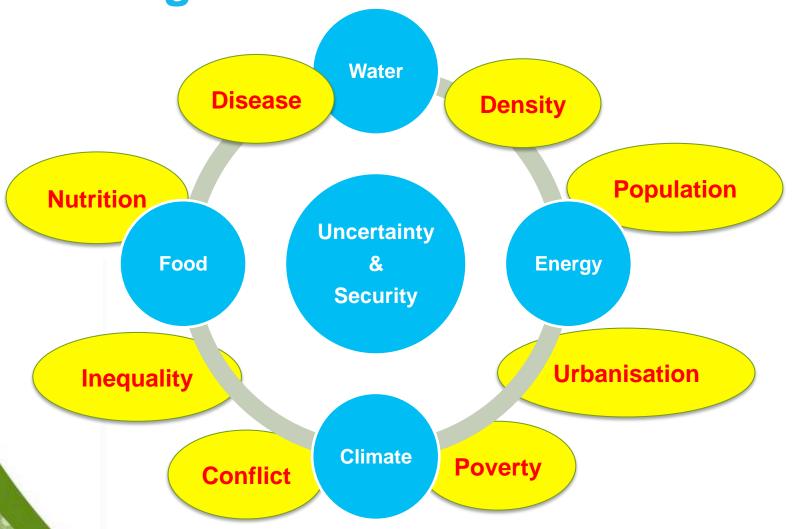


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7-9 March 2015 | United World College South East Asia, Singapore



Making the connections



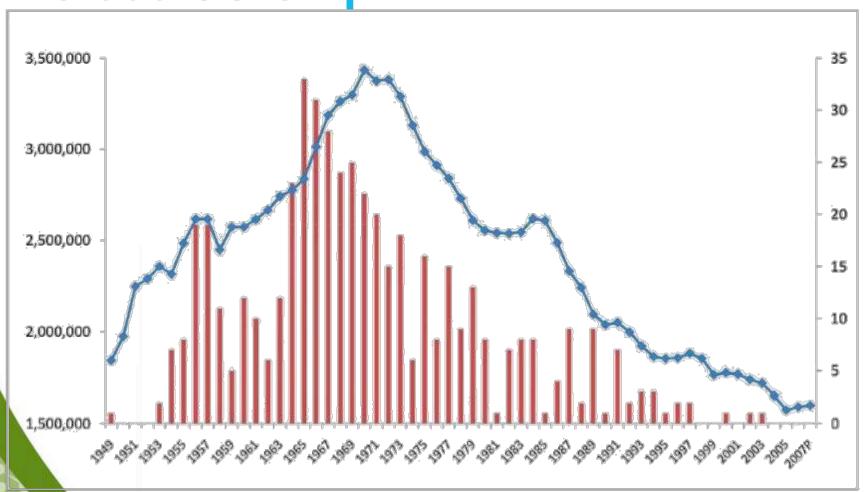


Some of the underlying problems we face

Watch out!..Data Dump

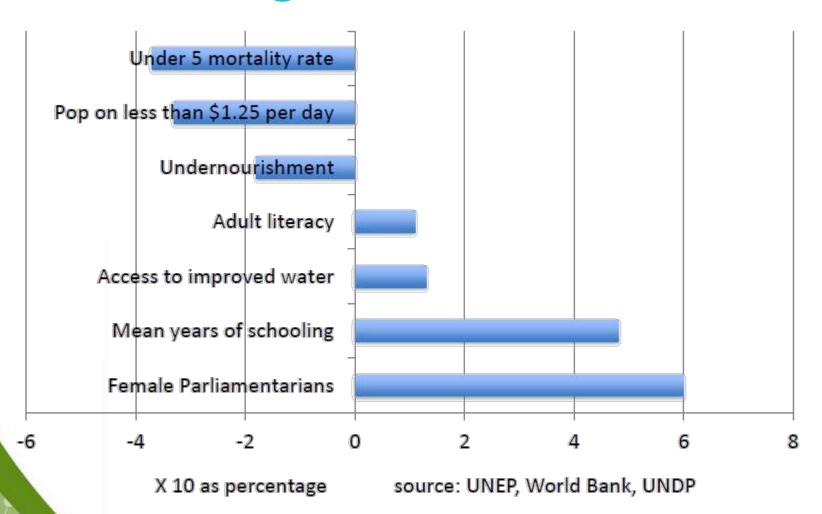


RS 500 US Oil production



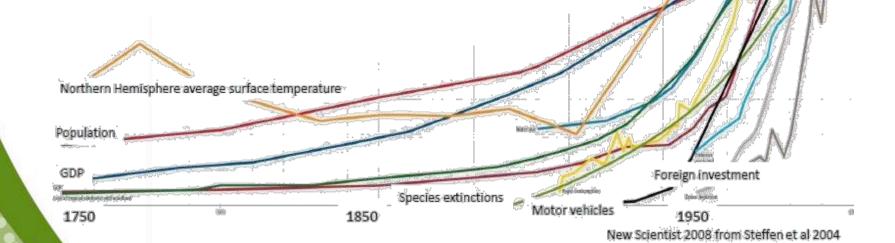


Global Change 1990 - 2006/11





We are living in an accelerating world







August 22nd





THE BIOSPHERE

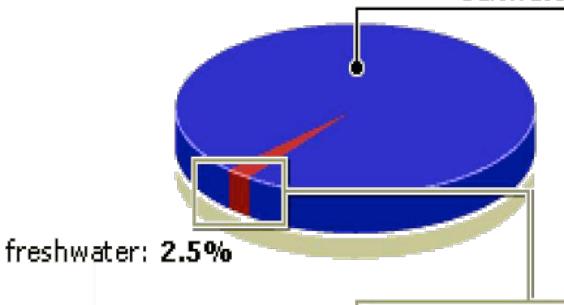
HUMAN SOCIETY

THE ECONOMY



The world's water

saltwater: 97.5%



68.9% - locked in glaciers

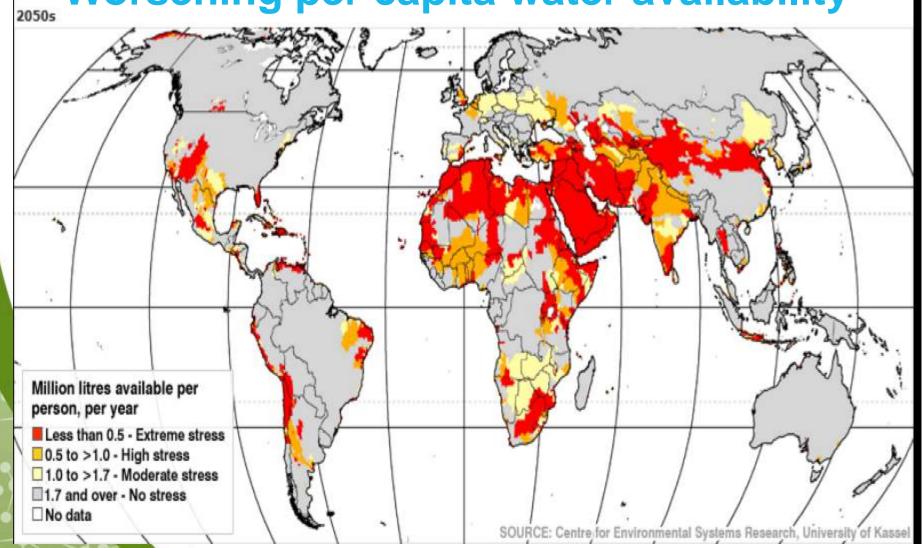
30.8% - groundwater

0.3% - lakes and rivers

SOURCE: UNER

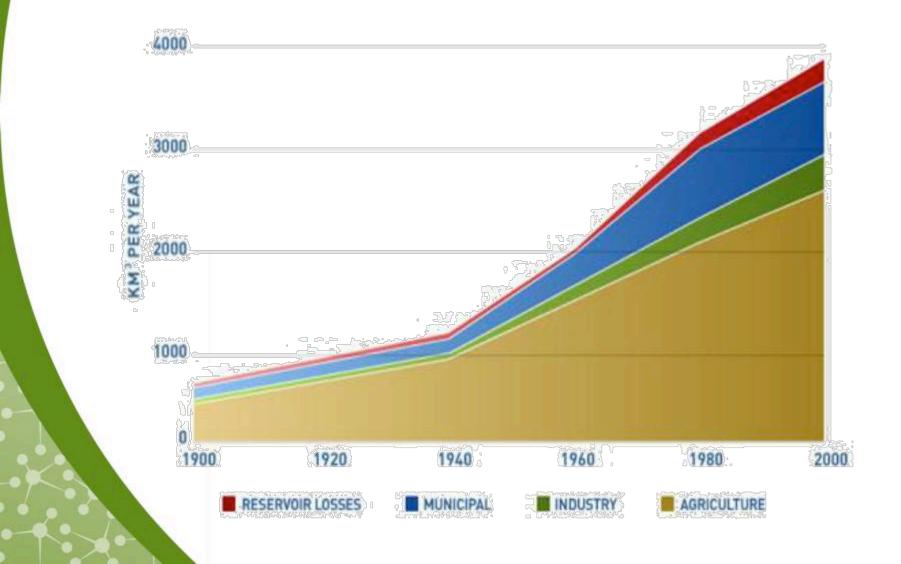


Worsening per capita water availability





Estimated world water use





Water use

1 pound of lettuce 23 gallons

1 pound of tomatoes 23 gallons

1 pound of potatoes 24 gallons

1 pound of wheat **25** gallons

1 pound of carrots 33 gallons

1 pound of apples 49 gallons

1 pound of chicken

1 pound of pork

1 pound of grain fed beef

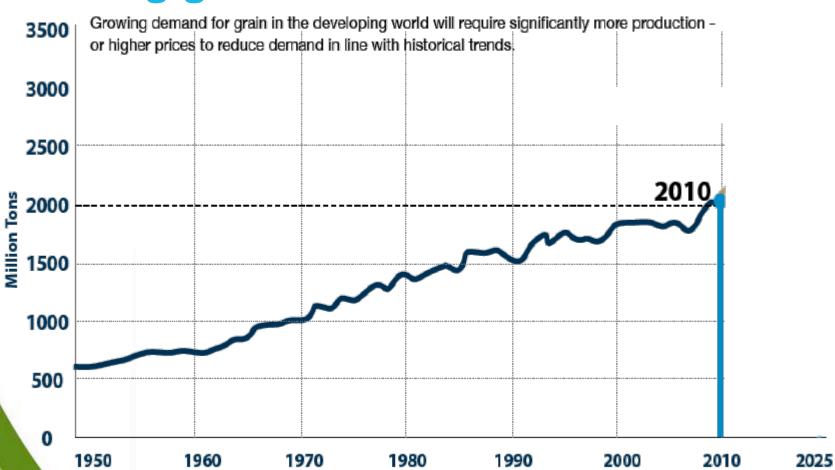
815 gallons

1,630 gallons

at least 3,000 gallons



Growing grain demands



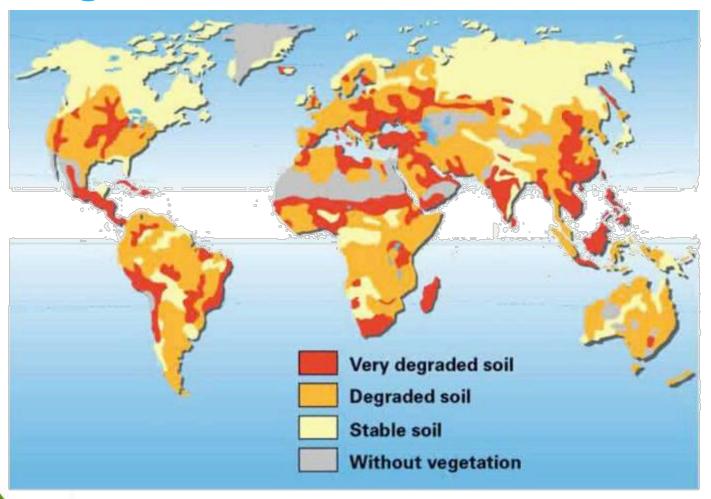


To meet the increasing demand from a growing population we will need to produce more food in the next 40 years than has been produced in the previous 8,000 years.

Jason Clay, Senior Vice President WWF

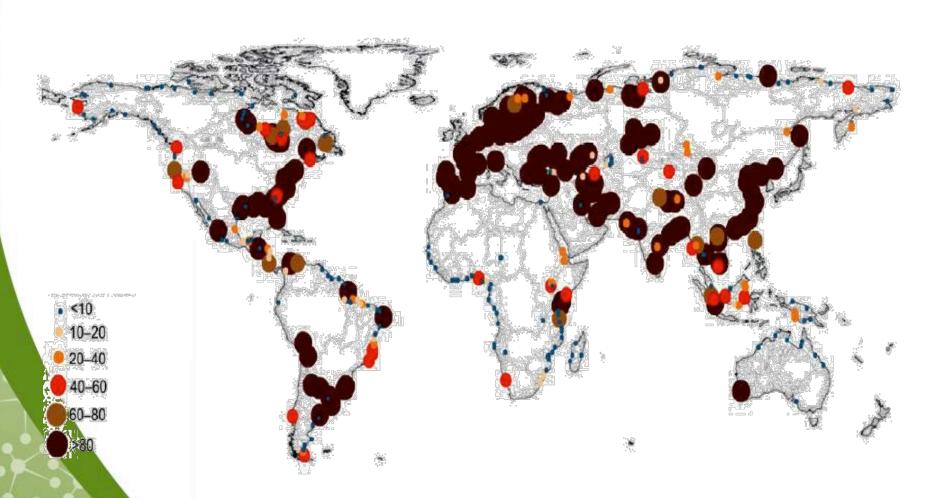


Soil degradation



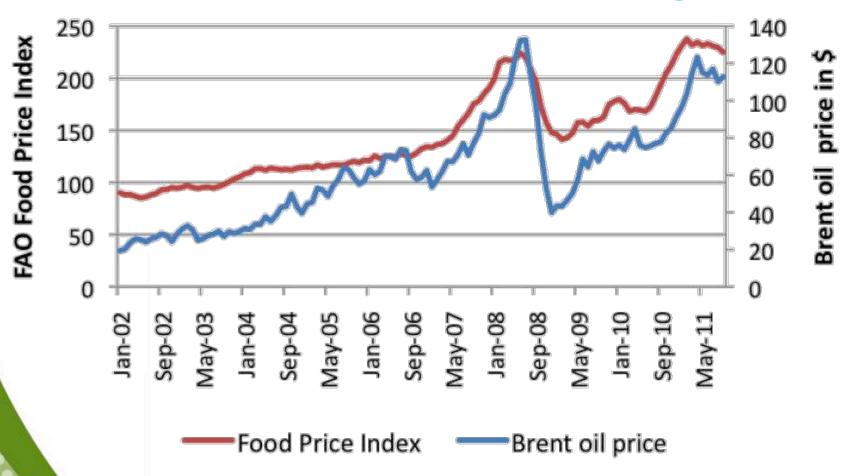


Percent increase in Nitrogen flows in rivers





Food and oil prices tend to rise together



All data is from the US Energy Information Administration.

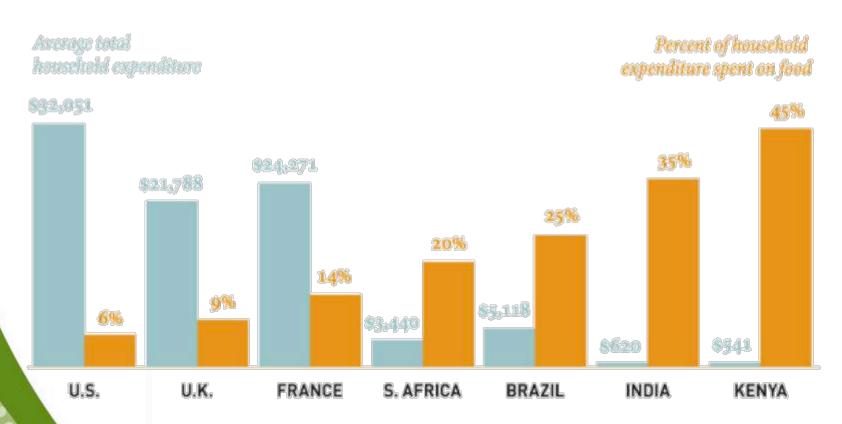


Global South vs Global North





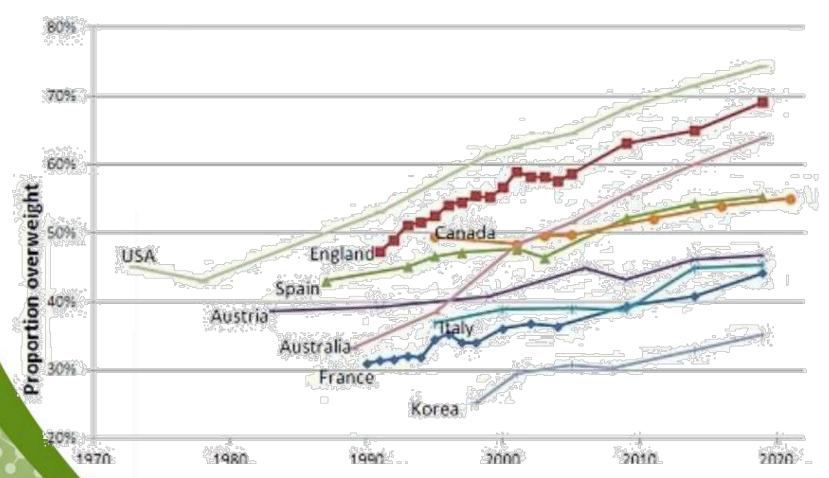
The poor spend a high percentage of their income on food



Sources: World Bank 2009: U.S. Department of Agriculture 2009; Euromonitor International

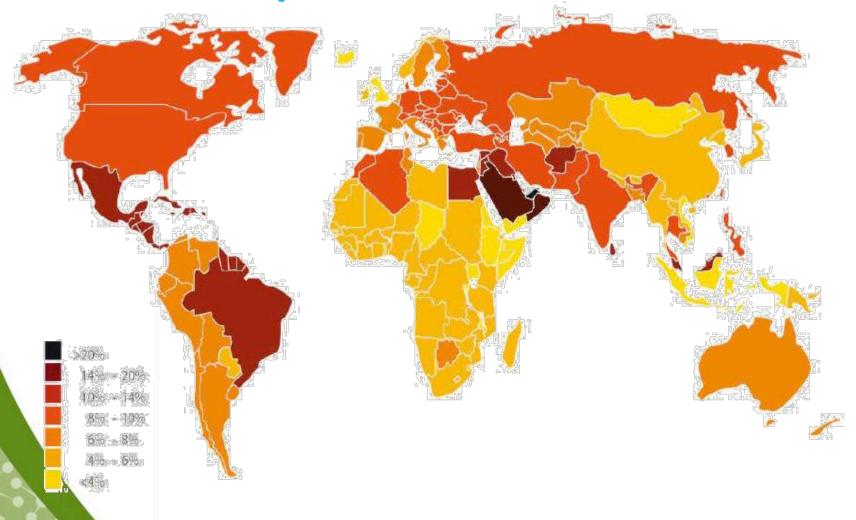


Past & projected overweight rates in selected OECD countries



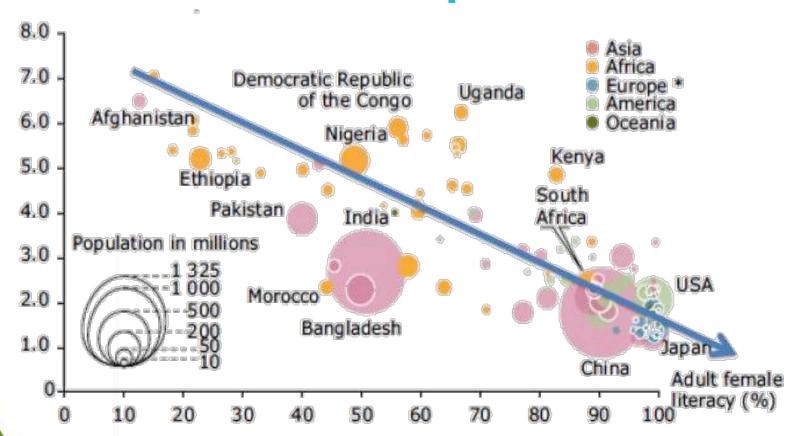


Estimate of prevalence of diabetes 2025





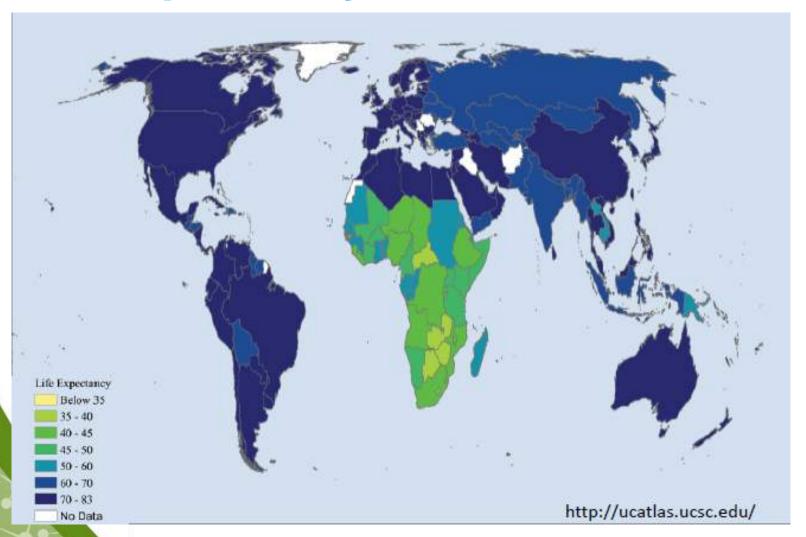
Number of children per woman



Source: UNESCO, 2010; World Bank, 2010; UN Population Division, 2009; Gapminder, 2010.

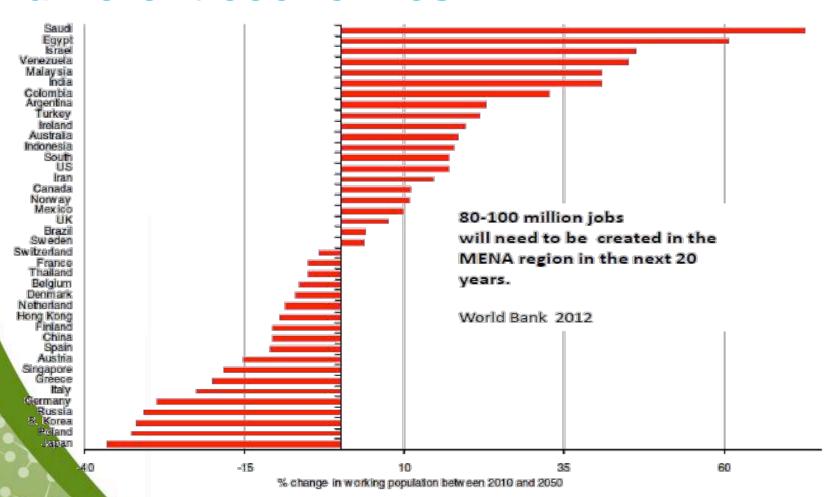


Life expectancy at birth 2004



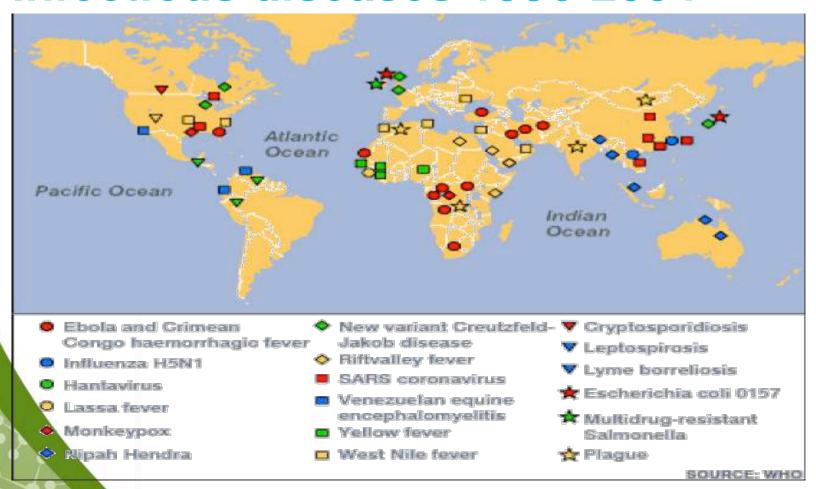


Outlook for working populations for different economies





Emerging and re-emerging infectious diseases 1996-2004





Emerging and re-emerging infectious diseases 1996-2004

FRIDAY, 17 OCTOBER



BBC News this morning



Positive proof of global warming





International Panel on Climate Change (IPCC)

CO2 levels at their highest for 650,000 years.

Climate change "unequivocally" happening, and 90% certain that it's due to man-made emissions.

10-15 years to put in place serious measures to start reducing emissions of CO2.

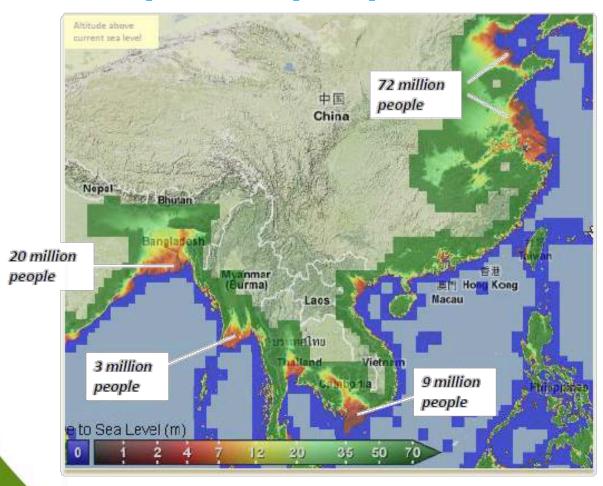
"Best guess" indicates global temperature will rise by 1.8°c to 4°c by 2100. Worst case "up to 6.4°c".

Policy responses geared to hold temperature increase below 2°c.

Urgent need to agree on global stabilisation target. 550 ppm CO2 increasingly seen to be inadequate. 450 ppm CO2 emerging as new consensus figure.



The impact of a one metre sea-level rise – displaced people in Asia



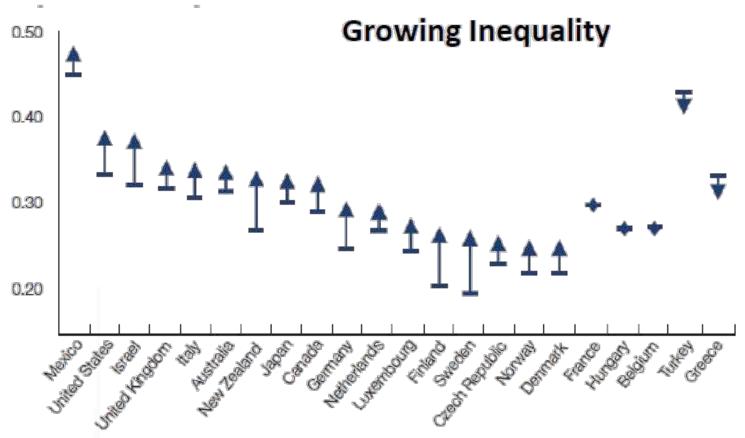


The BP statistical Review of World Energy

"It's no secret anymore that for every nine barrels of oil we consume, we are only discovering one."

November 11th, 2009

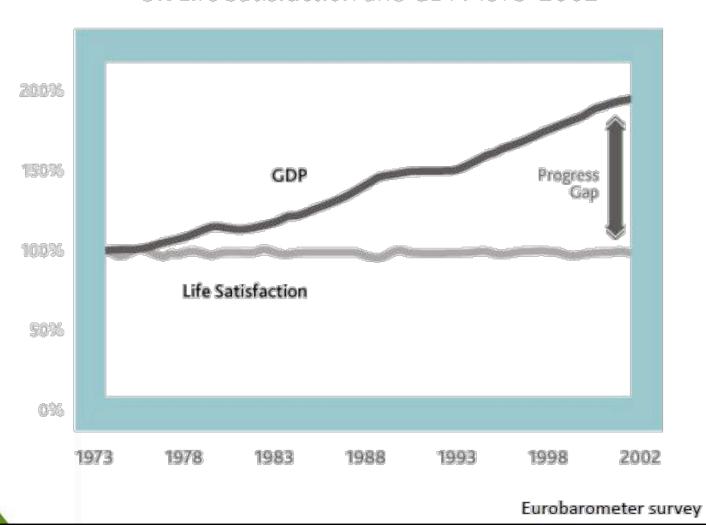




Source: Growing Income Inequality In OECD Countries: What Drives it and How Can Policy Table It? Paris: OECD, 2011.



UK Life Satisfaction and GDP: 1973-2002





Global mega-trends

 new economic world order; major demographic changes; new tribalisations; new notions of security, privacy and terror; enduring development of technology; asianisation; spiritual revolution; climate; new definitions of happiness, ideals & ethics; change; food shortage; new energy economy; bespoke wellness &healthcare; new power balances; boys surplus; new management of anger.

> Adjiedj Bakas, "Trend Watcher"



What might this all mean for an education lasting 1,000,000 minutes?

• A child who starts school at age four and graduates at age 18 till spend roughly one million minutes at school. What they learn during their time at school is essentially the sum of what they learn during each of those one million minutes.



The future is something we create, not somewhere we are going



Growth of the global knowledge economy: Global Sapiens

- Thinking beyond own generation
- Empathy
- Global consciousness
- Willingness to change
- Courage

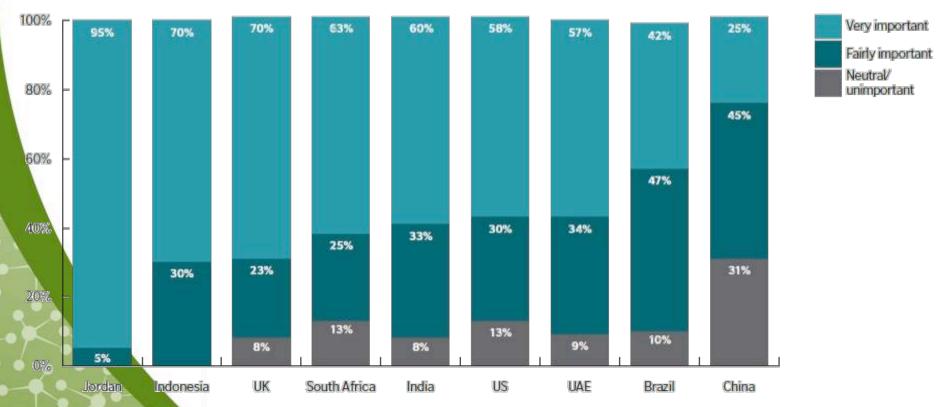


http://globalsapiens.com.br/academy/en/courses-and-services/workshops/



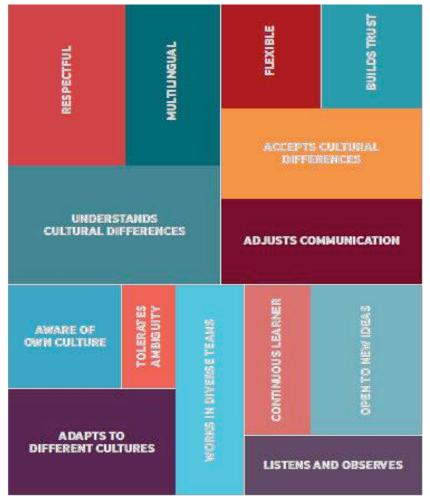
Employers say that they are looking for candidates who can navigate a workplace that transcends national and cultural borders. (British Council 2013)

Chart 5: The importance of intercultural skills to organisations (by country, ranked by very important)



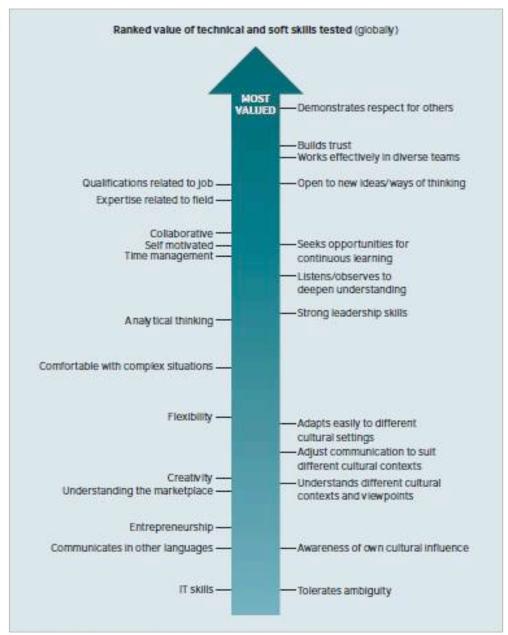


These are the terms most frequently used by employers to define intercultural skills.





How employers rank different skills in terms of importance

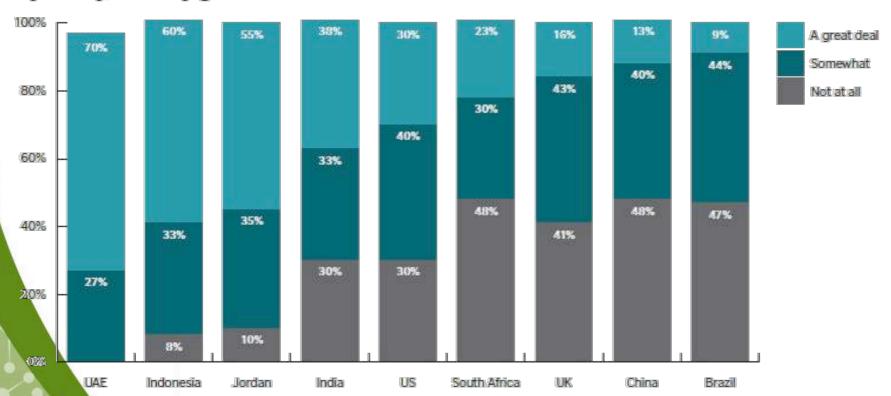


Now Remarks were given making many of skills and solved to indicate the most and least important skills with national.



Few employers report being satisfied with their national education system's ability to produce graduates with strong intercultural skills.

Chart 12: Percentage of employers who believe the education system meets their intercultural skills needs (by country, ranked by 'great deal')



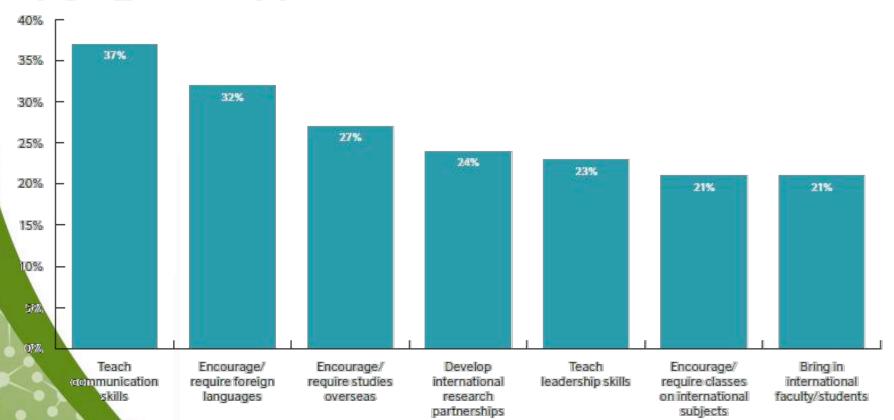
Source: Telephone/face-to-face surveys of public-sector, private sector and NGO employers responsible for employment decisions. Base: Brazikin: 48), (china (n=40), India (n=40), Indonesia (n=40), Jordan (n=40), South Africa (n=40), UAE (n=44), UK (n=40), US (n=40)

Note: Because of rounding and/or exclusion of food tiknow responses, percentages may not add up to 100%.



Employer recommendations to education systems for improving the development of intercultural skills.

Chart 13: Contributions that education can make to improving intercultural skills as seen by employers (top eight suggestions from employers)





IB Mission Statement

"The International Baccalaureate aims to develop inquiring, knowledgeable and caring young people who help to create a better and more peaceful world through intercultural understanding and respect.

To this end the IBO works with schools, governments and international organizations to develop challenging programmes of international education and rigorous assessment.

These programmes encourage students across the world to become active, compassionate and lifelong learners who understand that other people, with their differences, can also be right."



A reflection on moral purpose:

"Schools have to make the choice whether they want to be the mirror of society or the change agents of society."

(Professor Steward Sutherland)



Albanian College, Durres

ALBANIAN COLLEGE DURRES

EARCH...

HOME

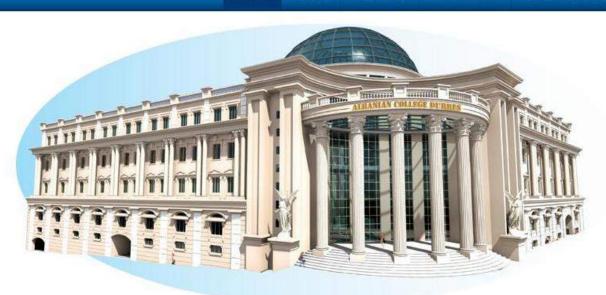
ABOUT

LEARNING

ADMISSIONS

BEYOND THE CLASSROOM

STAFF & GOVERNORS



"Imagine that in and around this place, the fruits of creativity are visible in a celebration of human ingenuity, invention, innovation and inquiry whilst a sense of wonder and respect for the environment is pervasive. In this place, the buzz of industry, empowered by technologies, is audible whilst collaboration and team work happen intuitively. In this place happiness is an epiphenomenon for the disciplined, synthesizing mind and the compassionate, generous heart. In this place you can see the art, hear the music and feel inspired. This is a place where young people never cease striving to turn their dreams into reality."



How is education addressing sustainability on its broadest sense?

- CIE Global Perspectives IGCSE "Global Perspectives is a groundbreaking new course that is cross-curricular, stretching across traditional subject boundaries"
- IB Diploma courses in Global Politics, Peace & Conflict, Environmental Systems & Societies, World Cultures
- IB Global Engage
- The inherent connectivity of the IB programmes





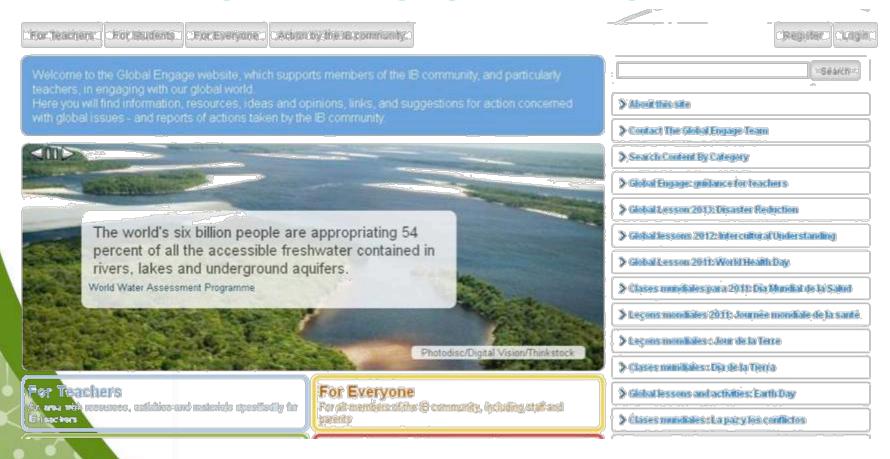
CASCreativity, Action, Service

"Strange is our situation here on Earth. Each of us comes for a short visit, not knowing why, yet sometimes seeming to divine a purpose. From the standpoint of daily life, however, there is one thing we do know; that we are here for the sake of each other, above all, for those upon whose smile and well-being our own happiness depends, and also for the countless unknown souls with whose fate we connect with a bond of sympathy. Many times a day I realize how much my own outer and inner life is built upon the labours of others, both living and dead, and how earnestly I must exert myself in order to give in return as much as I have received and am receiving".

Albert Einstein



IB Global Engage http://globalengage.ibo.org/





UWCSEA learning programme



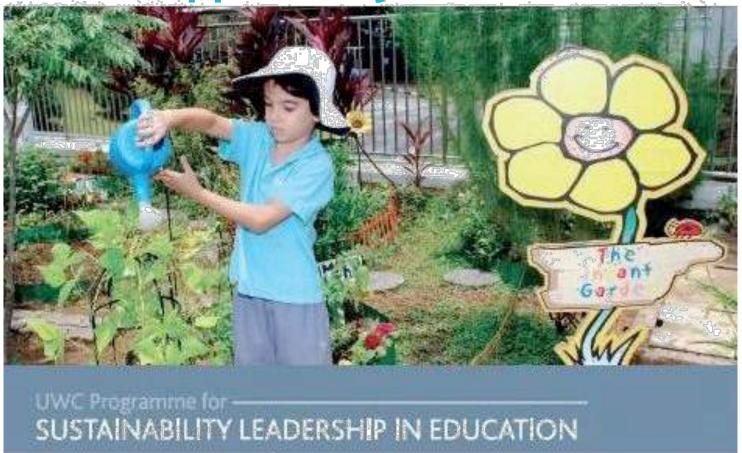




www.ebtrust.org.uk



An real opportunity to contribute



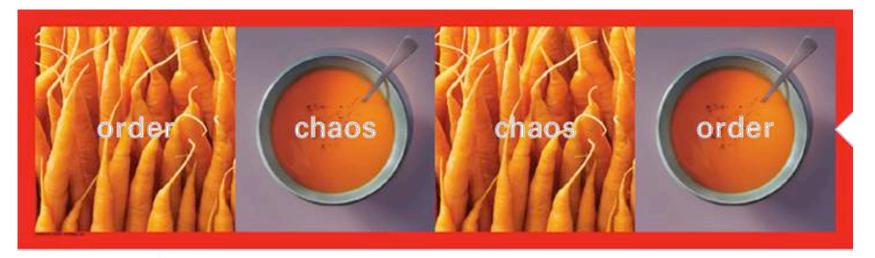
Edicilia jurgatibalile abest future:

7-9 March 2015 | United World College South East Asia, Singapore





Multiple perspectives



We see no problem in different points of view.

Only potential.

yourpointofview.com





Homogeneity – dumbing down? What's distinctive?

Dubai Rome





Oxfam's description of a global citizen

- Is aware of the wider world and has a sense of their own role as a world citizen
- Respects and values diversity
- Has an understanding of how the world works
- Is outraged by social injustice
- Participates in the community at a range if levels, from the local to the global
- Is willing to act to make the world a more equitable and sustainable place
- Takes responsibility for their actions



In addition a global citizen...

- Has a sense of connectedness with and responsibility towards others, other species and the environment
- Understands interconnectedness and complexity
- Can see the world through the eyes of others
- Views the future with hope

Roberts, Boyd 2009, Global Citizenship, IB, Cardiff.



Dimensions of Perspective *Hanvey, 1976*

- 1. Perspective Consciousness
- 2. State of Planet Awareness
- 3. Cross-Cultural Awareness
- 4. Knowledge of a Global Dynamic
- 5. Human Choices



What's already being done?

UWCSEA profile: qualities and skills
Our goal is to educate individuals to embrace challenge and take
responsibility for shaping a better world. Our community achieves this goal
by developing knowledge and understanding, qualities and skills through the
five elements of the UWCSEA learning programme: academics, activities,
outdoor education, personal and social education and service



Ways of Knowing (WOK)





A rigorous two year pre-university course that leads to examinations, for motivated students



The Middle Years Programme (1994)

A framework of academic challenge and life skills appropriate to students aged 11 to 16.



ROME Primary Years Programme (1997)

An opportunity for learners to construct meaning, principally through concept-driven inquiry

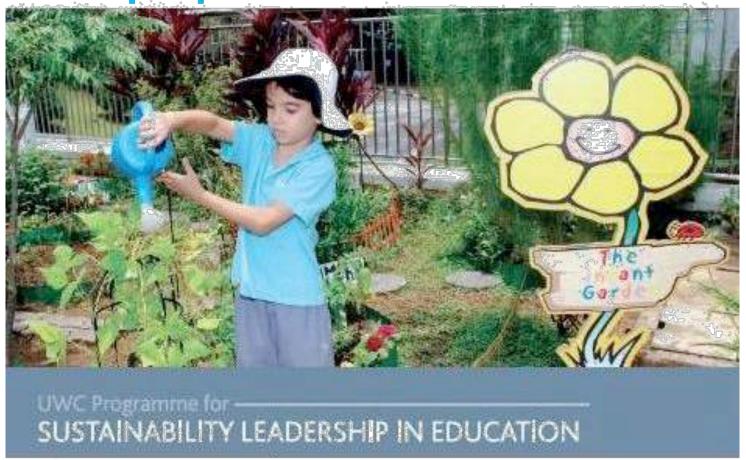


The IBC (2012) - A Convergence of Knowledge Acquisition and Skills Development





Is the way education happens now fit for purpose?



· Edicilise for a spot dugit of the chief future :

7-9 March 2015 | United World College South East Asia, Singapore



Closing question: What is your moral purpose?



Activity: Theory of Knowledge (ToK)

Key TOK questions = how do I know and how do we know?

- 1. What do you know you know?
- 2. What do you know you don't know?
- 3. What don't you know that you don't know?

"In formal logic, a contradiction is the signal of a defeat, but in the evolution of real knowledge it marks the first step in progress towards a victory".

Alfred North Whitehead



Ways of Knowing

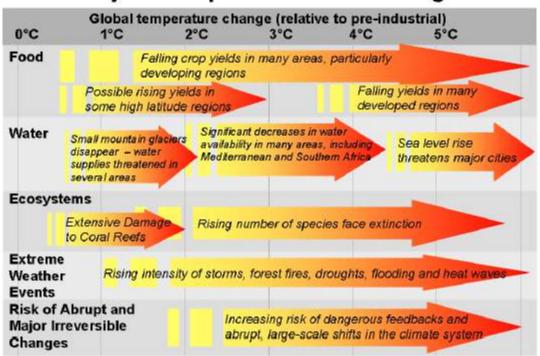
- Language
- Sense Perception
- Emotion
- Reason
- Imagination
- Faith
- Intuition
- Memory

Areas of Knowledge

- Mathematics
- Natural Sciences
- Human Sciences
 - History
 - The Arts
 - Ethics
- Religious Knowledge Systems
- Indigenous Knowledge Systems



Projected impacts of climate change



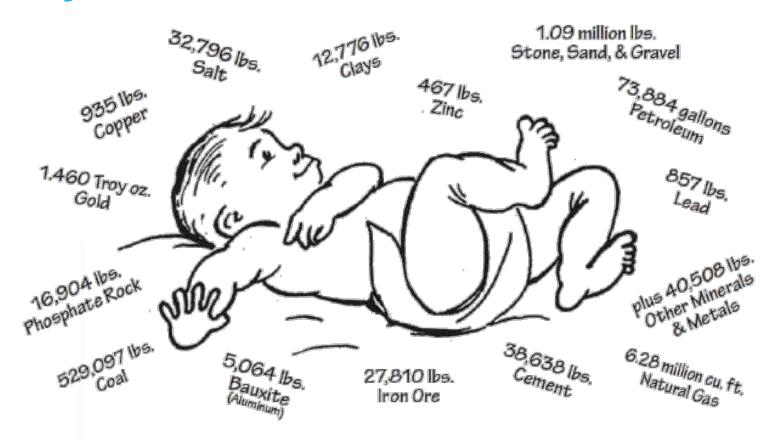
Stern Review



How may a man measure his own Then he must He must first go to his cupboard and take out all his lay them out on happiness? the ground, end neck lies. And that measurement; as his distance Then he must measure that distance is the length of this line of neckties. From true happiness. exactly the same



Every American will need



2.96 million pounds of minerals, metals, and fuels in their lifetime