Reflections on the Nexus of Politics, Ethics, Religion and Contemporary Water Resources Decisions*

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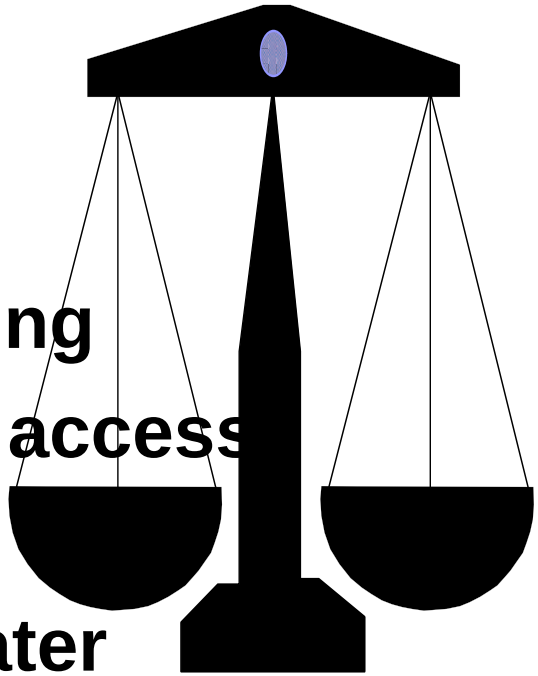
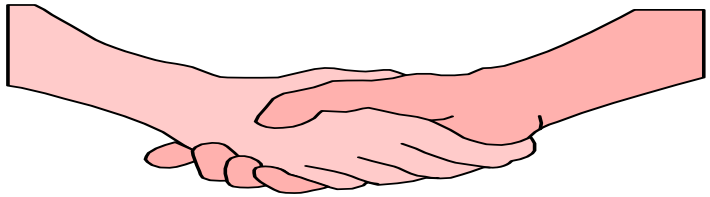
Personal Reflections from a Western Christian Perspective

Water Decisions = Ethical Decisions

- **Water debates mirror debates of social ethics**
  - **water as a common good**
  - **water and human dignity**
  - **water as facilitator of well being**
  - **rights and responsibilities to access**
  - **water and social justice**
  - **wealth generation roles of water**



- **Water as symbol of reconciliation, healing, regeneration**



Contents

1) Climate Change; Risk & Uncertainty in Water Resources

The CEO of the Sierra club recently publicly stated, " …If we do not do anything about climate change the people of Bangladesh will continue to be flooded…..and…..we can no longer en… cli…

Is this accurate and what does it say to policy makers?

In the mid 1990s I was asked to facilitative a process to reach agreement amo climate change molders – they could not get the models to back-cast and recr historic events – I privately asked "Was that the model used to inform Newsw

A: "…yes…."

Q: How could you do that?

A: We know it should predict change it is only noise in the syst

Months later the Hockey stick warming curve appears!

Adaptation vs. Mitigation Raise Ethical Issues in Water Policy Debate

(E.G.s from Copenhagen)

"You cannot say that because there is climate change that the developing World shouldn't grow…you are essentially saying, ..no more electricity to your house, close your factories, go back to the fields." **(C. Bhyhan, Center for Science and Environment New Delhi, 2009, in Wash Post B8, Nov. 22, 2009)**

"In India…almost half a million children die each year from water borne Diarrhea, providing access to basic services such as clean drinking water Is more pressing ten cutting emissions,… and to do so requires energy.."
(Indian Minister - Wash Post B8, Nov. 22, 2009)

"If as a result of technology, self denial and determination, you were to cut Your emissions by 50% -the moment you achieve it yourself, we will accept that cap." **(Ahluwalia, Policy Advisor, Government India, in Wash Post, B8, Nov. 22 2009)**

Most Reasons the Public Should fear Climate Change are Water R

UNSG Address to the IPCC upon the release of the Fourth Assessment Synthesis Report

UNSG -BAN KI-MOON

"One crucial aspect of the Panel's assessment is that climate change will affect developing countries the most. Those who are most vulnerable are also the most at risk from this threat. Melting glaciers will trigger mountain floods and lead to water shortages in South Asia and South America. Rising sea levels could inundate Small Island Developing States. Reduced rainfall will aggravate water and food insecurity in Africa." (Valencia, Spain, 17 November 2007 - Secretary-General's address to the IPCC upon the release of the Fourth Assessment Synthesis Report)

DR.RAJENDRA PACHAURI
Chairman, Intergovernmental Panel on Climate Change (IPCC)

4 of 6 Major Reasons, repeatedly used in talking points of international officials, that the public should deal with climate change are water related:

- **Droughts and floods: frequency and intensity**
- **Sea level rise**
- **Access and scarcity**
- **Quality and health**
- **Others…**

(COP 15/CMP5 ON DECEMBER 7, 2009 1 December 2008 and othes ++)

Water and Adaptations: Advocating Tools (GCMs) not Designed for Problem

Water managers work at watershed and river basin levels

- **To *minimize risks* and cost of hazards to society**
- **Water management *probabilistic design* is defined by:**
  - **-how extremes floods and droughts are defined**
  - **-standards and methods for reducing risk to so**
- **Need some *historical estimate* of floods to:**
  - **-set insurance rates, crop insurance,**
  - **-define flood plane zones,**
  - **-design storm sewers, etc.**
- ***GCMs advocated for purposes they were not designed to do, information from GCMs not adequate for operations decisions little reliability in precipitation and run off***
- **Models cannot accurately reconstruct past at sub-continental to continental scales**
- ***Water managers contend with 23 GCMs (none peer reviewed) generating 550 + scenarios***

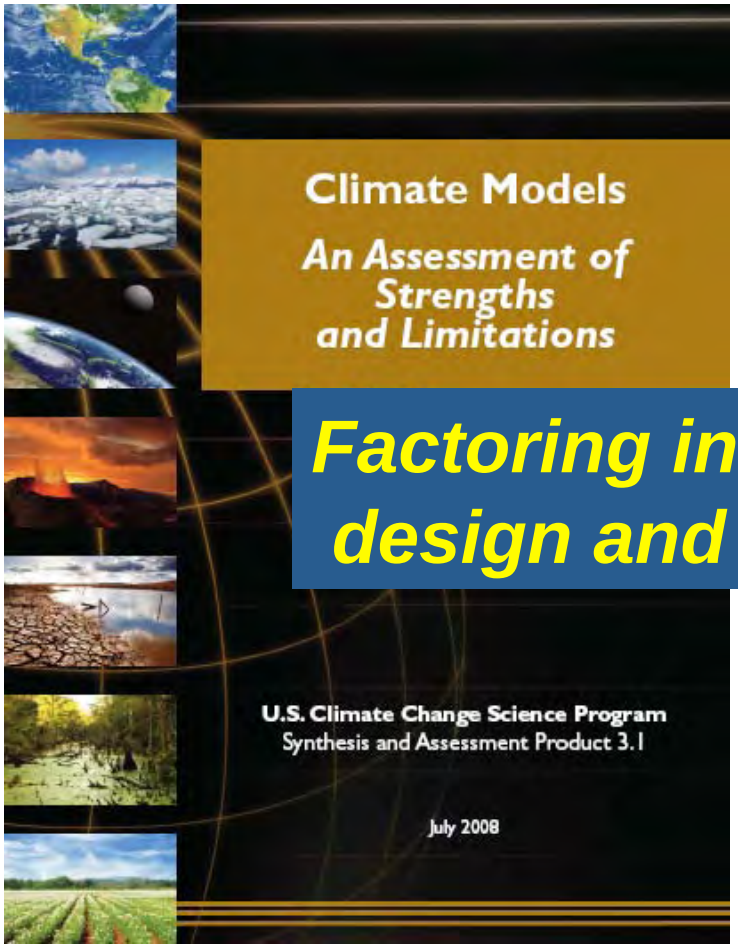
Fig. 3.34 Illustration about the White-Crane Beam Fish Stone in Fuling

163 inscriptions (discovered so far) record water levels of 72 low water years over 1,200 years constitute a low water hydrometric station on The Yangtze River (History of irrigation and flood Control In China Water press, august 2005)

(Stakhiv, IWR – USACE 2009)

Recent Assessment of Climate Models

How Accurate Are Global Climate Models?



- **Regional trends in extreme events are not always captured by current models**

Factoring in Resiliency in water resources syste design and planning is still the safest approach

discrepancies and to distinguish between model deficiencies and natural variability

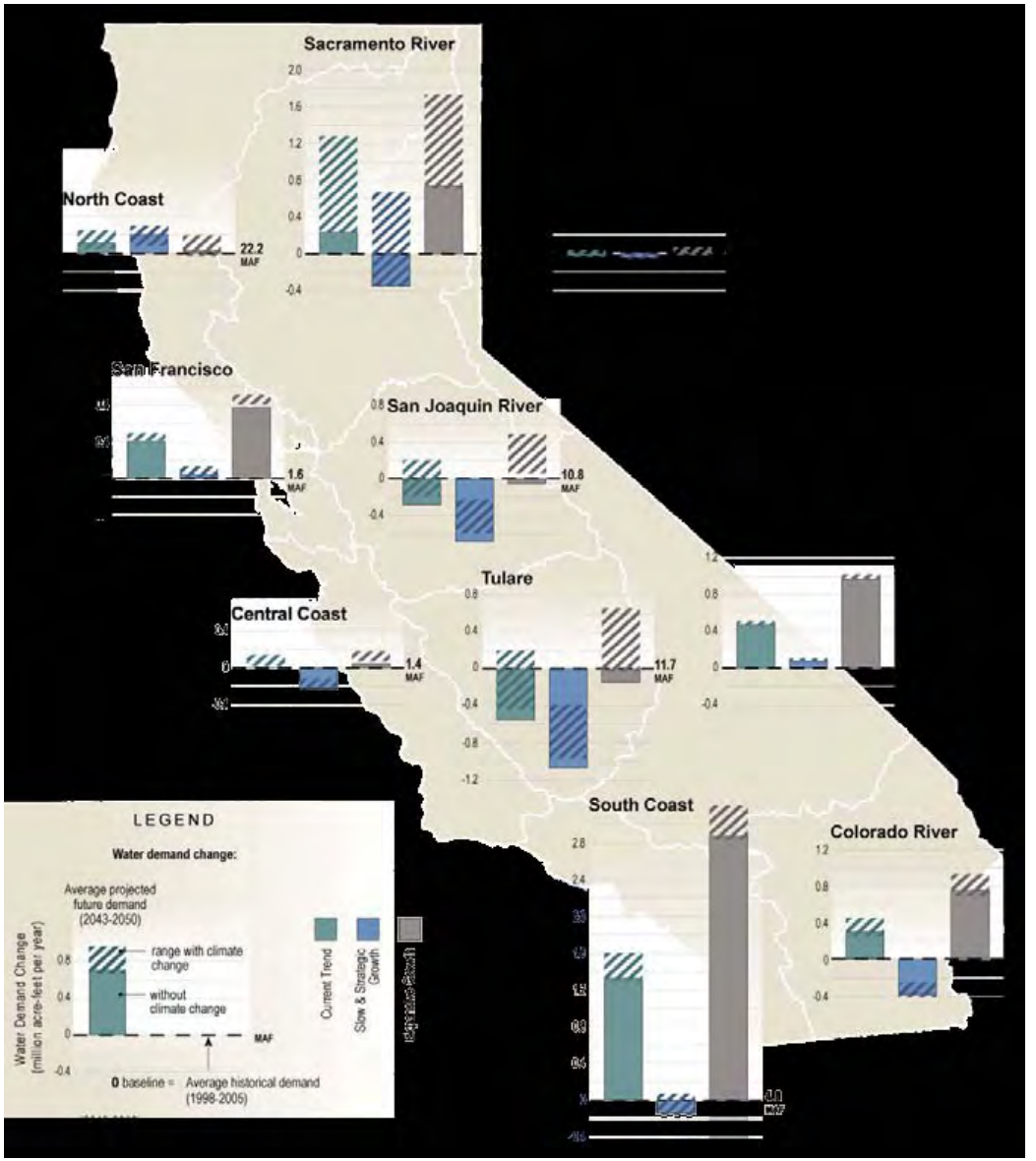
(CHRS -Center for Hydrometeorology and Remote Sensing, University of California, Irving)

California Water Plan Update 2009 Highlights

Water Scenarios 2050:

Hydrologic regions expecting higher population growth show higher changes in water demands. Water demand changes in Central Valley agricultural areas were most sensitive to the warmer and drier climate change scenarios.

Future Regional Water Demand Changes by Scenario



Why Focus on Water Actions as Macro Societal Adaptat

Political

- No matter stand on mitigation: water actions will be need
- Positive outlet for politicians
- Do something which registers in generational memory

Ethical Dilemma of Climate Change Policy and Water

Climate, water and security debates are raising public anxiety About Change while inadvertently denying adaptive means to cope with projected events; thus raising questions about the ethics of adaptation vs. mitigation

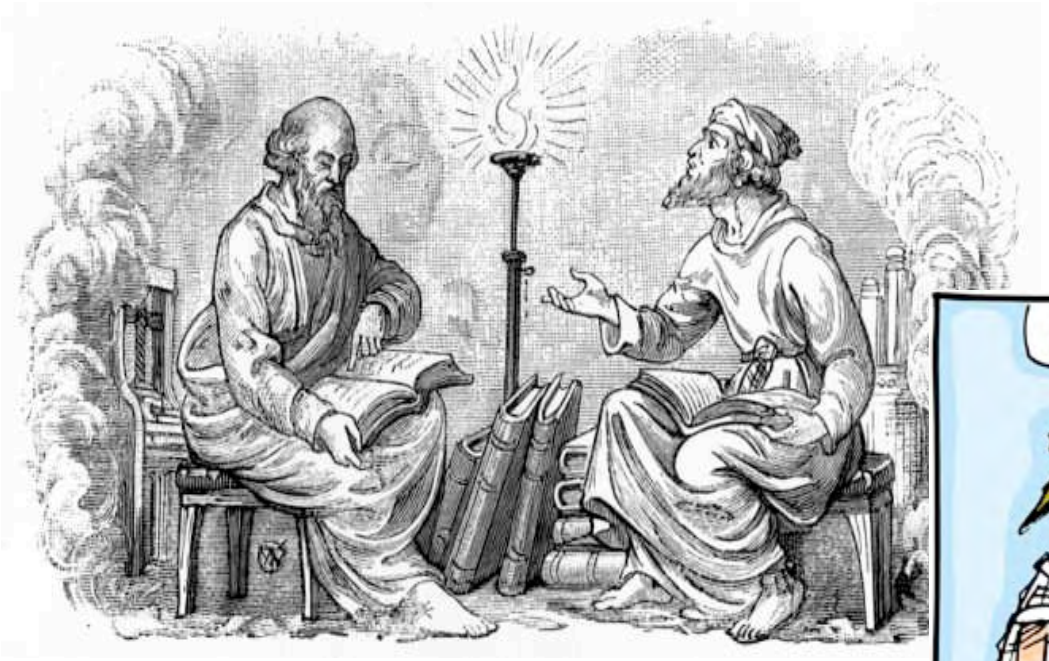
- Need actions that affect source of fears in near futu

Economic

- Fraction of Mitigation costs

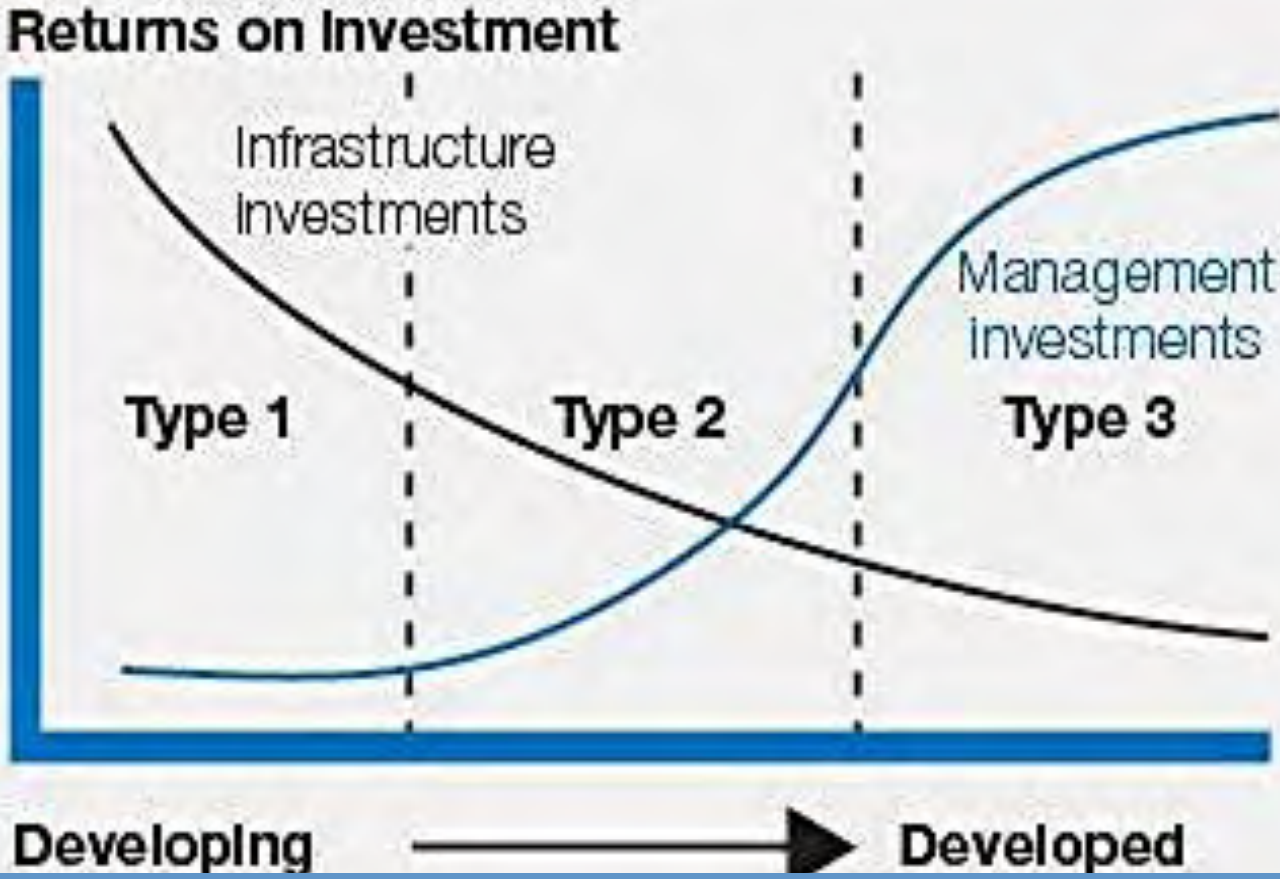
If the uncertainties of climate change are so large and water managers in many parts of the world are already characterizing risk and return rates upwards of 500 yrs, should we be telling decision makers to change?

2. The Changing Terms of Discourse on World Water



Water Governance and Relationship b/w Developed and Developing Worlds

Many developing countries



…subjecting poor nations to imperialistic "structures of sin" that deny them freedom and development. New forms of technology transfer must be found because today "there are frequent cases of developing countries being denied needed forms of technology or sent useless ones." **(JP II "Sollicitudo Rei Socialis" feb. 20,198**

Political Dialogue: Ministers DC's-LDC's-TC'S

(August 2008 IWA and WWW)

::

	Best Practises	No regret	Climate proofing
Developed countries	+	+	+
Countries in Transition	+	+/-	-
ODA	+	-/+	-

What Does the Investment Graph and Research Findings Tell Us About the Role of Water?

- **Water uses/roles are different in the different socio economic circumstances of people**

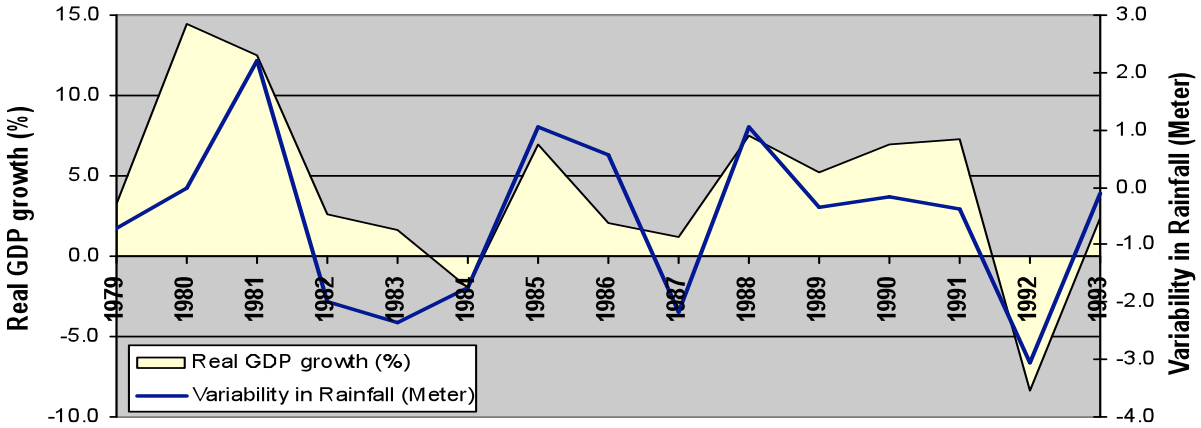
- **Water is critical - a key engine for building a platform for growth for those still experiencing physical, economic and basic needs uncertainties**

- **Water is critical because it means managing the most prevalent uncertainties of physical and basic needs by flattening the hydrograph (i.e. producing the small "s" security)**

- **The transition from structuring water, based on needs when poor, to structuring it when psychical security and basic needs are met is politically difficult (e.g. entitlements, subsidies…)**

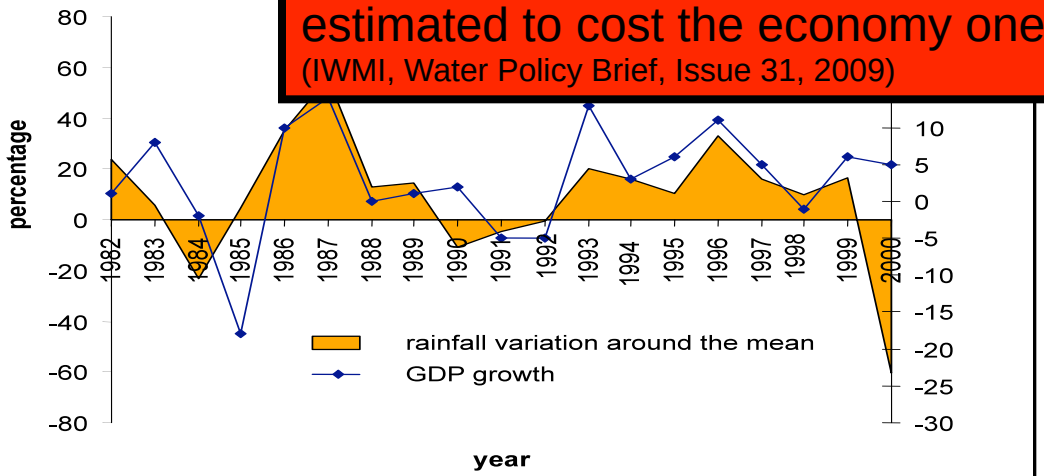
Using prescriptions for structuring water based on the experiences of one stage for another stage is dangerous, likely to provoke resentment or violence and not likely to be productive

Economy-wide impacts

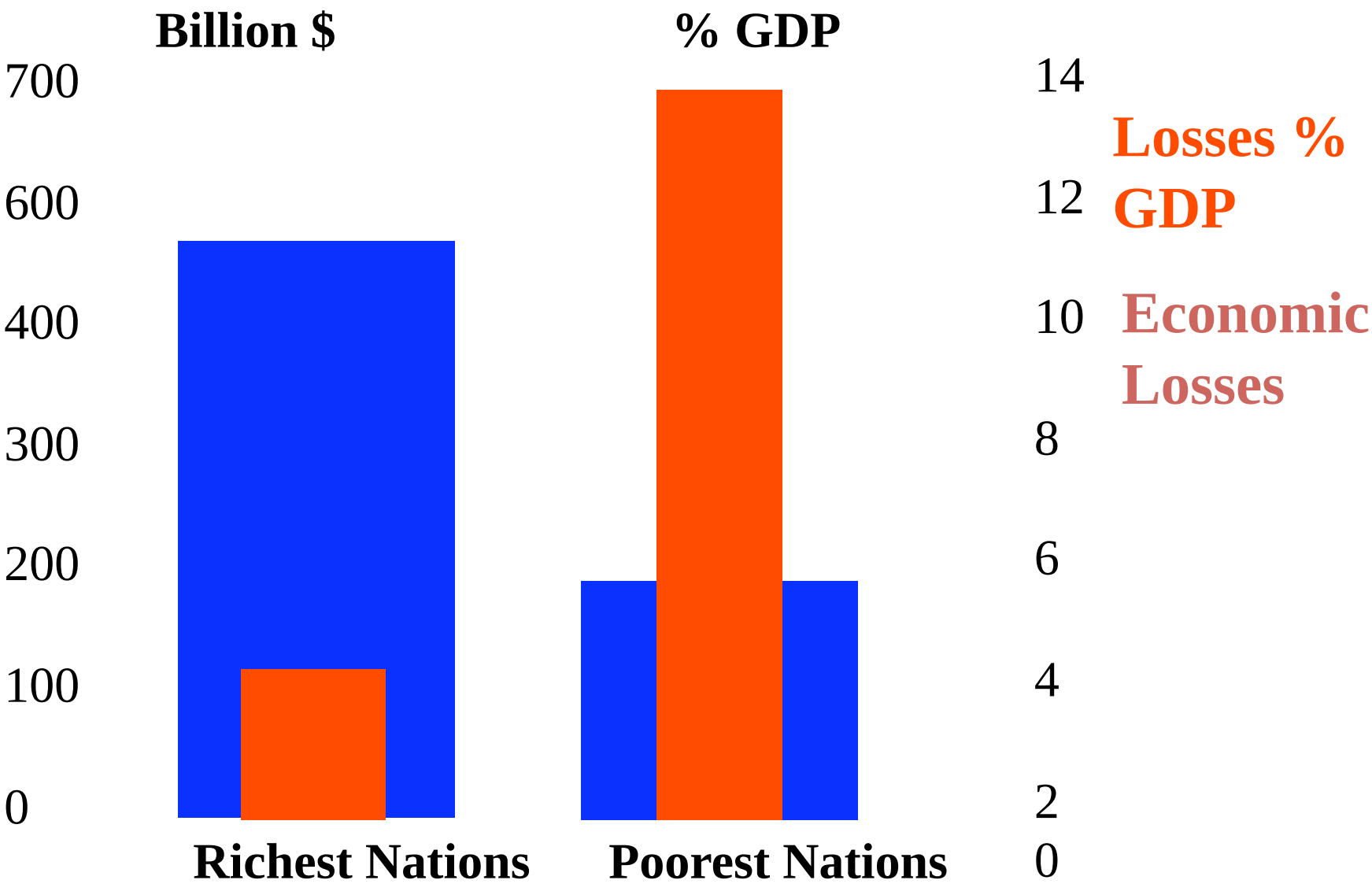


Rainfall & GDP growth: Zimbabwe 1978-1993

Ethiopia's….limited ability to cope with droughts and floods….are estimated to cost the economy one-third of its growth potential
(IWMI, Water Policy Brief, Issue 31, 2009)



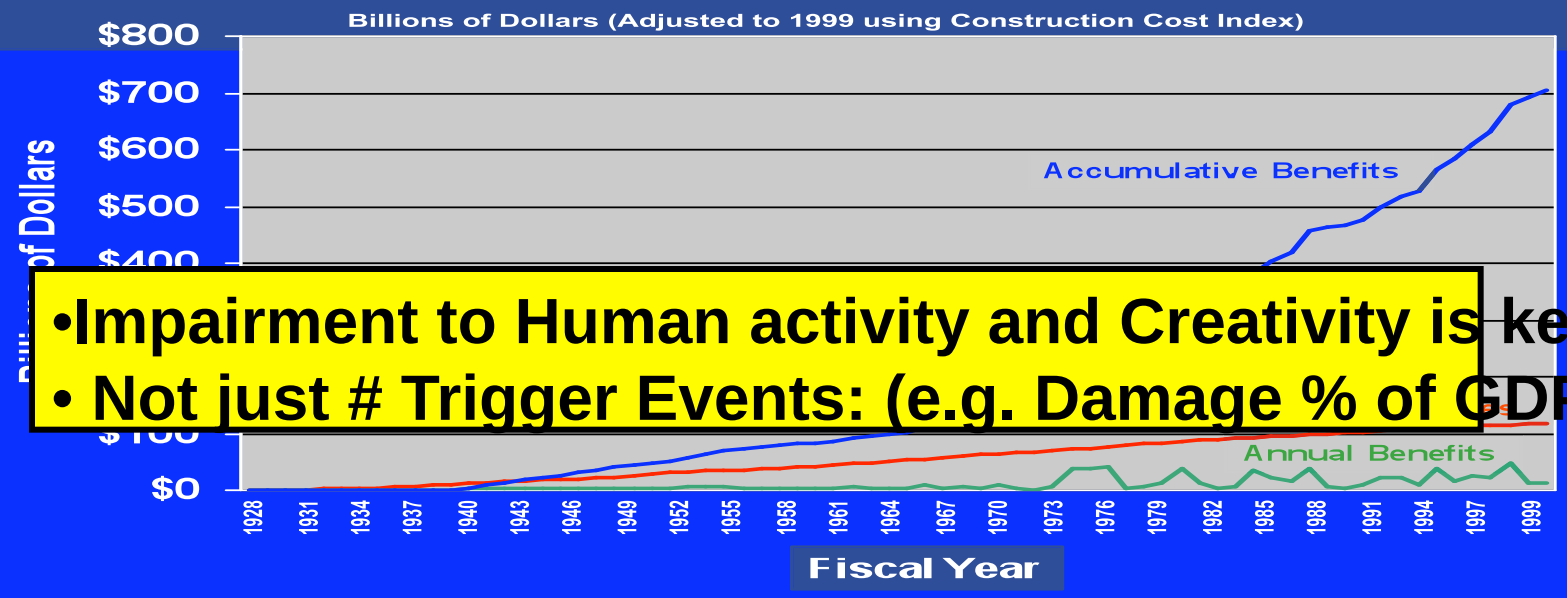
Rainfall & GDP growth: Ethiopia 1982-2000



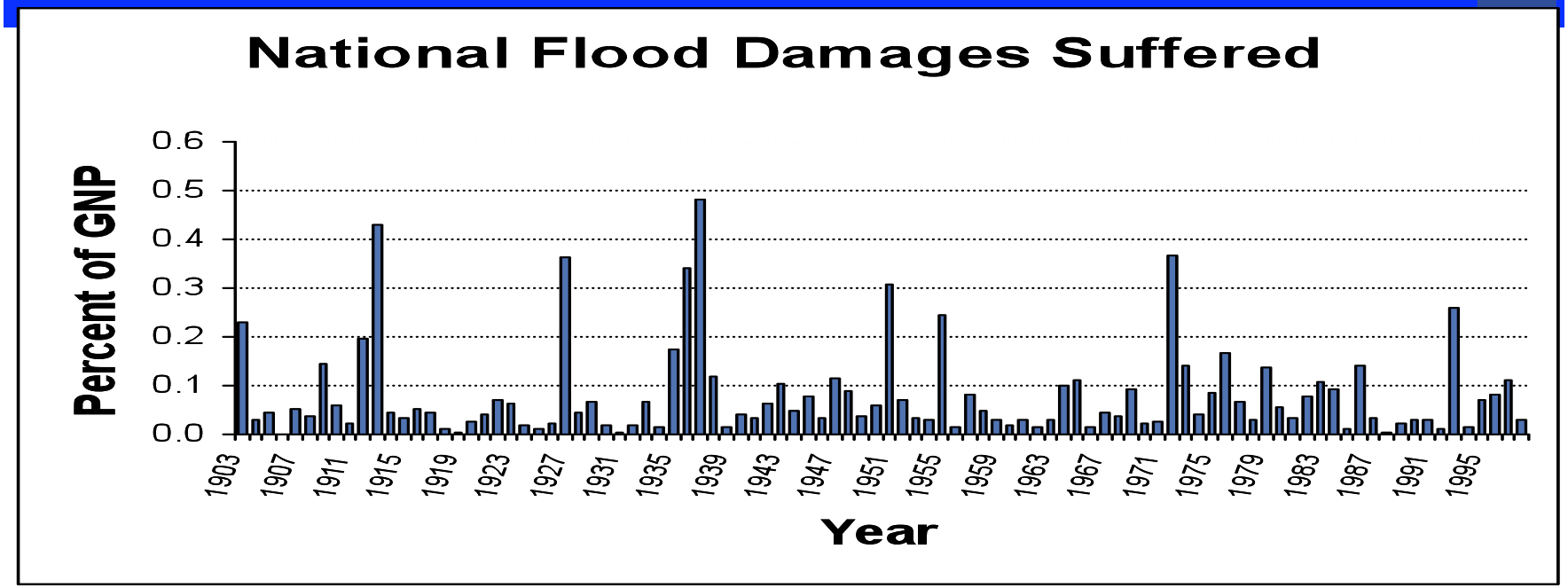
Disasters Losses, Total and as Share of GDP, In the Richest and Poorest Nations, 1985 – 99 (world watch 2001)

Figure 5

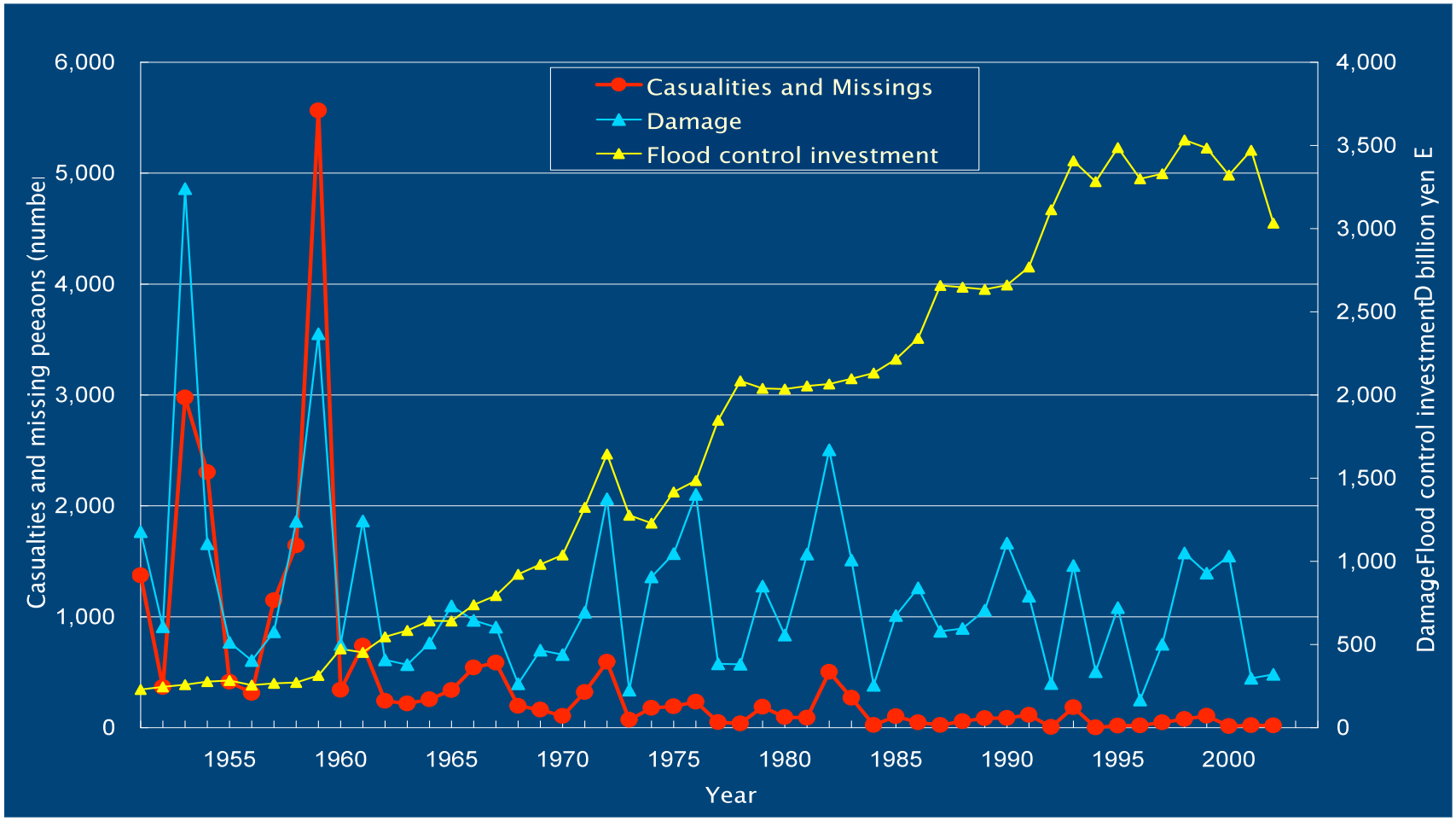
Benefits of Federal Projects (Damages Prevented)
Accumulative Corps Expenditures (Principle plus O&M)



- **Impairment to Human activity and Creativity is key;**
- **Not just # Trigger Events: (e.g. Damage % of GDP…)**



Flood damage and flood control investment in Japan



1987 – 2001 $36 Billion in FD prevented – Spent $32 Billion

Rhetoric Matters

Our worlds of Policy and Environment are dominated by certain concepts and rhetoric
such as:

- **Sustainable Development,**
- **Adaptive Management,**
- **Precautionary principles.**

Do these help us or impede our abilities to deal with water and climate change? How?

Fig. 4.53 Portrait of Xu Guangqi

Xu Guangqi was one of the few Ming Dynasty officials that advocated learning from Europe at the end of the 16th century. In this portrait, Xu Guangqi was dressed in the robe for the highest-ranking official. On the table beside him was the world map prepared by Matteo Ricci, the missionary from Europe. In the 17th century, people believed that it was after reading this world map that the Chinese became aware of the five continents of the world.

New Rhetoric - Language

- **Integrated – Holistic**
  - *Yes – but what level RB, WS city..?*
  - *Disguised Political agenda – changes power relationships*
  - *Geographic or scientific vs. human jurisdictional*
- **Water Myopia**

  -Myopia of the water community

  -Water as an end – as a means

  -Change occurs when seen as means most

  -Water reform = political reform

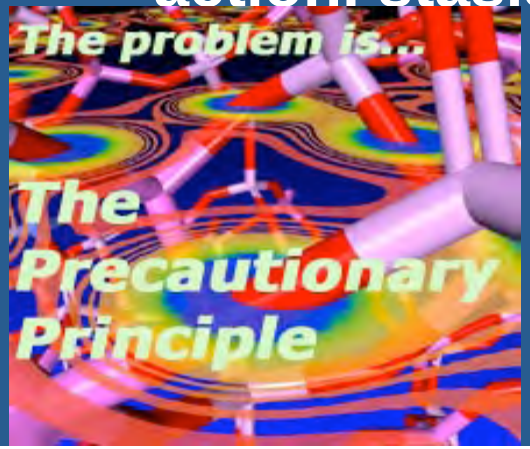
New Rhetoric - Language (+ & -)

- **Sustainable Development**
  - **As Venue of Dialog: increase space for dialog**
  - **As Analytical:**
    - ***Reductio ad absurdum…?***
    - ***Sustainable (de facto) = no change or minimum change***
    - ***Dev. = Change***
    - ***SD = no change – change …!!***
- **Adaptive Management**
  - ***Brings focus to design performance criteria***
  - ***Ecologists challenged to dev indicators***
  - ***Emphasizes feedback into DM***
  - ***Pushes us to conscious choice of ends***

New Rhetoric - Language

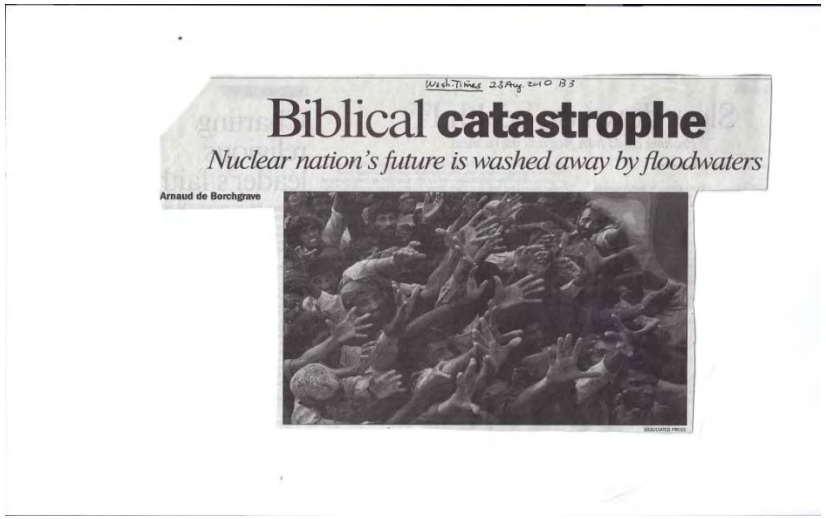
- **Precautionary Principle**
  - Not to decide is a decision with impacts since nature is changing (w/o Case)
  - So - Ethics of no decision in face of needing to decide?
  - How much must we know to decide – 100% , 90%, 80%..... ?
  - If believe we never know all complex interactions can PP be ethical?
  - Or is PP actually a r
    action, stasis, no ris

As young Social Scientist with Corps in 1970s: Asked "Now tell me real story…how many projects have you stopped?"



"Prudence does not mean failing to accept responsibilities and postponing decision. It means being committed to making just decision after pondering responsibly the road to be taken…" (Benedict, World Peace Day , Jan 1 2008)

Pakistan Floods 2010
Social Stability, Relative Deprivation, Political Unity, Security



"Every dimension of our Relationship -politics, economics and Security……..is going to see major Shifts as a result of this historic disaster…"
(U.S. White House coordinator for Afgh.&Pak. Aug 23, 2010)

1/5 of country covered
10 million homeless
>21 million people affected

"..instead of forging unity, the Disaster seems to have deepened age-old fissures…in ways that could incite strife….the four provinces are engaged in cut throat battles for shares of flood aid money….well connected accused of diverting flood waters to save their own property..flood refuges stream to the city Karachi…"
(Wash Post p.A8 Sept 11, 2010)

<u>Not to Decide IS a decision</u>

- **Indus River Storage could have avoided much of the suffering.**
- **Where have Indus storage projects gone?**
- **They remain on WB books where they have been for 15+ yrs. –** ***Impacts too uncertain to justify expenditure***

New Orleans Storm Surge Barrier

The Mid 1970's as a young employee I remember Public Involvement in New Orleans

in planning for hurricane protection

The late 1980's Federal court says "NO" to surge barrier impacts on fish too uncertain…

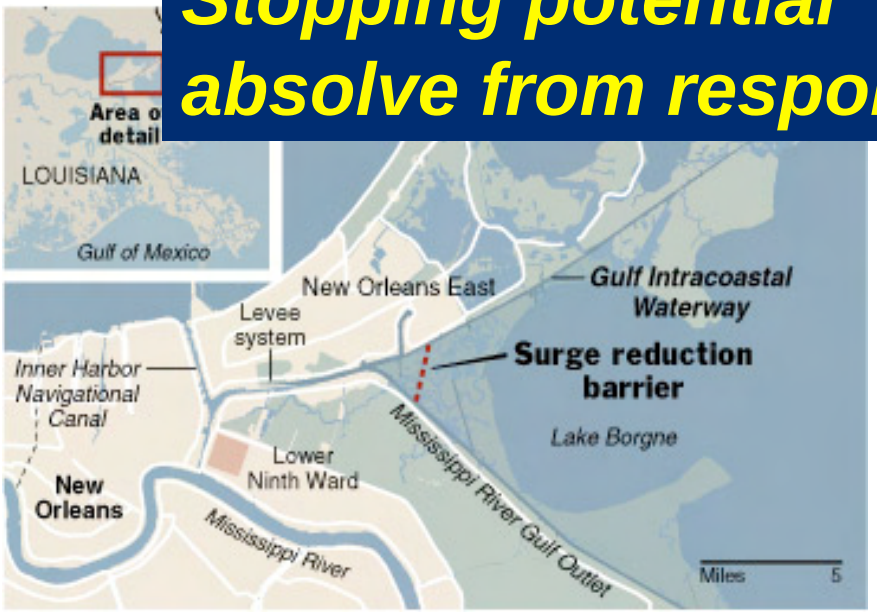
….levees only

Post Katrina: former Chief USACE ponders "..should I have disobeyed…?"

Today: we are building surge barrier

Today: Where have all the 1970s purveyors of uncertainty gone?

Stopping potential "sins" of commission does not absolve from responsibility for "sins" of omission



Central Valley CA

- Do we reduce water and decrease agriculture and increase dependency on foreign important of agriculture – and then reduce our security?
- If security means reduce dependency on external sources, d… alternatives do we …
- The li… ghout the cou… atoes - up to more …s…)
- Security is found in how we balance these- are there alternatives between imports vs.U.S. agriculture

Fish or People?
Reallocation
Reapportionment

3)Concept of nature: Humans, Disasters, Impacts?

Concept of Nature

<u>From Recent IWMI Report</u>

'Natural variability in rainfall and temperature mean that in many places access to freshwater is already unpredictable. How climate change will alter this "natural" variability is the subject of considerable study……..' **(Policy Brief: "Flexible Water Storage Option and adaptations to Climate Change, <u>IWMI</u>, Issue 31, 2009**……*)*

<u>Confusions Abound</u>

Evolution – Change vs. Stasis - Balance
Nature vs. Natural Law Tradition
Variability vs. Stationarity
Uncertainty – Faith – Fatalism
Creation (the Process) vs. Creation (material world)
Material Metaphysics of Past vs. Metaphysics of Future (Tielhard de Chardin)

Models of Possible Christian Approaches to Natural Environment

Table 7.2. Models of Possible Christian Approaches to the Natural Environment

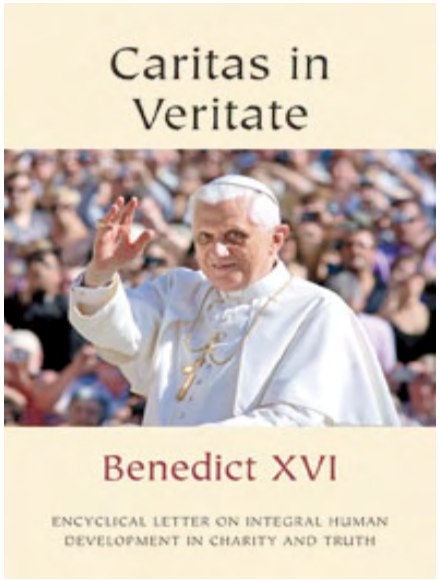
Model	*Characteristic Stance*	*Emphasis*	*Dangers*
Dominion model	Humans rightfully exploit natural environment	Humans are not at all at home in nature; stresses differences between humans and the rest of nature	Arrogant disdain for material world; tendency toward matter-spirit dualism
Stewardship model	Humans care for creation, which is intended to serve our needs	Wide gap between humans and the remainder of creation; anthropocentrism, in which the human person is the center of creation	Overemphasis on mastery, with focus on conquering and controlling nature; speciesism; no sense of solidarity with other species
Creation-centered approach	Humans are not so much caretakers as fully part of creation	Intrinsic value and sacredness of nature, so all species deserve protection; recognizes interdependence within the web of life	The call for sustainability leaves many unresolved issues; unclear how to balance human needs with solidarity with other species
Deep ecology	Radical revisioning of the relationship and boundaries between humans and the rest of creation	Calls for revival of asceticism, human renunciation, and mysticism; ecotheology views nature as a medium for the mystery of the sacred, which humans must not presume to know fully	Overly romanticized view may make creation into an idol; danger of totally neglecting legitimate human needs

Co-Creation

Nature Becoming Conscious of Own Design

Living Justice, T. Massaro, S.J., Rowman & Littlefield,2008

Find New Understanding of Humans and Nature



"Nature expresses a design of love and truth…. it should also be stressed that it is contrary to authentic development to view nature as something more important then the human person. This position Leads to attitudes of neo paganism or a new pantheism – human salvation cannot come from nature alone understood In purely naturalistic sense." (*Pope Benedict, Caritas in Veritate, para. 48,7/8/2009)*

Avoid Temptation to: In the name of the material- placing humans as the problem to eliminate; by building policies and regulations with the optimizing functions of no human trace. Is the optimal no humans?

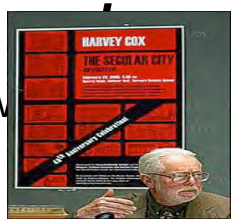
Since Nature IS change:

- **What does preservation and restoration mean?**
- **What does stopping climate change mean?**
- **Are we at the end of evolution?**
- **Are we creating heaven on earth?**

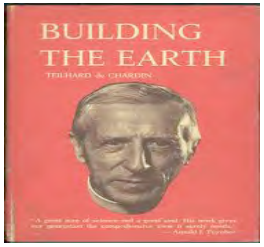
<u>Theologian Harvey Cox reflects:</u>

"…care must be taken when linking the resurrection with ecology; the Christian view of the future, initiated in the resurrections includes both the earth worms and black holes."

"..many students ".. looked to her (mother earth) not just as our mother but also as our savior, a role for which the earth is plainly not suited….exalting the earth into a goddess Gaia…..is.. ill advised … and fails to appreciate that she shares our finitude … our mortality….And will eventually burn to ash..also.." (H. Cox, W… Je…



Avoid Materialist Temptation as Animating Ethic in Water Policy Debates

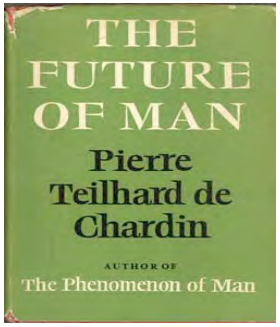


…the earth as the altar on which the mass of life is constantly celebrated..
(Teilhard de Chardin)

▪

Avoid Temptation: In the name of saving creation we do not destroy the co-creative – co design process God set in motion.

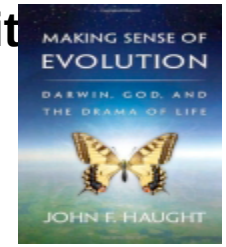
"Only when creation and covenant come together can either creation or covenant be realistically discussed – the one presumes the other.." (Ratzinger,In the beginning.. 1986)



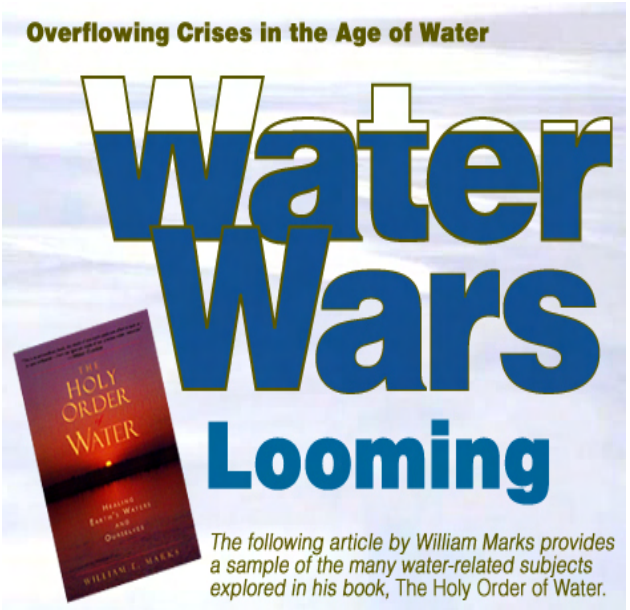
We cannot both separate and combine humans and nature: for convenienc policy advocacy: We are part of nature; So who are we?

"***We are nature becoming conscious of our own design,," (Teilhard de Chardin)***

"The Futurist understanding of creation has been all but lost during the long centuries of Platonically shaped Theology…..which pictures God as vertically and
hierarchically above…and outside the world of world of becoming….after Darwin the created world seems more at home in a biblical setting…attuned to the Abrahamic and early Christian Intuition that ultimate realit into the present as an ever renewing future….."
(Theologian, John F. Haught, Making Sense of Evolution, WJK, 2010,p.142)



4) Water: Conflict - Cooperation



Q) There is growing concern within the strategic community that Climate change and its impacts on water can create war, violence and Conflict. For examples:

"The only matter that could take Egypt to war again is water."
Anwar Saddat, 1979

"The next war in the Middle East will be fought over water, not politics."
Boutros Boutros Ghali, 1985

"The wars of the next century will be about water."
Ismail Serageldin, Vice President, World Bank, 1995

"Fierce competition for fresh water may well become a source of conflict and wars in the future." Kofi Annan, March 2001.

Q) Is this likely and something to base policy on?

- In 1995 ….the Senior Israeli Defense Forces Official, "***Why go to war over water? For the price of one week's fighting, you could build five desalination plants. No loss of life, no international pressure, and a reliable supply you don't have to defend in hostile territory"***.

- ***"But the water problems of our world need not be only a cause of tension; they can also be a catalyst for cooperation...If we work together, a secure and sustainable water future can be ours." Kofi Annan, January 2002.***

DEFINING WATER AND SECURITY

WATER SECURITY: BIG "S"AND SMALL "s"

Interdependence ▸Vulnerability or Flexibility?

The Big "S": Conflict, War, Large Scale Violence

- Water as Independent variable, cause of war – conflict
- Water as Tool of War – social Violence
- Eco – Shocks and Social Unrest

The Small "s": Water: Means to Other Social Ends

Our English Dictionaries define security as:

" freedom from danger, from fear or anxiety, from want or deprivation."

This is the history of humanity's management of water:

- trying to be sure we have good water, in the right quantity at the proper time and place.
- Predicting floods, reserving sources for droughts, using water to help us generate wealth and avoid deprivation.

WATER IS MORE THEN ACCESS

- Many uses: irrigation, floods damage reductions, drought, ecological flows, hydropower, energy coolants, navigation, recreation
- Multiple Purpose uses Allows for Jointly

The critical water issues for security are those at the cusp of social transitions in use patterns of multiple uses, not in absolute scarcity: in situations of relative deprivation – not absolute deprivation

  - Absolute vs. Relative Scarcity; Redistribution vs. Relative Deprivation
  - Interest/Needs Based Negotiations - Approaches
  - Virtual Water Movement
- Water More Humanity's Learning Ground for Building Community then Generator of War

Why Focus on Conflict Management-PI-Consensus Tools?

Getting to Values and Trade-Offs - Key

Meet ethical dimensions of water management

Linking water management to the civic culture

Helping [illegible]cal and te[illegible]

Stories (Meeting of Political-Technical-Ethical)

- Tug Fork WVA - Psychological benefits
- 404 and BCR and Wetland Costs
- Salmon "natural" vs. bred on Columbia

Reconciling discontinuities between geograp[illegible] and jurisdictions

Improving consensus building and conflict management

6) Process and Governance

IWRM vs. IWM

Does water governance then really mean water management by another name?

Does water management determine social/political system?

Do social/political systems determine water management?

Can we have good governance with bad water management?

Can we have bad governance with good water management?

This "right to water, is founded on the dignity of the Human person;…it is necessary ..to…examine attentively the approach …of those who treat water merely as an economic commodity…. Its use must be rational and supportive ….the result of balance…between…public and private….(Pope Benedict Zaragoza, Spain July 15 2008)

Water Consumer

or

Water Citizen?

Water Rights

Climate Change and Water Security Debates

Adaptation: Reducing the Risks of Climate Change

What is the best strategy for dealing with uncertainty of this type? Structures or behavioral change?

Is soft more democratic? (Gleick)

Is small better then large? (McCully)

"water demand management and institutional adaptation are the primary components for increasing system flexibility to meet uncertainties of climate change." (IPCC) ????

"while water management systems are often flexible, water agencies should re-examine water system designs and operating rules under a wider range of climatic conditions than traditionally used."

(AWWA 1997)

In Water Policy dialogs: Do we find legitimacy in process/means *to* or ends *of* Policy?

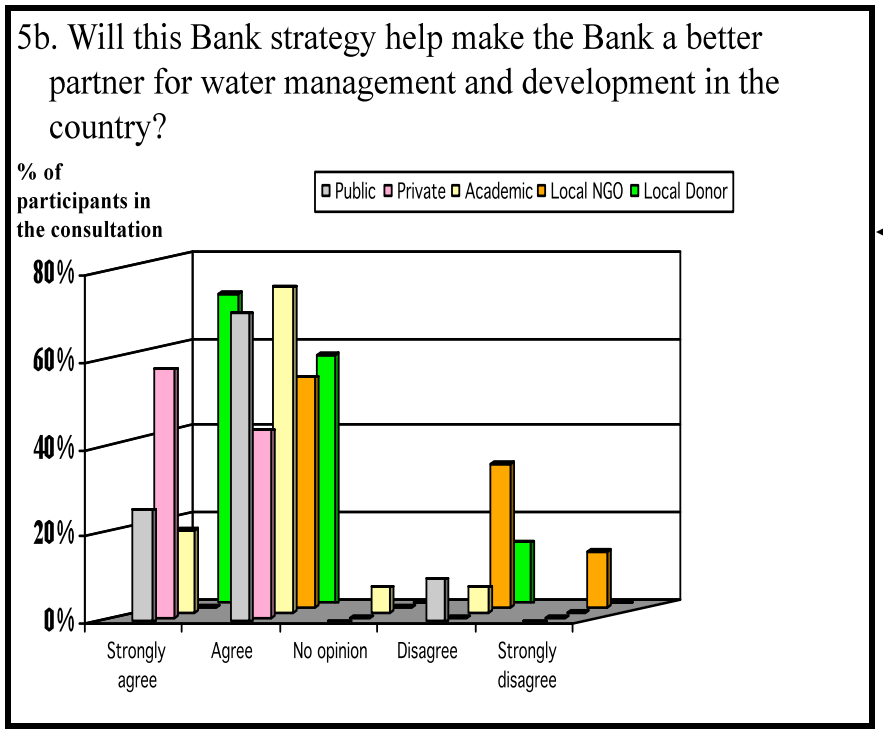
AID; Partnership; Advocacy; Utilitarian…?

In 2007 a major USAID partnership, "The Amazon Cooperation Initiative," had the explicit objective of undermining the policies and projects of the elected government of Brazil (it was cancelled only after strenuous objection from the Government of Brazil). (USAID, 2007. Amazon Basin Conservation Initiative, Washington DC, Dr. J. Briscoe, Quality of Advice, March 31, SAIS-CSIS Speech, 2009)

In 1970's PI Training:

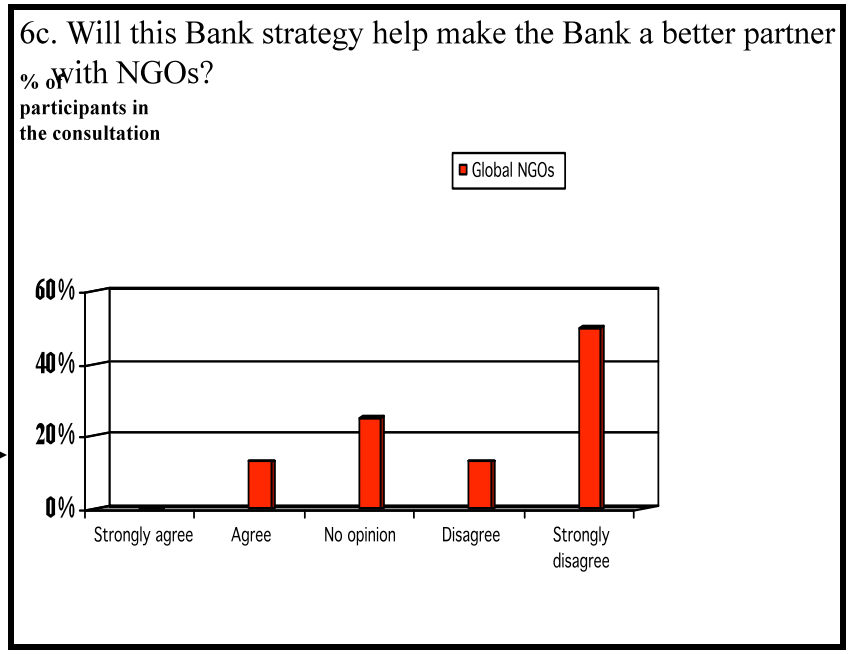
Q: "What if you do good Public Involveme
but get bad environmental decision?
A: It cannot happen……!
(Executive USACE PI Training Courses)

World Bank Sector Strategy -Participatory Review
Bank asks, "Who are our clients?"

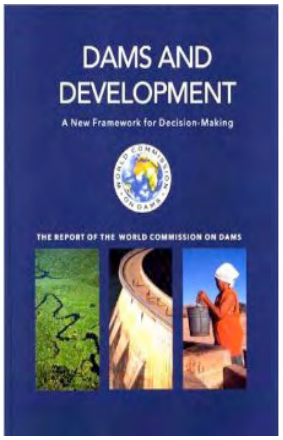


Local NGOs Strongly Agree
With WB water sector strategy

Global NGOs Strongly Disagree
With WB water sector strategy



Confusion: Political Culture and Management Me



World Commission on Dams
Dams = relocation = negative;
The impacted pay costs receive few benef
Dams = ecological change;
Relocation Policies key to stopping dams

Values/Needs Driving Water Use are Central
Are we Negotiating:
•Ends or Means
•Positions or Interests

Long Way from 1937 in U.S:

"As I look upon Bonneville Dam today, I cannot help the thought that instead of spending, as some nations do, half their national income in piling up armaments and more armaments for purposes of war, we in America are wiser in using our wealth on projects like this which will give us more wealth, better living and greater happiness for our children..," (FDR Dedicating Bonneville Dam Set 28, 1937)

Reality:
Most people live in places where the water comes only in a few months year; uncertain in supply increasing:
Do we move people to water or water to people?
Do we use same relocations policy principles for the billions at risk?
(Storage per Capita = indicator of security, wealth and prosperity)

Imagine a Place Where:

- 94% of property owners/98% of tenants have **no electricity**
- 30% of owners/41% of tenants **no toilets or outhouses**
- 65% of owners/ 78% of tenants must go **300 yards for water**
- 8% owners/3% tenants owned radios
- Less the 50% of owners/25% tenants read newspapers
- Less then 26% of owners/16% tenants own cars or trucks
- Over **60% of the horsepower required was from horses**/ 6% from electric stations
- More then 90% have **no lighting**
- More then 90% **no refrigeration** – thus loss of more than 25% of meat
- Most live on **subsistence farming**
- Over used **ruined soil**
- **Flooding** serious and repetitive to soil and cities

THIS IS NOT A PART OF AFRICA TODAY – IT IS THE TENNESSE VALLEY IN 1935

Our Prescriptions for Water Governance today?

- **We are prescribing to the poor based on how we use water today rather than how we used water when we were poor; this has significant implications for effectiveness of AID and meeting security interests.**

- **All wealthy countries have managed to flatten the peaks and lows (floods and droughts) of hydrograph as a necessary preconditions to socio-economic growth through water investments; the trend is to keep damages as percentage of GDP at around 5%; but for much of the poor countries this relationship is a socially and politically untenable trend at 25% -30%**

Are these "sins of the past?" We Must take care when indicting motivations of those in past based on moral understandings of today

Political Culture and Water:

From Passive Acceptance - to - Active Choosing of Level of Risk

- *How we make decision about Risk and Water are Central to Health of Democratic Political Culture and Individual Freedom*
- *Need for the public to define and actively choose vs. passively accept management levels risks of the hydrograph extremes*

Funeral oration Pericles

Active-Self Helping Citizen J.S. Mill

Need to:

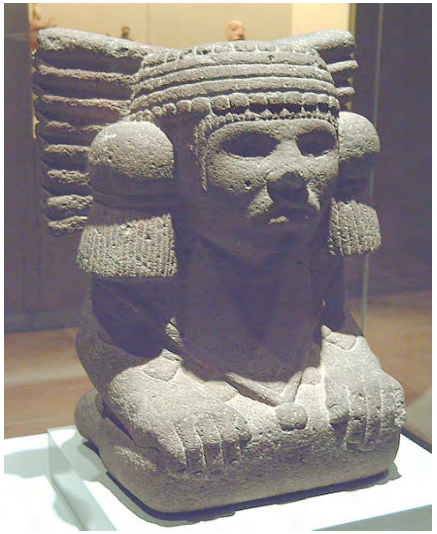
- **Move - Paternalism to Informed Consent basis for professions ethics**
- **Overcome Dueling Experts/Adversarial Science**
- **Clarify Confusion of Science and Normative Ethics**
- **Rediscover epistemological basis of Popper vs. Kuhn (falsification vs. paradigm dominance)**

...engineering is always an experiment involving the public as human subjects. This new view suggest that engineering always oversteps the limits of science. Decisions are always made with insufficient information. In this view, risks taken by people who depend on engineers are not really the risks over some error of scientific principle. More important and inevitable is the risk that the engineer, confronted with a totally novel technological problem, will incorrectly intuit which precedent that worked in the past can be successfully applied this time. ...Interestingly these new moral dimensions are not being created primarily by philosophers. They are the works of engineers themselves.

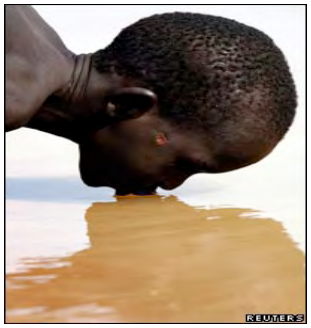
("The Slippery Ethics of Engineering," Taft Broome)

6. Conclusions: Water-Ethics-Faith

- Yes – respect
- Yes – good stewards



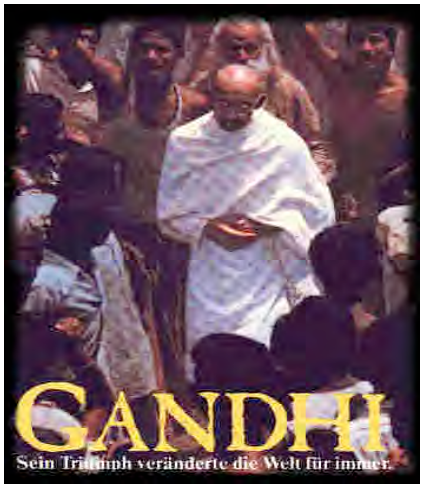
- BUT MORE



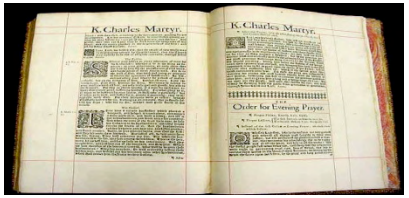
Reflections: What do we use as guide to New Ethics of Water?

1. *Adopt a Preference for Poor; ask what our water policy prescriptions mean to the poor.*

"..if protection of the environment involves costs. they should be justly distributed taking into account of different Levels of development of various countries and the need for solidarity with future generations.." (Benedict 2008)



"Poverty is worst Polluter…" Gandhi



"Give us all a reverence for the earth as your own creation, that we may use its resources rightly in the service of others and to your honor and glory.."
(Book of Common Prayer, Prayers of the people, Form IV)

2. Must Reconnect water as the vital tool for economic-social development

Build a New Ideological and Ethical Consensus on water:

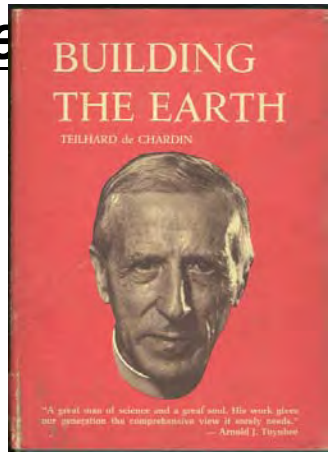
- **Focus on the common ground of engineering means and environmental ends.**
- **Beyond equilibrium, status quo and preservation notions of ecology to:**

Co-Designing and Choosing desired future Ecologie

The ethic we require is not simply preservation; it must be built Teleologically, on purpose and on active co -designing with nature.

3. *The ethic we require even in our advanced technological era, should be based on finding a new balance of the sacred and utilitarian in water.*

4. *Find New Understanding of Humans and Nature*



"For my part, I do not believe in the supreme effectiveness of the instinct of preservation and fear. It is not the fear of perishing, but the ambition to live which has thrown man into the exploration of nature, the conquest of the atmosphere and the heavens." (Teilhard de Chardin, Building the Earth)

5. Water is Everyone's Business: Recycling through us All

Throughout History Thousands of years of History – B.C. to Today - Poets have written allegorically:

……Water as …. Humanities Carrier of its Collective Memory

Today Scientists:

…….speak of the same water recycling through us over Time and space

……and of molecules carrying information…..

C.J. Jung

….water as the symbol of the unconscious

From China 2000 years ago ++ Lao Tze….

The sage's transformation of the World arises from solving the problem of water. If water is united, the human heart will be corrected. If water is pure and clean, the heart of the people will readily be unified and desirous of cleanliness. Even when the citizenry's heart is changed, their conduct will not be depraved. So the sage's government…. consists of talking to people and persuading them, family by family. The pivot (of work) is water.