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Lecture Notes

Part 2

Compiled and Edited by

E. Vivekanandan and J. Jayasankar

Central Marine Fisheries Research Institute (CMFRI),
(*Indian Council of Agricultural Research*)
P.B. No. 1603, Cochin - 682 018, Kerala

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CLIMATE CHANGE AS A COMMUNICATION CHALLENGE (CCCC)

C. Ramachandran
Central Marine Fisheries Research Institute, Kochi 682 018

> *"Prediction is difficult, especially abut the future"*
> *- Niels Bohr*

Introduction

Climate change (CC) science has come a long way in understanding the fundamentals of global warming. There is no doubt anymore in the mainstream scientific community that the Earth is warming, and increasing evidence shows that humans have a significant part in it. (IPCC 2007; Hansen *et al*, 2007; Dutt and Gaioli, 2007). We do knowthat certain gases, such as carbon dioxide and methane, play a crucial role in determining the Earth's climate by preventing heat from escaping the atmosphere. Researchers have also been able to document that the increased concentration of such gases in the atmosphere results from human activities such as the burning of fossil fuels, deforestation and land degradation, cattle ranching, and rice farming. The fingerprint of humans causing, at least in part, the global warming we now experience, has been documented in a growing number of studies.

The solutions to climate change are available, and it is time we put them to use. If we get started today we can tackle this problem and decrease the unpleasant outcomes that await us if we do nothing. The steps we need to take are common sense. And, more often than not, they will save consumers money. The cost of inaction, however, is unacceptably high (Stern, 2007).

Why communication?

The scientific consensus is in. Our planet is warming, and we are helping make it happen by adding more heat-trapping gases, primarily carbon dioxide (CO_2), to the atmosphere. The burning of fossil fuel (oil, coal, and natural gas) alone accounts for about 75 percent of annual CO_2 emissions from human activities. Deforestation—the cutting and burning of forests that trap and store carbon—accounts for about another 20 percent. Procrastination is not an option. Scientists agree that if we wait 10, 20, or 50 years, the problem will be much more difficult to address and the consequences for us will be that much serious. Our atmosphere has limits too. CO_2 remains in the atmosphere for about 100 years. The longer we keep polluting, the longer it will take to recover and the more irreversible damage will be done. It is quite evident that we must act now. But the sad fact is that

"Many people know about the dangers of climate change, but only few act".

There are 6641 114 623 people in this world now. How many of them can be put under the category of people who are absolutely convinced about the impending dangers of CC? At least the 3000 odd IPCC scientists would qualify for the description. Let's be optimistic and peg the figure at say 1% of the total. Even then the gap between those who are convinced or aware and those who do not is enormous. There is a huge communication gap, which needs to be filled if we want to engender any sensible remedial action geared towards either adaptation or mitigation.

The climate change issue is a "wicked" problem not a " tame" problem.

Tame problems are complicated but with defined and achievable end states. Whereas climate change is wicked- comprising open, complex and imperfectly understood systems. What makes a problem wicked is the impossibility of giving it a definitive formulation. The information needed to understand the problem

is dependent upon one's idea for solving it. Furthermore there is no stopping rule. We cannot know whether we have a sufficient understanding to stop searching for more understanding. There is no end to causal chains in interacting open systems of which the climate is the world's prime example. So every wicked problem can be considered as a symptom of another problem. The relationships are therefore complex (multifaceted) in contrast to complicated (multiple, but mono faceted). If there is a premature foreclosure we may become prisoners of our own assumptions. Wicked problems demand profound understanding of their integration in social systems, and their ongoing development.

In short the CC problem is a process of social learning, which constantly reminds us that we are part of the problem and hence we are part of the solution too. We have to maintain our trajectory towards the goal by constant course corrections and improvements, which by definition cannot be prescribed precisely beforehand. But the only way out is to bring desirable changes in people's minds. Of course CC is a multilevel governance problem. But getting people aware about the problem is the first step towards bringing out climate literacy, which is the need of the hour.

What is communication?

Communication is so ubiquitous that it is synonymous with life. "One cannot not communicate". In the simplest terms communication is symbolic interaction. There are many ways to conceptualize communication. The dominant paradigm views "Communication as a process in which participants create and share information with one another in order to reach a mutual understanding". It s a two-way process of convergence rather than a one way linear act in which one individual seeks to transfer a message to another in order to achieve certain effect. The typical SMCR (Source -Message-Channel-Receiver and feedback) model of communication first proposed by Berlo exemplifies this notion. According to Rogers (2003), information is a means of reducing uncertainty. Or in other words it is the difference in matter-energy that affects uncertainty in a situation where a choice exists among a set of alternatives. A technological innovation embodies information and thus reduces uncertainty about cause -effect relationships in problem solving. It aims to bring social change (process by which alteration occurs in the structure and function of a social system). Such conscious use of communication interventions to effect desirable changes in the behavioral domain of human beings are also called extension interventions. However the systems theorists view communication not merely as a transmission of information but as a coordination of behaviour between living organisms through mutual structural coupling. To be human is to exist in language. It is through language that we bring forth our world because we are endowed with a reflective consciousness.

Why CC communication is challenging?

When viewed in this paradigm, CC becomes a communication challenge mainly because

1. CC is a very complex, pervasive and uncertain phenomenon, generally difficult for people to conceptualize and to relate to their daily activities (One reason may be that it cannot be easily translated into the language of popular culture).

2. As with any other environmental issues, the changing social context at any particular point of time (for example, activities of the interest groups or media reporting) can serve to amplify or attenuate perceptions of risk.

Decades of social science research indicate that what drives behaviours and attitudes are motivational needs. Communication is intended to bring about behavioral change. Otherwise there will be no action/ result. So we need to find out the psychological needs that determine behaviors. If communication can be arranged to meet these needs then it stands the best chance of being effective. In this context it is interesting if we try to examine the various behavioural science issues associated with CC communication.

Why humans fail to act on CC?

Here is a compilation of opinions of various behavioural experts on this issue.

1. Human beings get stubbornly comfortable in their habits (The word HABIT-itself betrays its pervasiveness. Remove H " a bit " will be there, remove HA " bit " will be there and remove HAB "it " will be there!). On the other hand human species is biologically programmed to act in its own best interests, and its members are not very different from common rats on that point.

2. The overwhelming size and abstract nature of the concept dwarf any idea that an individual could have an impact through his or her actions.

3. Despite the warnings by scientists the widespread attitude is "My individual contribution on the climate change issue is so small and irrelevant on global scale -it doesn't matter I do something or don't". This is true with any affirmative action we propose to avoid the tragedy of the commons, which we are more familiar in the marine fisheries context (see Ramchandran, 2004). It is true that reducing carbon emissions blamed for global warming depends on changing behaviour across society, but even that conviction seems to be missing. The issue gets complicated if we bring in the context of development (under /developed) or the question of "common but differentiated responsibility" or the issue of "elite-resource capture"(The Indian middle class is equivalent to Australian population in terms of emission).

4. Many people are burdened in their day-to-day lives by existential questions such as unemployment, problems at work or health. (As the famous columnist George Monbiot notes "When you warn people about the dangers of CC they call you a saint. When you explain what needs to be done to stop it they call you a communist").

5. What is missing is the cause-and-effect experience. Direct experience (like the child who defies the warning and touches the stove) contributes more to our learning than reports or projections. But this is unlikely to work with earth's climate and its many billions of people. That is why it is urgent to make clear that CC is irreversible. For those who are convinced of the value of the environment it is easier to grasp CC and to acknowledge individual responsibility. They are more likely to adopt so called common sense solutions for a less-carbon lifestyle (see the note).

6. In addition the crucial key to changing behaviour across society is committed political engagement.

So the real issue is not technical or economic. The crisis we face demands a profound philosophical discussion, a reappraisal of who we are and what progress means. All these issues make CC communication a daunting task. But a perusal of the following principles may provide us guiding light:

Principles of CC Communication

The CC as a communication challenge has received serious academic attention in countries like UK and USA. One such initiative is the principles proposed by the Futerra Sustainability Communications Limited, UK in 2005 for the Climate Change Communications Working Group of the Department for Environment, Food and Rural Affairs, UK. We will discuss these principles as a model.

These principles are broadly placed under six categories.

Category 1. Blowing away myths

1. Challenging habits of climate change communication (do not rely on concern about children's future or human survival instincts; do not create fear without agency; do not attack or criticize home or family).

2. Forget the climate change detractors (the argument is not about if we should deal with CC, but how we should deal with it).

3. There is no rational man (we rarely weigh objectively the value of different decisions and then take the clear self-interested choice).

4. Information can't work alone (providing information is not wrong; relying on information alone to change attitudes is wrong).

Category 2. A new way of thinking

1. CC must be "front of mind" before persuasion works (People do not realize that CC relates to them -like selling sanitary napkins to men).

2. Use the peripheral and central processing (central processing works when a person pays attention to a message (for example, a one-to-one discussion). Peripheral processing happens when the issue is not in front of mind (for example, seeing a photo of an attractive celebrity using a public transport)

3. Link CC mitigation to positive desires/aspirations (like home improvement, self-improvement, national pride etc.)

4. Use transmitters (trendsetters) and social learning (target them as ambassadors)

5. Beware of the impact of cognitive dissonance (Festinger's theory of cognitive dissonance is one of the most influential theories in social psychology. In a situation of cognitive dissonance, people will change their attitudes and not their actions. "If you confront me with the difference between my attitude of caring about CC and my unsustainable actions, I will be more likely to change my attitude").

Category 3. Linking policy and communications

1. Every one must use a clear and consistent explanation of CC.

2. Government policy and communications on CC must be consistent.

Category 4. Audience principles

1. Create agency for combating CC (We have agency when we know what to do, think our contribution is important, decide for ourselves and have access to the infrastructure to act.)

2. Make CC a "home" not "away" issue (This is a global issue, but we will feel it at home and we can act on it at home".

3. Raise the social status of CC mitigation/adaptation behaviours.

4. Target specific groups; one way to do this is identify motivational groups (complex set of values, beliefs and attitudes using the Maslowian needs hierarchy and "framing") (Rose 2005).

Category 5. Style principles

1. Create a trusted, credible recognized voice on CC. Call upon credible spokespersons or authorities perceived by people as legitimate to explain the implications of CC (Remember we as scientists have an important role here).

2. Use emotions and visuals. If information does not always work, emotions and visuals work. Connect with people through heart and senses rather than mind and logic (see note 2 for an example).

Category 6. Effective management

1. The context affects everything. The prioritization of these principles depends on the social context (for example, a highly literate society and an illiterate society).

2. The communications must be sustained over time (all the most successful public awareness campaigns have been sustained consistently over many years).

Public behavior is a complex system

As change agents, our duty is to influence public behaviour. The usual government approach is a typical centralised expert-led (almost like a propaganda) approach (for example, public awareness campaigns). But this is not sufficient. We need to adopt a system-thinking approach too because we now live in a complex, diverse and individualized society. Just as consumer preferences do not follow a linear AIDA

pattern (attention, interest, desire, action) neither does public opinion and behavior. Providing information does not necessarily change attitudes and changing attitudes does not necessarily cause a change in behaviour. Attempts to influence people have often failed because of inadequate theoretical conceptions of behaviour.

Social Learning theory is of some help here. This model concerns itself not so much with why we consume, but more how behaviour spreads through populations. SL theory holds that people change by aligning their behaviour to that of their role models rather than by considering their conduct philosophically or by reading public education leaflets.

The main elements of a model approach based on SLT is given below:

Planning parameters	"Nuts and bolts"	Multifaceted approaches
Setting objectives	Building motivation over time	Home visits
Developing partners	Providing feedback	Mass media
Getting informed	Financial incentives and disincentives	Neighborhood/SHGs and opinion leaders
Targeting the audience	Norm appeals	Peer support groups
Choosing tools	Obtaining a commitment	School programmes that involve family
Financing the programmes	Overcoming specific barriers	Word of mouth
Measuring achievements	Vivid, personalized communications	Work programmes that influence the home

Using networks to spread the idea virus and influence behaviour

The network theory also provides insights. The term "tipping point" is used to refer the viral nature of behaviour. At this point an idea or practice gets transmitted to more than one person at each transaction. Key to this process is to identify the intermediaries or network hubs who are able to influence others to change behaviour. There are people (for example, "sneezers" are the ones who when they tell ten to 20 people, people believe them) who are critical to keeping the flow of information going round a network.

Concluding remarks

The impact of climate change presents a challenge to the developing world due to its dependence on climate–sensitive economic activities including fisheries. Developing countries already face social, economic and environmental stresses and resource constraints that limit their ability to adapt to climate change, and stresses are likely to be exacerbated by CC. Two broad coping strategies exist: mitigation and adaptation. Adaptation seeks to promote both planned and spontaneous actions to resist, cope and benefit from unavoidable changes. The need of the hour is to work out concerted efforts to make people sensitive on the various aspects related to climate change. One of the vital questions we must begin with is the subject of the perception of the problem by the public (Lorenzoni and Pidgeon, 2006; Shisanya and Khayesi, 2007). Do communities especially the fisherfok in our country perceive climate change as being a significant threat when compared to other developmental and environmental problems? It is but common knowledge that people must clearly perceive risks in order to take actions to manage them (The crew of the Titanic was unable to avoid an iceberg because they were speeding across the Atlantic in hopes of breaking a record!). There will be significant variations in perception of CC between the professional community and the general public. It is here the attempts to create climate literacy among the coastal community become relevant. Managing CC will involve making decisions under conditions of uncertainty. The future of CC rests upon moral, ethical and value judgments in which citizens will be called upon to decide and take action. So any communication perspective in this connection should recognize that different degrees of

knowledge, cultural preferences, responsibility and trust would all shape an individual's position on this issue. The antidote to break the business-as-usual (BAU) apathy is to keep on sensitizing the different stakeholders. We the concerned scientists must come together in formulating suitable communication strategies in a precautionary and integrated way. It is worth to remember

"*So far we have changed the nature,*

Now on we must change human nature".

Note 1. Common Sense Solutions

Individual choices can have an impact on global climate change. Reducing your family's heat-trapping emissions does not mean forgoing modern conveniences; it means making smart choices and using energy-efficient products, which may require an additional investment up front, but often pay you back in energy savings within a couple of years.

India needs to sustain 8 to 10 percent economic growth. Almost two third of our electricity generation comes from fossil fuels. The per capita consumption of energy In India is one of the lowest (530 kgoe per person of primary energy whereas it is 1240 for China and 1770 is the world average). To grow, it is inevitable that we consume more energy. But a switch to energy saving or energy efficiency across all sectors of economy is essential. The BEE label is a welcome initiative, which is a star rating system on the basis of energy efficiency brought out by the Bureau of Energy Efficiency, which was established in 2002. This enables us to make informed purchasing decisions that not only saves energy but also helps to minimize CO_2 emissions.

Take advantage of the free home energy audits offered by many utilities. Simple measures, such as installing a programmable thermostat to replace your old dial unit or sealing and insulating heating and cooling ducts, can each reduce a typical family's carbon dioxide emissions by about 5 percent. Using a CFL (compact fluorescent lamp) instead of incandescent lamp reduces the power consumption and hence increases savings and the return on investment is around 191% in the first year itself. (According to one estimate if every household in the United States replaced one regular light bulb with an energy-saving model, we could reduce global warming pollution by more than 90 billion pounds over the life of the bulbs; the same as taking 6.3 million cars off the road) (see, www.bee-india.nic.in for more tips and information).

Note 2. Evolution of life

Two ways of presentation are given below. Which one do you think is more appealing to a layman?

Presentation 1.

Billion years ago	Ages of Life	Stages of Evolution	Billion years ago
4.5	PREBIOTIC AGE Formation of the conditions of life	Formation of earth Fireball of molten lava cooling Oldest rocks condensation of steam shallow oceans Carbon based compounds catalytic loops, membranes	4.5 4.0 4.0 3.8
3.5	MICROCOSM	First Bacterial Cells Fermentation Photosynthesis Sensing devices, motion DNA repair Trading of genes	3.5
		Tectonic plates, continents	2.8
		Oxygen photosynthesis Bacteria fully extended	2.5
	Evolution of micro organisms	First nucleated cells Oxygen build up in atmosphere Oxygen breathing Earth surface and atmosphere established	2.2 2.0 1.8 1.5
1.5	MACROCOSM Evolution of visible life forms	Locomotion Sexual reproduction Mitochondria, chloroplast Early animals Shells and skeletons Early plants Land animals Dinosaurs Mammals Flowering plants First primates	1.2 1.0 0.8 0.7 0.6 0.5 0.4 0.3 0.2 0.1

Presentation 2

David Brower 1995 (quoted in Capra 1997) has devised a very ingenious narrative of the above by compressing the age of Earth into six days of Biblical creation story.

Creation of Earth	Sunday	midnight
First bacterial cell	Tuesday	8.00 am
Evolution of microcosm and its establishment	Thursday	midnight
Sexual reproduction of micro organisms	Friday	4.00 am
First marine animals	Saturday	1.30 am
First plants	Saturday	9.30 am
Amphibians , insects	Saturday	11.30 am
Great reptiles	Saturday	04.50 pm
Mammals	Saturday	05.30 pm
Birds	Saturday	07.15 pm
Extinction of great reptiles	Saturday	09.45 pm
First primates	Saturday	09.55 pm
Monkeys and apes	Saturday	11.40 pm
Southern apes, walk on two legs	Saturday	11.52 pm
Homo habilis	Saturday	4 minutes before midnight (mbm)
Southern apes disappear	Saturday	3 mbm
Homo erectus	Saturday	3.5 mbm
H sapiens	Saturday	30 seconds bm
Neanderthal s command Europe an Asia	Saturday	15- 4 sbm
Modern humans in Africa and Asia	Saturday	11 sbm
Modern humans in Europe	Saturday	5 sbm

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