

# Human Climate Interface through Coping, Mindfulness & Adaptation: An Interdisciplinary Perspective

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# INTRODUCTION

- ▶ Our environment is dynamic, constantly changing and evolving in response to stimuli.
- ▶ Humankind is having an increasing effect on the planet's ecosystems and biogeochemical cycles
- ▶ Human activities are now causing environmental change which is overriding the natural dynamism of the earth.



# Eco-centric World view

## Questions

- Humanity's **right to rule** over the rest of nature.

## Establishes

- The existence of **limits to growth** for human societies

## Emphasizes

- Humanity's need to establish a **balance with nature**

# Human-Environment Interactions

Not only the Question of Resource Use Per Person

**BUT**

**Our Ability to UNDERSTAND the Science of Environment**

**Our Ability to REGULATE our Impact on the Environment**

**Our Beliefs in the VALUE of Environment,**

**Our Attitudes towards the Future RISK**

**Our Ability to NEGOTIATE SOLUTIONS at Both Local and Global Level.**

# Possible Impacts of Climate Change

Climate change is likely to impact all the **natural ecosystems** as well as **socio-economic systems** as shown by the National Communications Report of India to the UNFCCC.

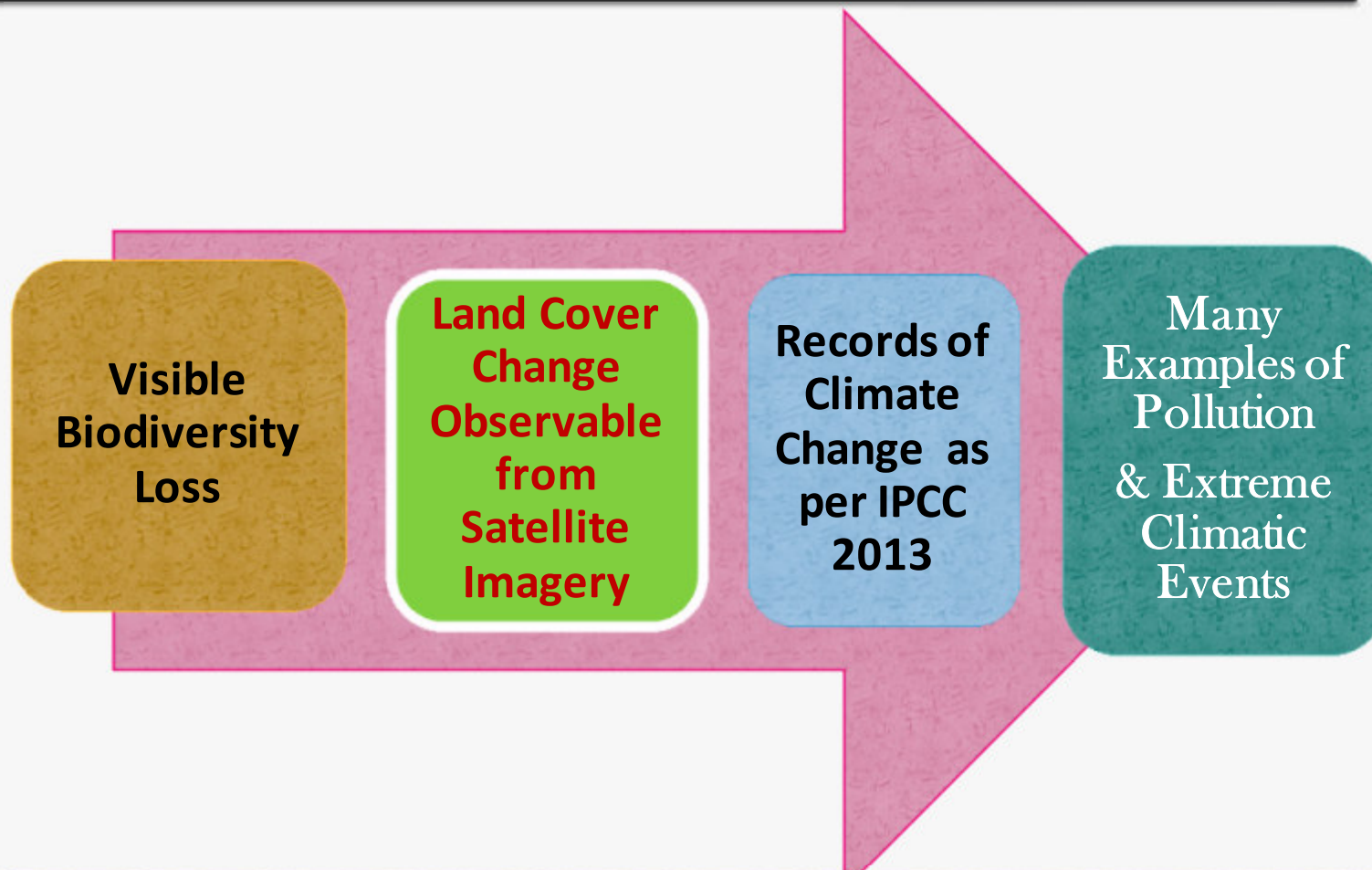
# IPCC Fifth Assessment Report, 2013

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**It is extremely likely that human influence has been the dominant cause of the observed warming since the mid-20th century.**



# Evidences of Impacts of Climate Change



“The Science of environment is socially and politically situated besides the subjective location of human perception” (Stott and Sullivan, 2000).

# Possible Impacts of Climate Change (contd.)

- ▶ Inadequate water availability due to decrease in rainfall in certain pockets of the country and recession of glaciers;
- ▶ Threats to agriculture and hence to food security, agriculture being a critical component of the national economy which is mainly dependent on the monsoon rainfall;
- ▶ Die-back of natural ecosystems such as forests, on which the energy consumption of the rural households depends;





# Possible Impacts of Climate Change (contd.)

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- ▶ Adverse impacts on coastal system due to sea-level rise;
- ▶ Increased energy requirements and impacts on climate sensitive industry and infrastructure;
- ▶ Impacts on human health due to increase in vector-and water-borne diseases and thermal stress.

# Summary of global warming impacts

Increase in global mean temperature relative to the late 20th century

0 1 2 3 4 5 6 7 8 9 °F

## Physical

The risks associated with some extreme weather events increase with temperature

- Other effects include sea level rise and ocean acidification. Warming could be irreversible for several millennia.

## Ecological

The larger the increase in temperature, the more species will be at risk of extinction

20-30% of species at risk of extinction

further extinctions

## Social

- Mix of positive and negative impacts. Low-latitude and less-developed areas are especially vulnerable.

The negative impacts of climate change tend to increase with temperature. Larger temperature increases will be more difficult to adapt to.

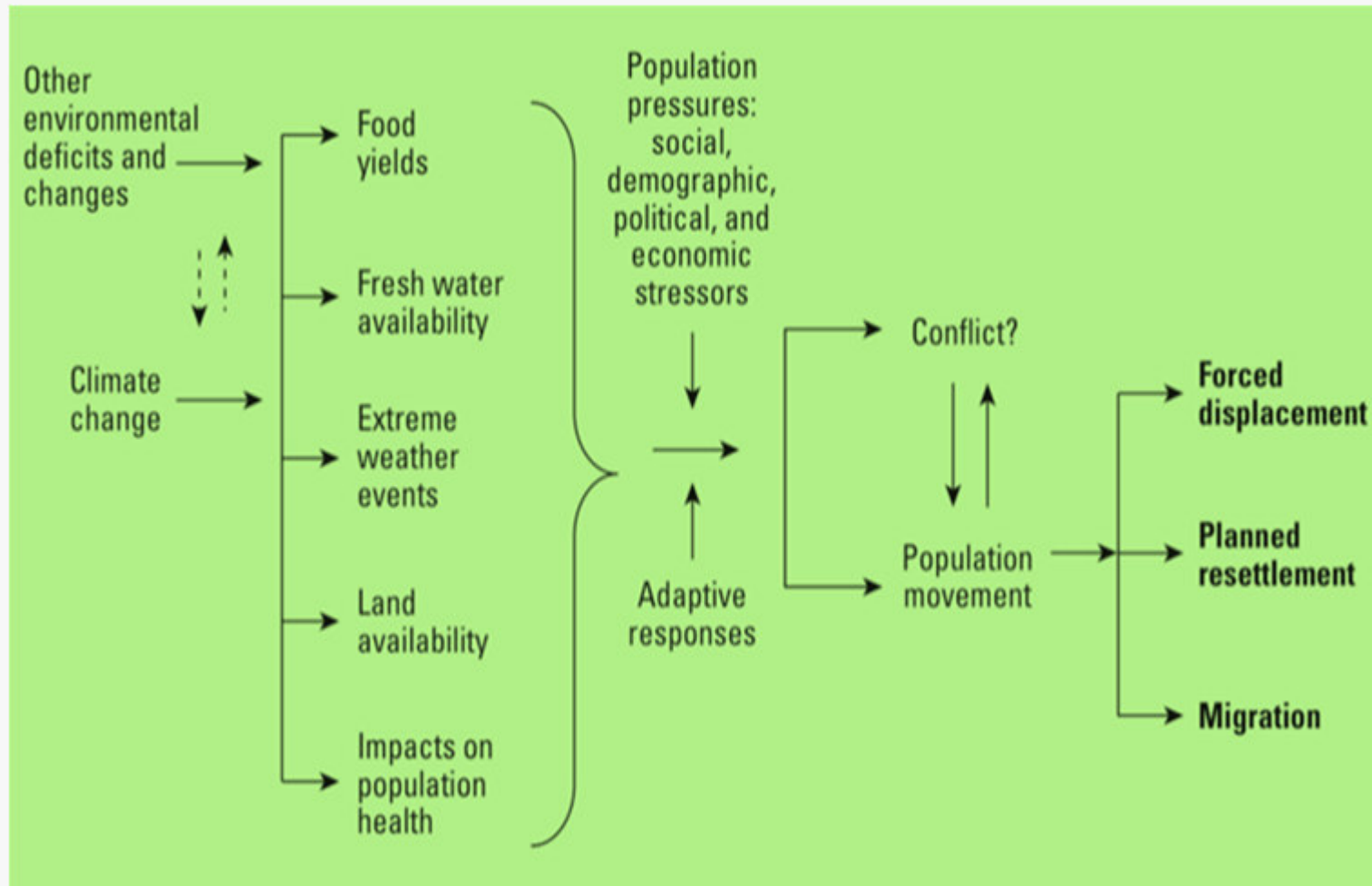
## Large-scale impacts

The risk of large-scale and/or abrupt impacts increases with temperature

Partial deglaciation of Greenland and West Antarctic ice sheets adds 4-6 m (13-20 ft) or more to sea level rise

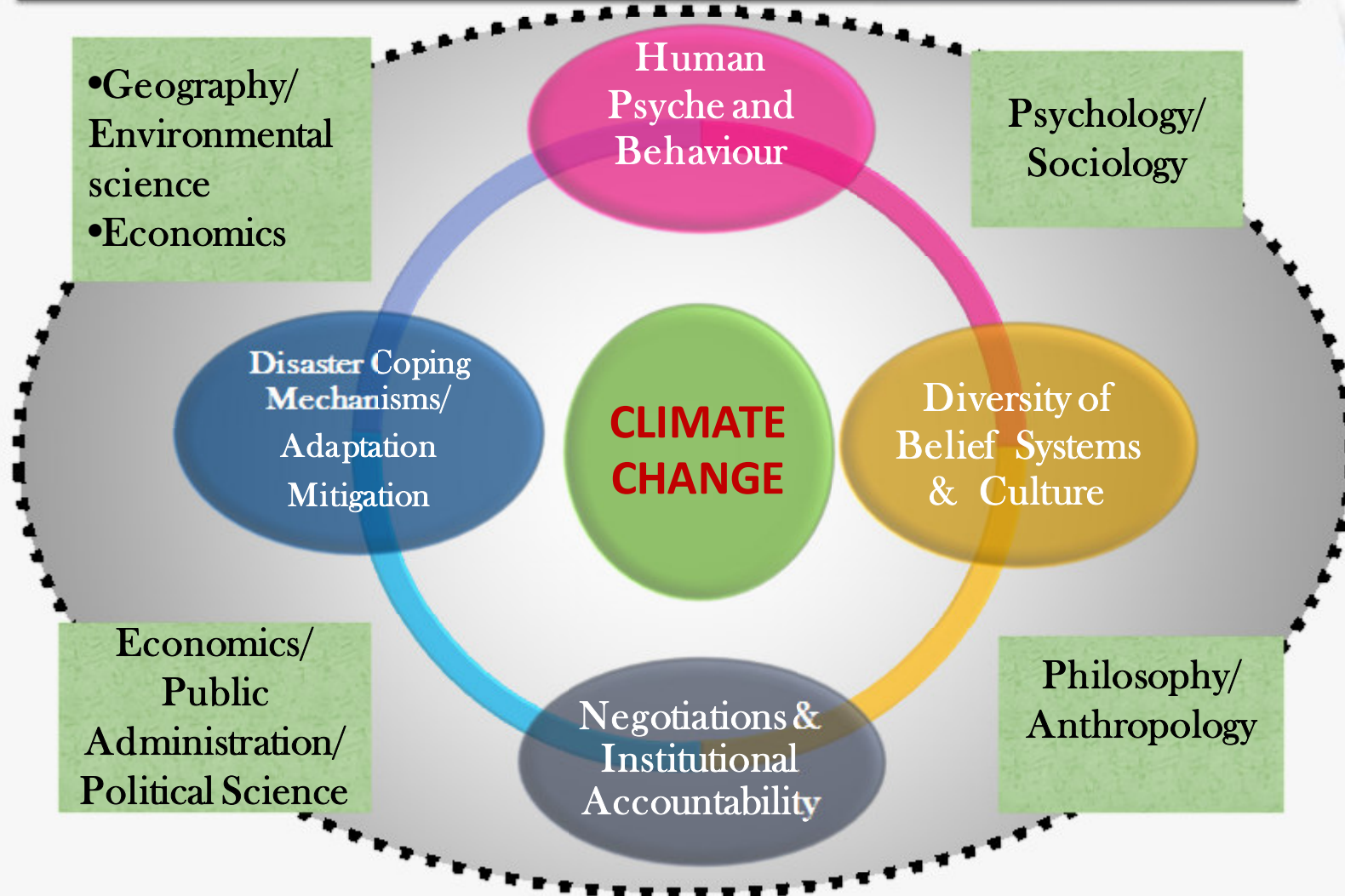
0 1 2 3 4 5 °C

# Cross Cutting Disciplines in Climate Change Research





# Interdisciplinary Perspective of Climate Change



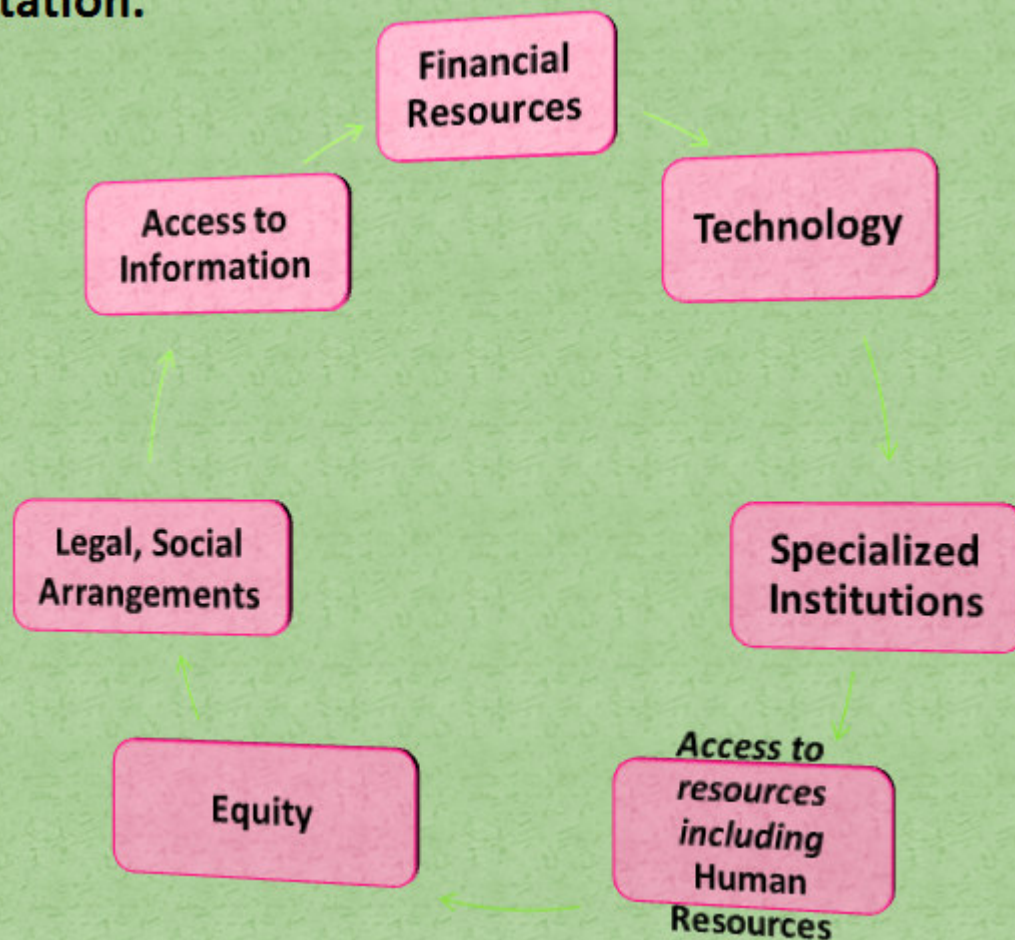
## **ADAPTATION- An interdisciplinary concept**

- ▶ It refers to adjustments in ecological, social, or economic systems in response to actual or expected climatic stimuli and their effects or impacts.
- ▶ It implies changes in processes, practices and structures to moderate potential changes or to benefit from opportunities associated with climate change
- ▶ Adaptive capacity is the potential or ability of a system, region, or community to adapt to the effects or impacts of climate change.
- ▶ Adaptation in psychological terms is referred as behavioural adaptation.



# Determinants of Adaptive Capacity

- ▶ IPCC identifies a list of socioeconomic features of communities or regions that seem to determine their adaptive capacity and adaptation:

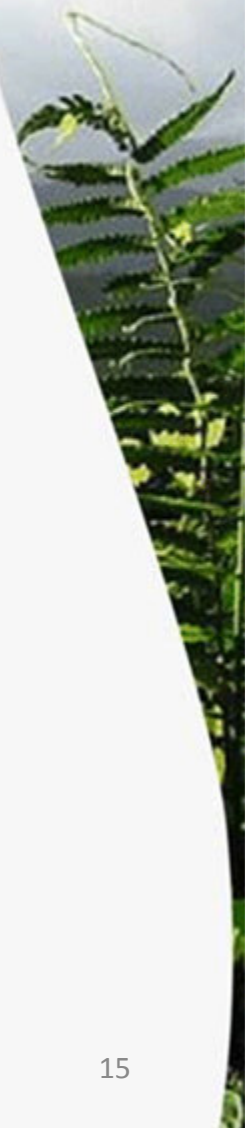




## Contd...

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- ▶ **Countries with limited economic resources, low levels of technology, poor information and skills, poor infrastructure, unstable or weak institutions, and inequitable empowerment and access to resources have little capacity to adapt and are highly vulnerable.**



# Objectives of an Interdisciplinary Study on Climate Change in India

- ▶ To map the changing climate and its impact on the physical urban resources;
- ▶ - To study the perceptions/attitudes of urban human settlements towards climate change;
- ▶ - To study the coping strategies of urban settlements towards changing climate;
- ▶ - To identify the existing leadership and to evolve an institutional mechanism for urban settlements to negotiate and cope with changing climate.

Another study at IIFM from core psychological perspective  
being replicated in France

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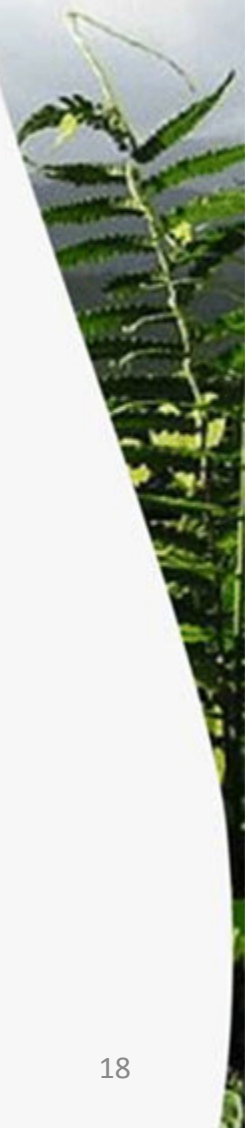
▶ **Climate Stress, Behavioural  
Adaptation and institutional  
accountability in coastal cities of  
India: Role of SWB**



¶ Proposed Research Study at IIFM in collaboration with a Geologist/climate scientist, Anthropologist/Sociologist and Psychologist

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## **Climate Variability, Livelihood security and Socio-psychological distress in Semi Arid and Arid Zones of India: A study of Community Based Adaptive Management Systems .**



# Summary of Proposal

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- ▶ Climate variation or shift in the weather conditions is a critical element in local adaptation processes and human system has been constantly dealing with it.
- ▶ In recent period the impact of climate change has become more conspicuous. This make important to study the human adaptive strategies in different agro-climatic systems.
- ▶ For this project it is aimed to study the communities' vulnerability to climate change effects and their adaptive capacities in coping with the change.
- ▶ It will also focus on assessing the role of psychological variables on behavioural resilience, perceived psychological distress and behavioural adaptation of communities.
- ▶ The select districts in semi-arid and arid zones of India which have remained vulnerable to climate induced disasters, gives us opportunities to study number of human livelihood system and attitudinal aspects in correlation with agro-climatic systems.
- ▶ The outcome of this study will help in development of behavioural coping strategies in the framework of community based development.

# OBJECTIVES

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- ▶ To study the resource management designs and livelihood security of rural communities.
- ▶ To Study the vulnerability of rural community due to natural hazard.
- ▶ To assess the role of Climate change Risk Perception, perceived psychological distress, behavioural adaptation and subjective well being of rural community management systems.
- ▶ To find out the indigenous adaptive management systems in Semi Arid and Arid Zones of India.
- ▶ To enlist the role of Social and psychological implications in formulation of policy guidelines for coping with climate change.



# Disaster Coping

**Disaster/  
Natural  
Calamity**



**Human  
Behaviour  
and Capacity  
to Cope**

# Linking Natural Science Perspectives

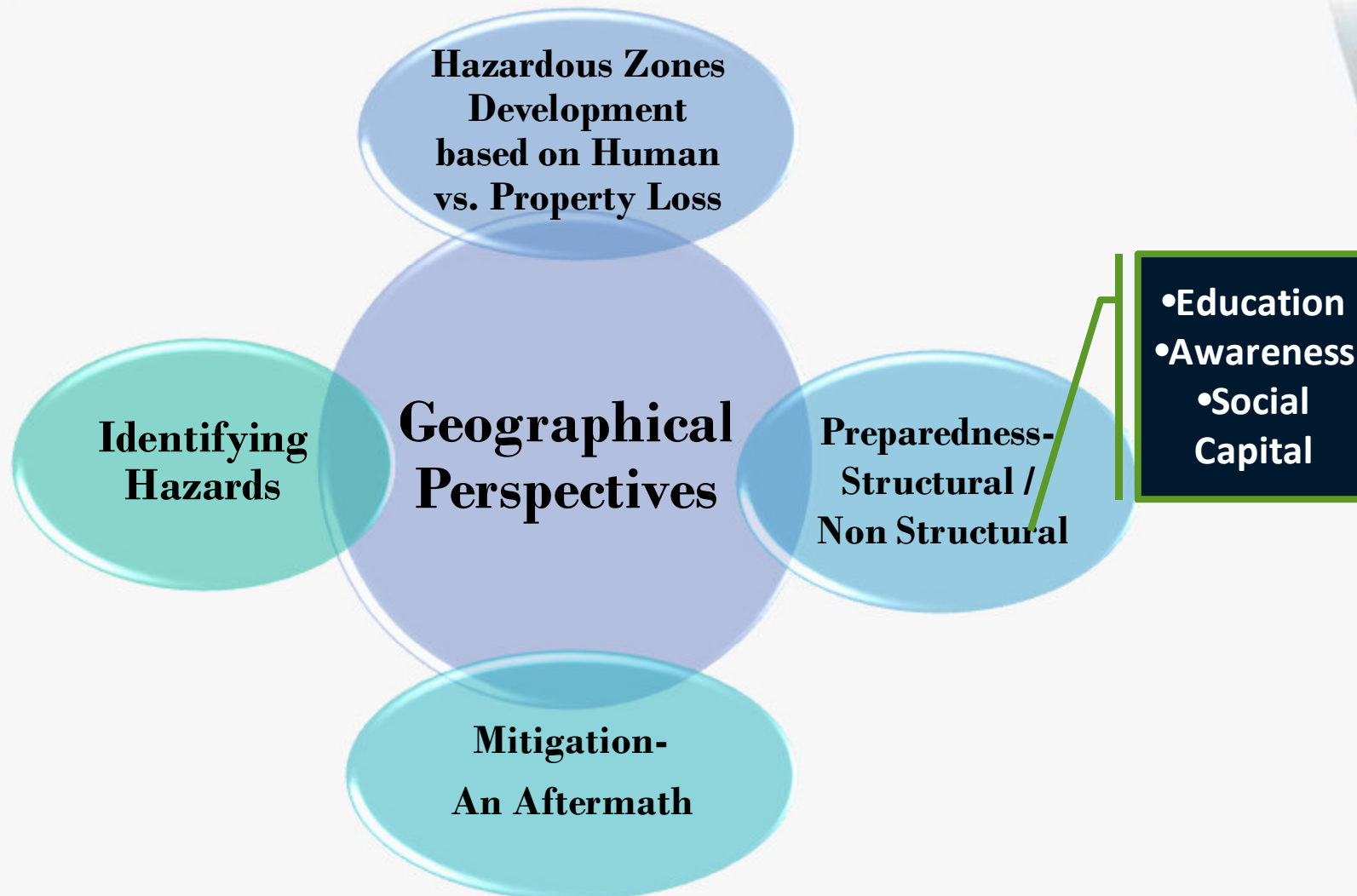
## NATURAL SCIENCES

- Developing Dos and Don'ts of Disaster Coping
- Creating structural options for preparedness and Mitigation

## Human Sciences

- Personal, Social, Spiritual Belief systems
- Perceiving Risks to life and property
- Motivation to practice dos and don'ts

# Developing Capacity to Cope- Risk Assessment Tools





# Mitigation vs. Adaptation

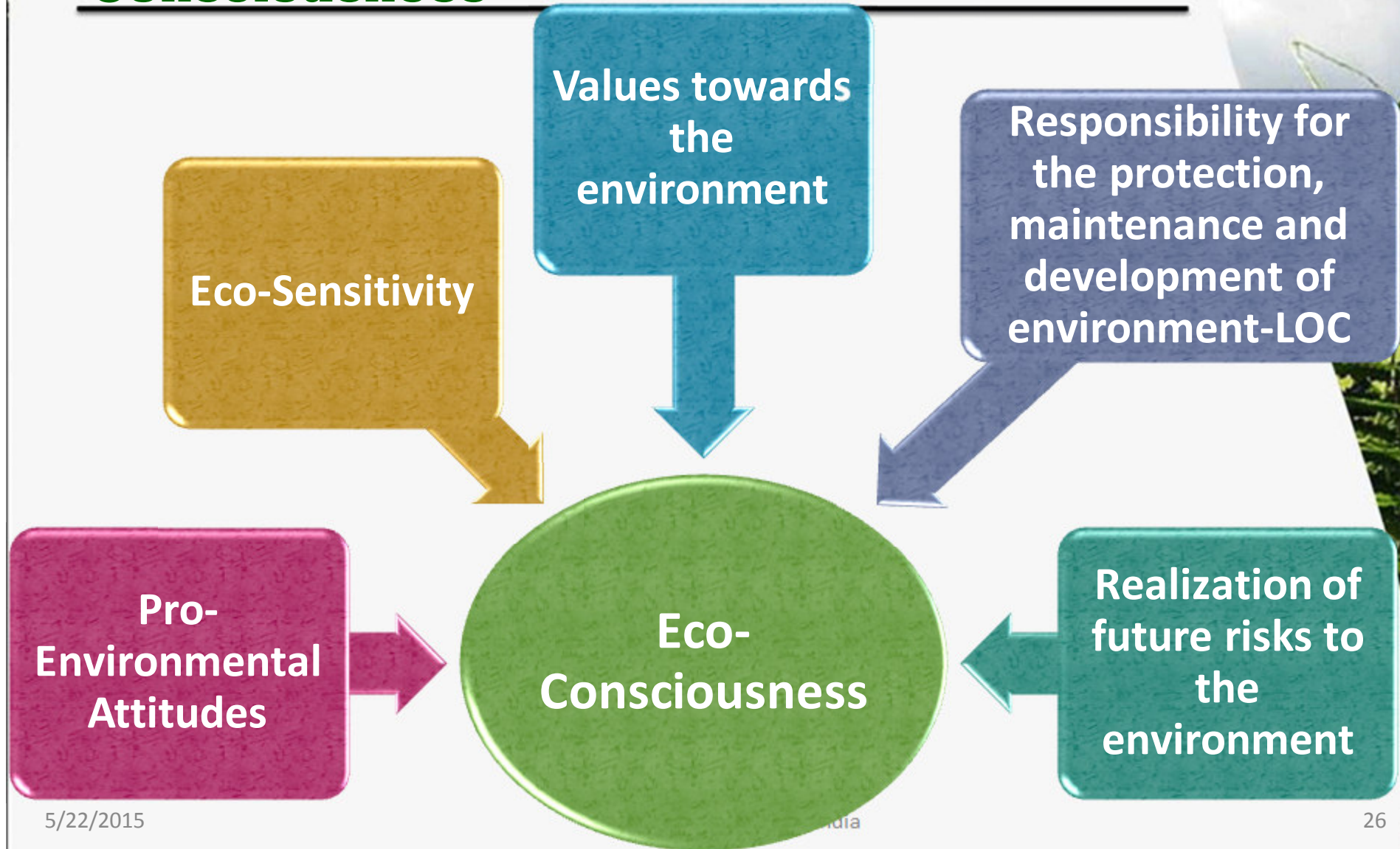
- ▶ Human responses to climatic changes and threats are usually classified as mitigation (human interventions to reduce anthropogenic drivers of climate systems). e.g. Alternative Energy systems, creating sea boundaries at vulnerable sites etc.
- ▶ Adaptation is “adjustments in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities” (IPCC, 2007a)
- ▶ It is hypothesized that people with high environmental consciousness have better adaptation, but it needs empirical testing by social scientists.
- ▶ Who is ecologically conscious?

# Environmental Consciousness

- ▶ An ecologically conscious individual is someone who holds **certain values and attitudes which** may prompt him/her to engage in a wide range of pro environmental behaviours .
- ▶ The concept under study is measurement of environmental values and beliefs on which lot of work has been done.
- ▶ But it still has various dimensions which research studies can be initiated to see which components are reflected by which country/region and how to promote them.



# Dynamics of Environmental Consciousness

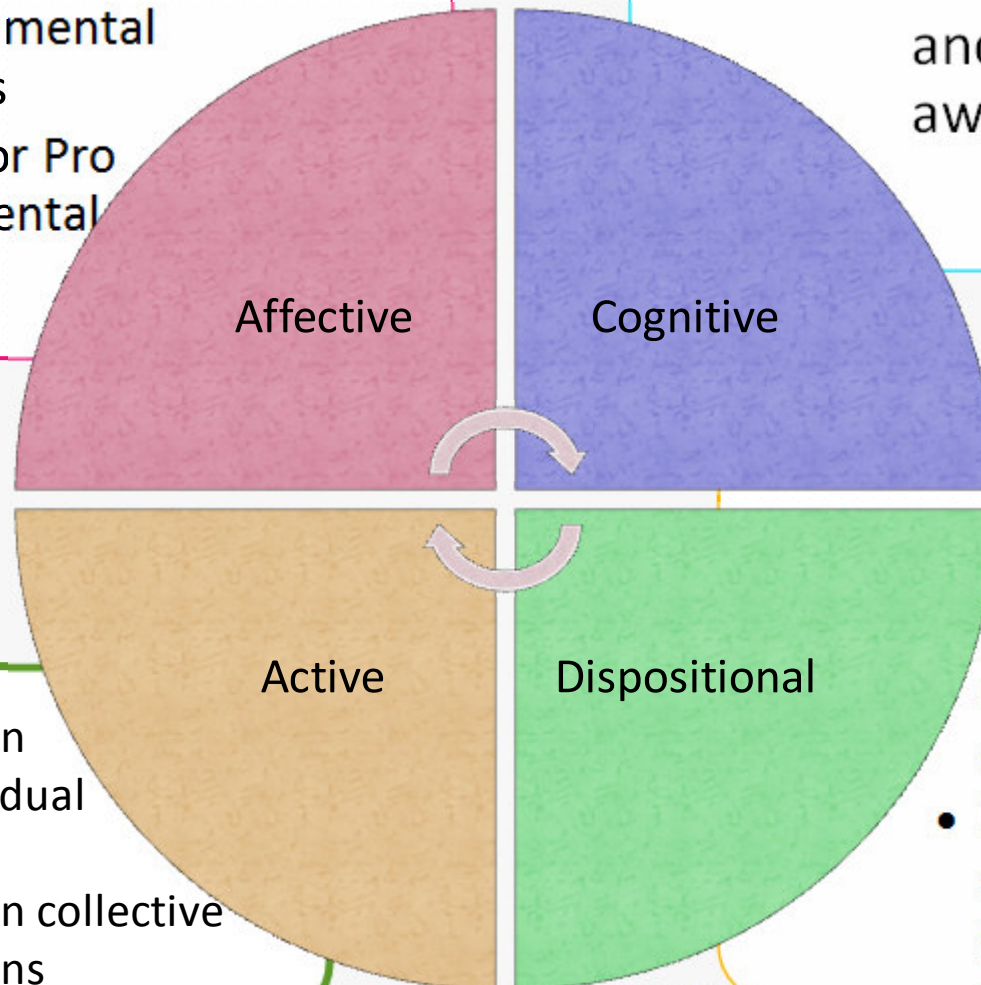




# Components of EC

- Perceived severity of environmental conditions
- Support for Pro environmental measures

- Information and awareness



- Engagement in pro env individual behaviour
- Engagement in collective proactive actions

- Personal moral norm and self efficacy
- Personal costs of pro environmental measures

## UNFCCC recommends...

- ▶ The need to conduct knowledge- attitude- behaviour surveys
- ▶ To establish a baseline of public awareness
- ▶ Which can serve as a basis for further work and support monitoring of the impact of activities.
- ▶ A strong need to explore the psychological variables of human-climate interface.



**COGNITIVE (Awareness)**

Understanding of CC and impact of human consumption on global climate

**CONATIVE (Action)**

Human Consumption pattern in regard to GHG emissions and Institutional accountability

**AFFECTIVE (Emotion)**

Human perception of the magnitude of risk and psychological distress

**HUMAN CLIMATE INTERFACE**

Personal commitment to change Life Style

Coordinating efforts to save Planet from the impacts of CC

Negotiating Solutions at Local & Global Level

Adaptation Efforts including behavioural adaptation at Micro/Macro Level

**CULTURAL DIMENSIONS ACROSS COUNTRIES**



# Human Environment Interface



**Vulnerability (Spatial & Temporal)**

## Some Questions to ponder upon???

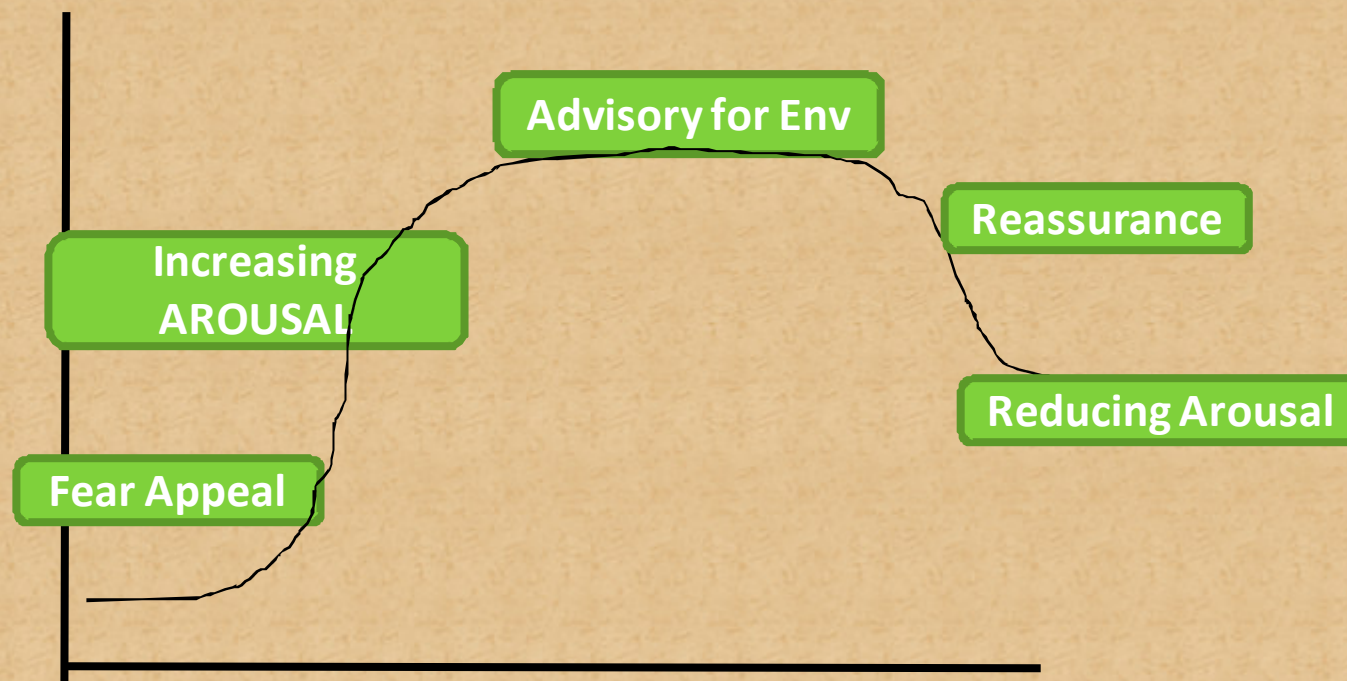
- ▶ Whether it is appropriate to create a fear psychosis about climate change
- ▶ Whether it is appropriate to use **FEAR** as a strategy to promote micro level pro climate behavior.

## Drive Reduction Model of Higbee

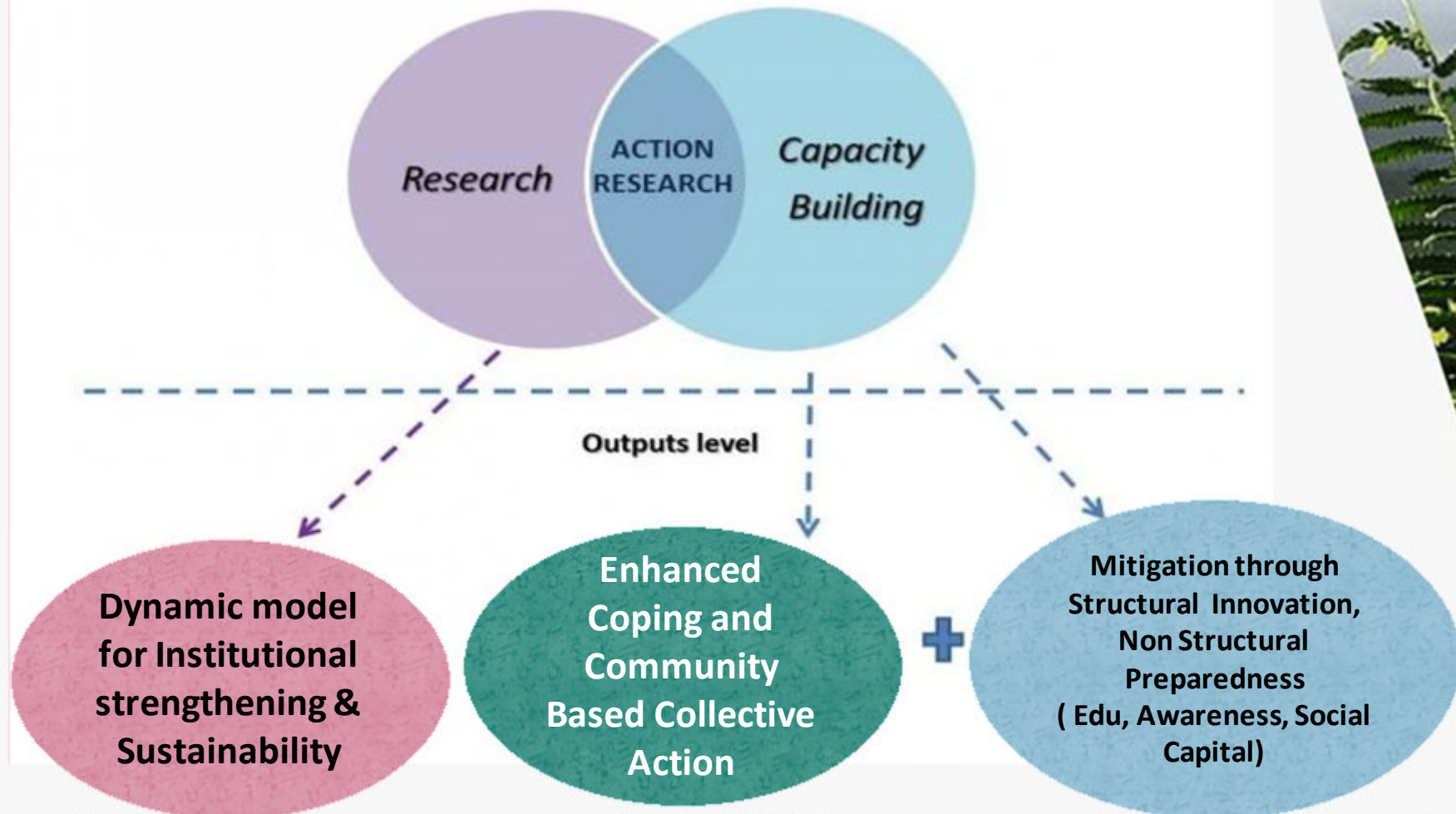
- ▶ Fear appeal is a potent strategy to change the attitudes which is being used be media to promote awareness and concern about certain issues like alcoholism, smoking or so which public otherwise ignores.
- ▶ Genuine data based information must be provided to public which may create a state of arousal.



# Drive Reduction for Promoting Pro Environmental Behaviour

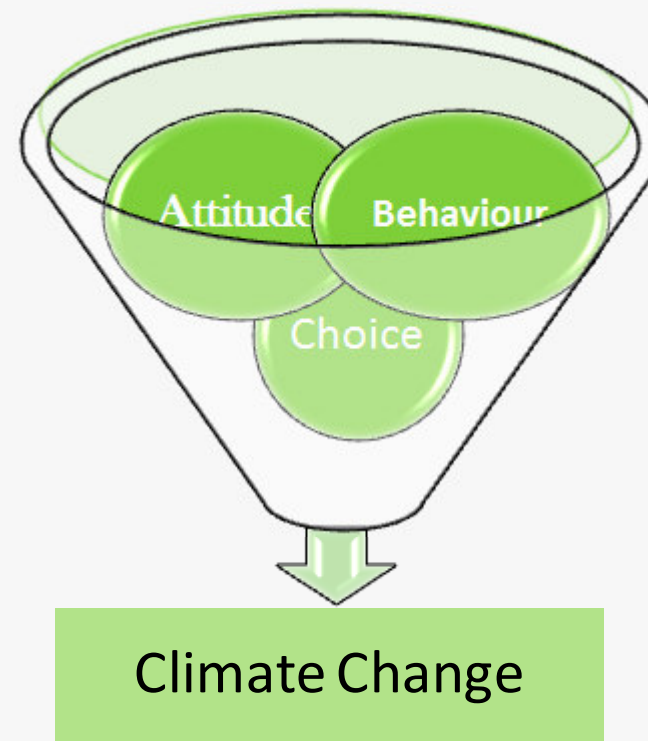


# Climate Change Projects' Approach



# ABC Framework of Climate Change- Linking Sociology

- ▶ ABC framework says that responsibility for responding to climate change lies with individuals whose behavioural choices will make the difference.
- ▶ Social change is thought to depend upon values and attitudes.
- ▶ (the A), which are believed to drive the kinds of behaviour (the B) that individuals
- ▶ choose (the C) to adopt.



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Environment and Planning 2010, volume 42, pages  
1273 ^ 1285



# RAR of Climate Change

( **R**isk , **A**daptation and **R**esilience)

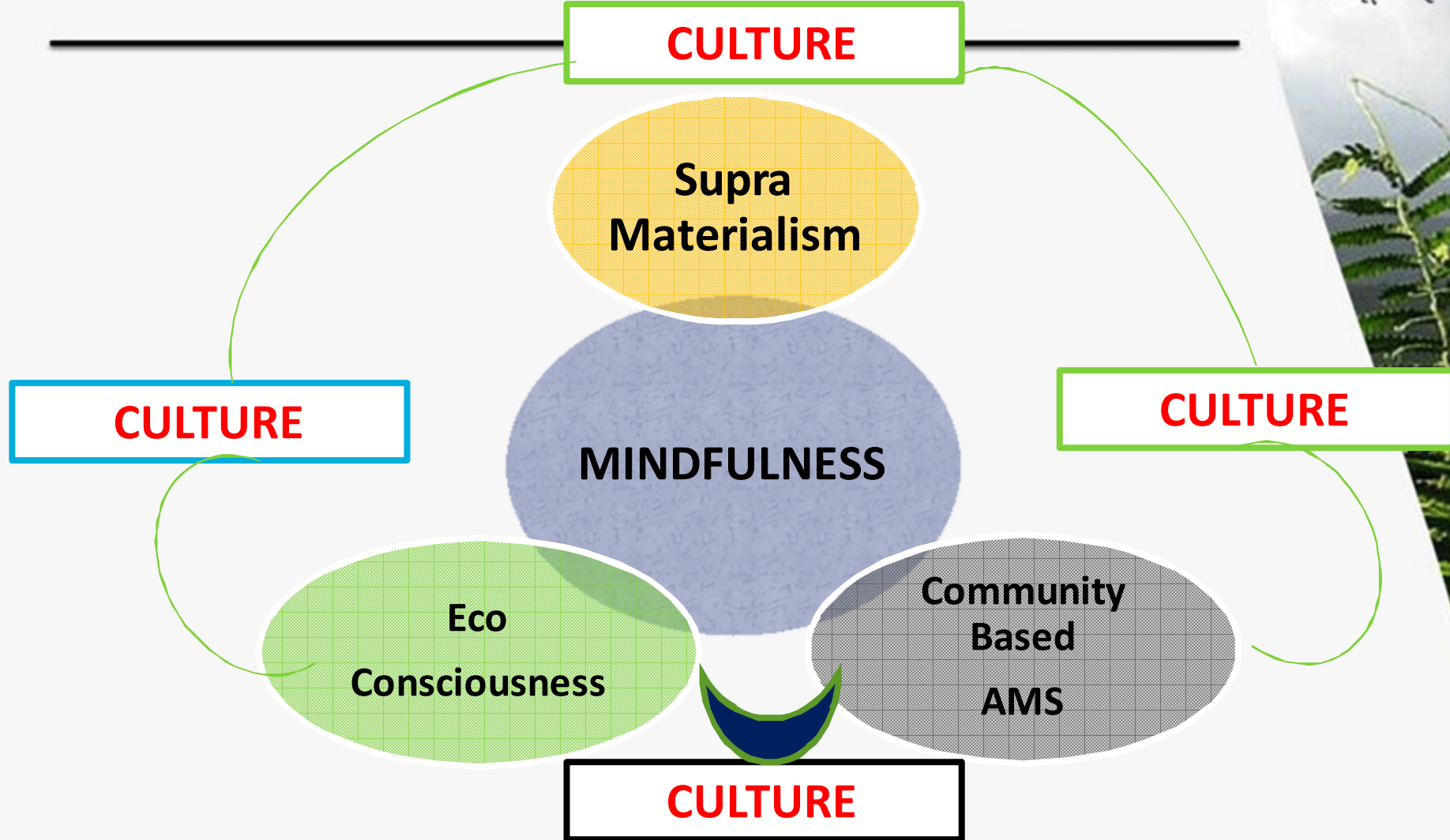


# How Can Psychologists Increase Their Contribution to the Science of Climate Change?

- ▶ 1. Become conversant with language and research used in other social, engineering, and natural science fields that address climate change.
- ▶ 2. Attend to psychological contributions that address issues recognized as important to climate science.
- ▶ 3. Explain psychological contributions that are missing from others' analyses and that may be misunderstood by others, but be aware of the limitations of this research.
- ▶ 4. Be mindful of social disparities and ethical and justice issues that interface with climate change appraisals, responses, and impacts.
- ▶ Be aware of the cultural differences in coping and adapting with CC.

▶ Swim et. al. 2011, American Psychologist

# How to Cope with Changing Climate???





# Conclusion

- ▶ Behavioural dimensions starting from psychological inertia to risk perception, psychological denial, fear psychosis and associated primary and secondary appraisal of stress indicates that climate change is deeply associated with human psyche.
- ▶ Human response to changing climate and coping/ adaptation efforts at micro and macro level will thoroughly depend on how we are able to positively manage the human psyche for the benefit of future societies.
- ▶ Human Psyche marked with eco consciousness and mindfulness , has the potential to manage anthropogenic causes of climate change in a way that is needed for a sustainable planet earth.



# Ways Ahead !

- ▶ What is really needed is that people should have the **cognitive understanding** of the climate scenario from **multidisciplinary perspectives**, are able to **hear their inner voice** to relook at their **behavioural choices** and convert their desirable choices into **pro environmental action**, which the earth is looking forward for sustainable future.
- ▶ In depth research, linking various disciplines of Human and Natural Sciences with cross cutting methodologies is the need of the hour.

The book is an amalgamation of various issues within the domain of climate change and human behaviour. It covers topics like climate change in the developing world, climate risk and associated stress, climate attitudes and perceptions, psychological perspectives to adaptation, climate change perceptions in semi-arid zones of India, climate stress and coping in coastal India and coping with the changing climate. It also includes novel thought provoking write ups on human resilience to environmental change, subjective well being to global well being and the topics like spirituality and climate change which have got limited reference in earlier texts. The book is primarily written for everyone who is directly or indirectly involved in interdisciplinary climate change research, governance and policy making with a focus on social science issues. The uniqueness of the book lies in its being an out-an-out psychology based information material on climate change which makes it stand out from the rest of voluminous literature available on the subject, thus having the potential to motivate readers to broaden their horizons in knowing climate change issue far behind the existing framework.



Parul Rishi  
Ruchi Mudaliar

## Changing Climate Changing Behaviour

Towards a better future



Parul Rishi

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978-3-659-17803-0



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Currently, she is engaged in teaching, training, research and consulting assignments focusing primarily on behavioural perspectives of forest and environmental issues, stress management and personality development, environmental leadership and corporate social responsibility.

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New Delhi 110 002 Tel: 011-23263290

Also at Bangalore, Mumbai, Hyderabad and Guwahati

ISBN 81-316-0261-3



9 788131 602614

Cover design: Mayank Bhatnagar

ISBN 81-316-0261-3

Rs. 575

Parul Rishi

Environmental Issues



# Environmental Issues

Behavioural Insights

Edited by: **Parul Rishi**

This book is motivated by the belief that psychology has much to contribute in offering behavioural insights to recent environmental issues which are threatening the very existence and quality maintenance of planet earth. Due to the limited awareness of people regarding potential of behavioural sciences in offering solutions to environmental problems, much of the environmental issues are oscillating in the hands of technological experts, still longing for lasting solutions. This book brings together the perspectives of psychologists, environmental scientists, corporate managers and natural resource conservationists to culminate into a chain of thoughts, which take an integrative approach in balancing interrelationship between people and environment. The contents of book are varied ranging from hardcore theories to consumptive behaviour of people, and their mind-set, corporate social responsibility, environmental leadership skills and well-being. What makes this book unique in terms of its approach is the inclusion of recent environmental problems like global warming, climate change and urban environment stress and offering their behavioural solutions.

The book, having a research oriented facet will encourage researchers in the field for taking up concerned issues and offer universally desirable new behavioural insights into environmental problems.

*Merci*



THANK  
YOU