



RESPONSE TO SUSTAINABLE WATER RESOURCES DEVELOPMENT AND RESILIENCY PRESENTATION ACADEMICIAN GUILLERMO Q. TABIOS III

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DISCUSSANT

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NAST and DOST LUZON CLUSTER

Luzon Scientific Meeting

Royce Hotel, Clark Freeport, Mabalacat Pampanga

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Theme: Science and Technology-Enhanced Transformation for Sustainability and Industrialization (2018-2030)

THE EMPEROR'S NEW CLOTHES

HANS CHRISTIAN ANDERSEN



WE FEEL EMBARRASSED WHEN WE ARE WRONG ESPECIALLY WHEN WE FIND OUT THAT WE
HAVE BEEN LYING TO OURSELVES.



CONTEXT OF THE PAPER: SDG #12 RESPONSIBLE CONSUMPTION AND PRODUCTION

TOPIC 4 – SUSTAINABLE WATER RESOURCES DEVELOPMENT AND RESILIENCY

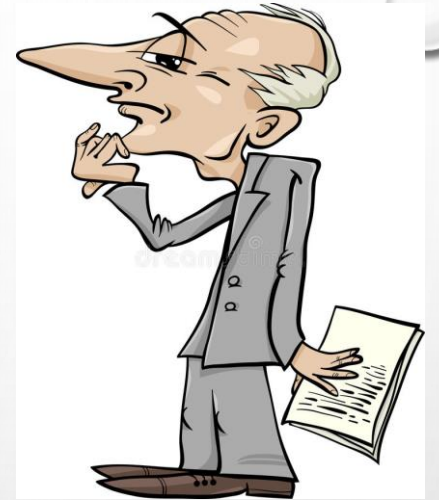
TWO QUESTIONS COME TO MIND (MY EXPECTATIONS)

1. HOW CAN WATER RESOURCES BE DEVELOPED TO ATTAIN SUSTAINABILITY?
2. HOW RESILIENT ARE WATER RESOURCES TO PRESSURES ESPECIALLY HUMAN MADE OR ANTHROPOGENIC?

OR

2. HOW RESILIENT ARE COMMUNITIES TO CHANGES OR INADEQUACY OF WATER SUPPLY?
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KEY CONCEPTS



- TERMINOLOGIES USED

1. SUSTAINABLE WATER RESOURCES DEVELOPMENT

- DEVELOPMENT – THE PROCESS OF DEVELOPING OR BEING DEVELOPED

2. SUSTAINABLE WATER RESOURCES MANAGEMENT

- MANAGEMENT – PROCESS OF DEALING WITH OR CONTROLLING THINGS OR PEOPLE

3. RESILIENCY

- THE CAPACITY TO RECOVER QUICKLY
- THE ABILITY TO SPRING BACK INTO SHAPE

BOTTOMLINE: THERE IS A NEED TO HAVE A COMMON UNDERSTANDING OF WHAT WE TALK ABOUT HERE

THE MANY DEFINITIONS OF RESILIENCE

- ABILITY TO RESIST AND RETURN TO AN EQUILIBRIUM AFTER A DISTURBANCE (E.G. DISASTER, SOCIAL UPHEAVAL)
- ABILITY TO ABSORB AND PERSIST BEFORE THE SYSTEM CHANGES ITS STRUCTURE
- ABILITY OF AN ECOLOGICAL-SOCIO-ECONOMIC SYSTEM TO CHANGE, ADAPT, AND TRANSFORM IN RESPONSE TO PERTURBATIONS AND DISTURBANCES

BOTTOMLINE:

1. THERE ARE DIFFERENT VIEWS/THEORIES ABOUT RESILIENCE
2. IT IS A VERY BROAD CONCEPT
3. IT DEPENDS ON WHICH DISCIPLINE YOU ARE IN



THE NEED TO DEAL WITH DIFFERENT PERSPECTIVES TOWARDS SUSTAINABLE WATER RESOURCES DEVELOPMENT

THREE SYSTEMS HAVE TO BE TAKEN INTO CONSIDERATION

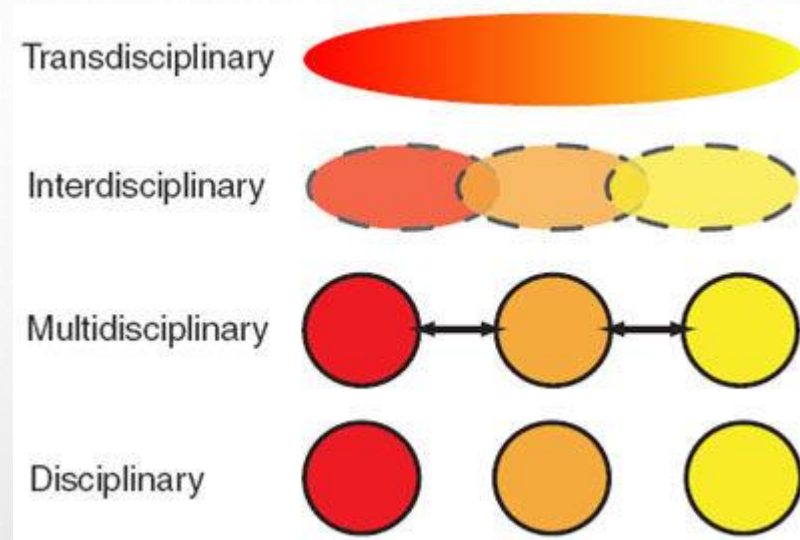
1. ECOLOGICAL – CLIMATE, PHYSICAL CONFIGURATION & DIMENSIONS
2. ECONOMIC – BENEFITS AND COSTS PLUS **EXTERNALITIES (THE SIDE EFFECT OF AN ACTIVITY; UNEXPECTED BENEFITS/COSTS)**
3. SOCIO-POLITICAL – SOCIETAL OBJECTIVES, POLITICAL AMBITIONS

BOTTOMLINE: THE WHOLE THING (SWRD) IS COMPLEX

NATURE: TRANSDISCIPLINARY; SWRD ENCOMPASSES VARIOUS DISCIPLINES



TRANSDISCIPLINARY DEFINED



- **TRANSDISCIPLINARY RESEARCH** IS DEFINED AS RESEARCH EFFORTS CONDUCTED BY **INVESTIGATORS FROM DIFFERENT DISCIPLINES** WORKING **JOINTLY** TO CREATE **NEW** CONCEPTUAL, THEORETICAL, METHODOLOGICAL, AND TRANSLATIONAL INNOVATIONS THAT **INTEGRATE** AND MOVE BEYOND DISCIPLINE-SPECIFIC APPROACHES TO ADDRESS A COMMON PROBLEM.

(SOURCE: HARVARD SCHOOL OF PUBLIC HEALTH)

TRANSDISCIPLINARY APPROACH

- REQUIRES THE FOLLOWING:

1. STAKEHOLDER ENGAGEMENT AND COLLABORATION
2. ITERATIVE PROCESS – PROCEDURE IS REPEATED UNTIL SATISFIED
3. WORK COLLECTIVELY – INVOLVE EVERYONE IN THE PROCESS OF WORKING OUT SOLUTIONS TO PROBLEMS
4. PANARCHICAL DECISION MAKING - ?

BOTTOMLINE:

1. THERE IS A NEED TO INVOLVE EVERYONE TO ENSURE SUCCESS; HOWEVER, THIS IS A **TEDIOUS** (SLOW, TOO LONG) PROCESS THAT CAN DEFEAT THE PURPOSE OF DEVELOPMENT OR DELAY FULFILLMENT OF SUSTAINABLE DEVELOPMENT GOAL
2. IT IS DIFFICULT TO COME UP WITH A CONSENSUS; YOU CANNOT PLEASE EVERYONE
3. ADOPT PARETO'S PRINCIPLE: THE 80:20 RULE?

LESSONS FROM CASES PRESENTED

- THE GOVERNMENT NEEDS TO INCORPORATE OR CONSIDER **STAKEHOLDER RESPONSE** TO PROPOSED PROJECTS
- **GENERATION OF ALTERNATIVES** IS IMPORTANT; SHOWS DIFFERENT OBJECTIVES FOR DIFFERENT STAKEHOLDERS; BENEFIT-COST OR ECONOMIC ANALYSIS CAN CLARIFY OPTIONS
- **CONSENSUS** IS IMPORTANT – THIS IS A SLOW PROCESS
- **CHANGE IN ADMINISTRATION** CAN DETERMINE THE FATE OF SWRD
- **FUNDING** IS A LIMITING FACTOR – CAN'T MOVE AN INCH WITHOUT FUNDS
- **NATURAL DISTURBANCES** (E.G. MT. PINATUBO ERUPTION) CAN OBLITERATE OPPORTUNITIES TO DEVELOP OR MANAGE WATER RESOURCES
- **TECHNICAL CONSTRAINTS** CAN PREVENT PROJECT IMPLEMENTATION (E.G. BLOG-BALOG DAM)

BOTTOMLINE:

1. PROJECT IMPLEMENTATION IS NOT EASY; EFFORTS CAN JUST FADE AWAY
2. SCIENTISTS CAN MAKE CLEAR THE OPTIONS, PROVIDE MODELS FOR GREATER SUCCESS
3. DECISION MAKING TOOLS ARE NEEDED – SUSTAINABLE WATER RESOURCES APP?; SIMULATION, SCENARIO BUILDING

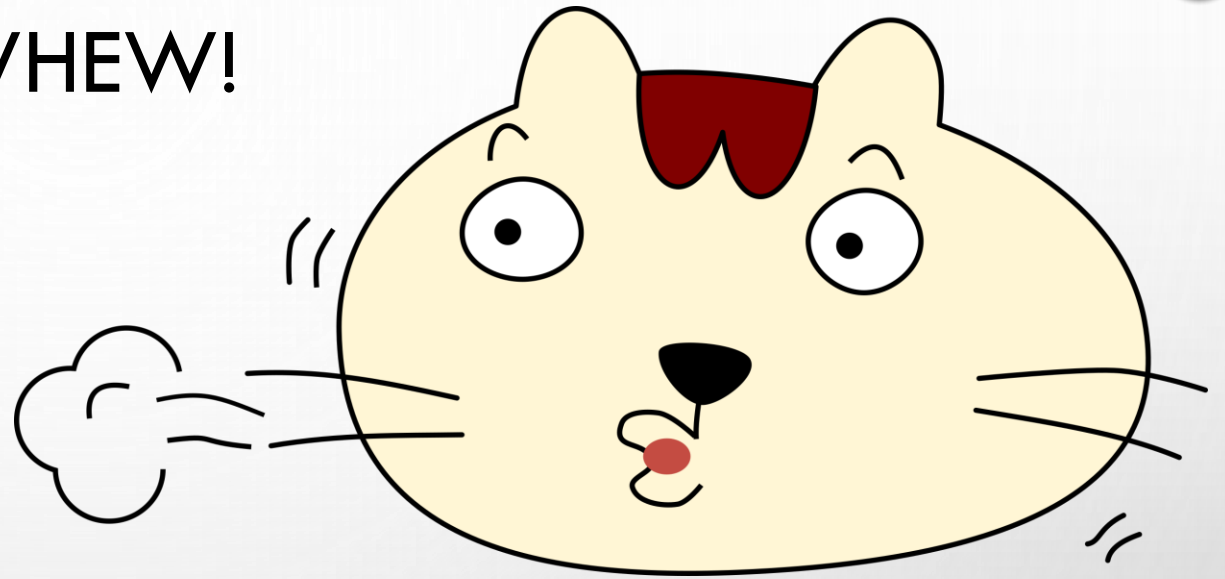
CONCLUSION



- SUSTAINABLE WATER RESOURCES DEVELOPMENT IS A **COMPLEX** PROBLEM
- THERE IS A NEED TO CONSIDER THE VARIATION OF FACTORS AFFECTING SWRD ACROSS SPACE AND TIME – DYNAMIC SYSTEMS
- A TRANSDISCIPLINARY APPROACH IS RECOMMENDED TO MAKE SUSTAINABLE WATER RESOURCES DEVELOPMENT MORE EFFECTIVE

NOTE: I COULD NOT SEE CLEARLY HOW RESILIENCE IN SUSTAINABLE WATER RESOURCE DEVELOPMENT WAS DEMONSTRATED/TACKLED

WHEW!



Thank you for your attention...

Your turn...