



INNOVATIONS IN DISASTER RISK REDUCTION AND CLIMATE CHANGE ADAPTATION

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2 April 2018

UNIVERSITY of the PHILIPPINES

- The National University
- 8 Constituent Universities
- 200 undergraduate degree programs
- 300 graduate degree programs
- 58,000 students
- 3,800 Faculty Members
- 1,200 Research, Extension and Professional Staff
- 7,500 administrative personnel

UP Baguio's Context



A Constituent unit of the University of the Philippines system (a relatively young CU)



An Arts and Sciences University



Mandated to serve the Cordillera and northern Luzon



Situated in an upland ecosystem with growing problems in resource management and vulnerability





UN WFP PARTNERSHIP

**ESTABLISHMENT OF A KNOWLEDGE AND
TRAINING RESOURCE CENTER FOR CLIMATE
CHANGE AND DISASTER RISK REDUCTION
(KTRC)**

ESTABLISHMENT OF A KNOWLEDGE AND TRAINING RESOURCE CENTER FOR CLIMATE CHANGE AND DISASTER RISK REDUCTION (KTRC)



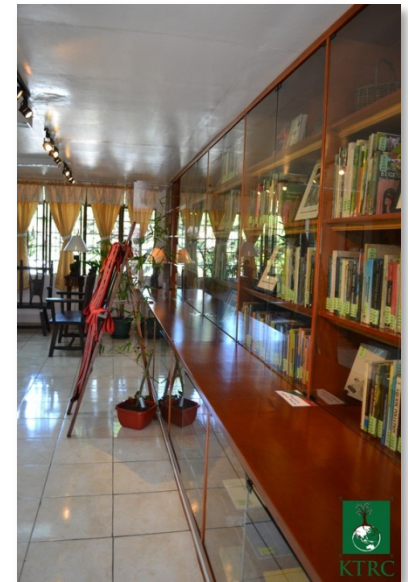
Objectives:

1. Provide readily accessible scientific studies and IEC materials on climate change to vulnerable local communities
2. Serve as a repository of learning materials on CCA and DRRM
3. Serve as a University-based training center in CAR that provides a package of CCA and DRRM-related capacity building programs

Goal: To contribute to greater resilience of communities vis-à-vis climate change and disasters

KNOWLEDGE AND TRAINING RESOURCE CENTER FOR CLIMATE CHANGE AND DISASTER RISK REDUCTION (KTRC): **OUTPUTS**

- ✓ A physical resource center on climate change adaptation (CCA) and disaster preparedness and response (DPR):
 - 245 books, maps, posters and other materials on CCA and DRRM
 - Training modules and popularization materials produced by UP Baguio faculty, staff and students
 - Online Database. 108 articles, reports, books and other documents can be accessible online (<http://cordillerastudies.upb.edu.ph/ktrc/>)



20/04/2018

KNOWLEDGE AND TRAINING RESOURCE CENTER FOR CLIMATE CHANGE AND DISASTER RISK REDUCTION (KTRC): **OUTPUTS**

- ✓ Assessment of Phase 1 projects of UNWFP was conducted in two (2) Benguet municipalities – Tublay and Atok.
- ✓ Training of trainers (TOT) on CCA and DRR for UP Baguio teachers, researchers, and staff
- ✓ Training workshop and mentoring on CCA and DRRM planning for Benguet LGUs (barangay to provincial level).



KNOWLEDGE AND TRAINING RESOURCE CENTER FOR CLIMATE CHANGE AND DISASTER RISK REDUCTION (KTRC): **OUTPUTS**

- ✓ Training Modules on:
 - **Module 1. Understanding Climate Change** – specifically seeks to present a chronological account of various worldviews about humans and nature. It also endeavors to underscore the chronological implications of these worldviews and their adverse effects on nature, thereby in the end, provide a model of the right attitude toward nature.
 - **Module 2. The Legal Framework of the Disaster Risk Reduction and Management Policy** – introduction to the basic principles of the Disaster Risk Reduction and Management Act, Climate Change Act and related International Agreements in relation to local governments.



KNOWLEDGE AND TRAINING RESOURCE CENTER FOR CLIMATE CHANGE AND DISASTER RISK REDUCTION (KTRC): **OUTPUTS**

- Training Modules on:
 - **Module 3. Enhancing Disaster Preparedness** – specifically aims to describe the link between climate change adaptation and disaster risk reduction. It will also provide an introduction to two tools used in both CCA and DRR: vulnerability assessment and early warning system.
 - **Module 4. Psychosocial Response to Disaster** – provide adequate knowledge, and appropriate skills and attitudes to effectively deal with the psychological impact of disasters.



KNOWLEDGE AND TRAINING RESOURCE CENTER FOR CLIMATE CHANGE AND DISASTER RISK REDUCTION (KTRC): **OUTPUTS**

- Training Modules on:
 - **Module 5. Post-Disaster Rehabilitation and Recovery** – introduction to various concepts and guidelines in post-disaster recovery and identify dangerous assumptions that can hamper and dampen rehabilitation efforts.
 - **Module 6. Risk Communication in Disaster Risk Reduction and Management** – provide appreciation on how risk communication can help enhance knowledge and understanding, build trust and credibility, and encourage appropriate attitudes, behaviors and beliefs needed for effective risk communication.

KNOWLEDGE AND TRAINING RESOURCE CENTER FOR CLIMATE CHANGE AND DISASTER RISK REDUCTION (KTRC): **OUTPUTS**

- Training Modules on:
 - **Module 7. Media Management in Disaster Risk Reduction and Management** – provide understanding of the basic approaches to media coordination and management of information arising from disaster events if and when they do occur.
 - **Module 8. Alliance Building in Disaster Risk Reduction and Management** – provide the basics methods in building an alliance for applications in community disaster risk reduction and mitigation.

KNOWLEDGE AND TRAINING RESOURCE CENTER FOR CLIMATE CHANGE AND DISASTER RISK REDUCTION (KTRC): **OUTPUTS**

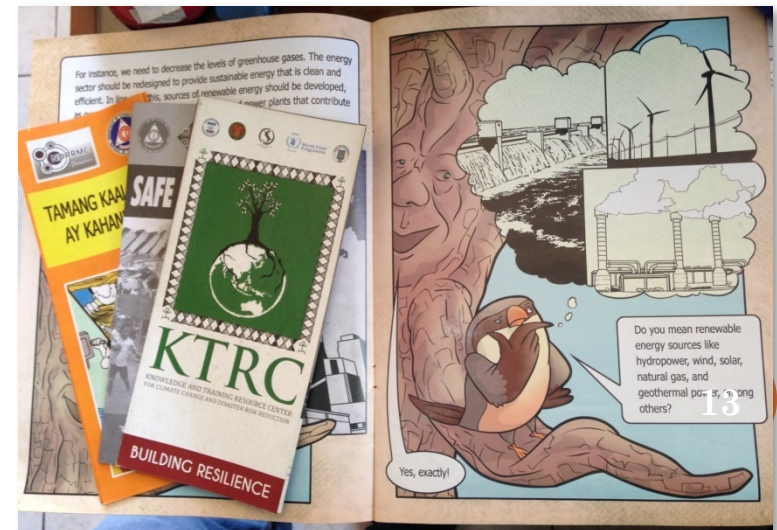
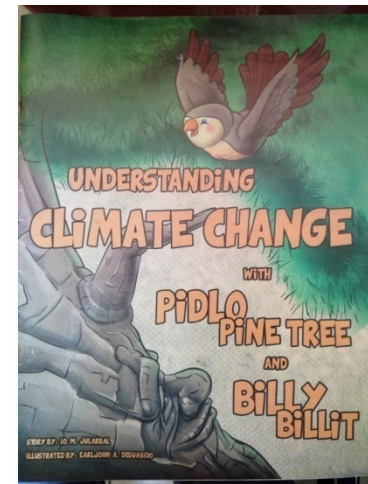
- Training Modules on:
 - **Module 9. Business Continuity Planning in Disaster Risk Reduction and Management** – provide understanding on the importance and relevance of business continuity planning in dealing with hazards/ disasters.
 - **Module 10 Disaster Risk Reduction Management: Risk Communication Planning Workshop Facilitator's Guide** – designed to help equip Disaster Risk Reduction and Management (DRRM) officers and key leaders of local communities in conducting Municipal-level planning workshops to eventually produce Risk Communication Plans that can be implemented in their localities.



KNOWLEDGE AND TRAINING RESOURCE CENTER FOR CLIMATE CHANGE AND DISASTER RISK REDUCTION (KTRC): **OUTPUTS**

✓ Produced Popularization Materials:

- The Comics: *Understanding Climate Change with Pidlo Pine Tree and Billy Billit (in English, Kankanaey, and Ibaloy)*
- 2014 Calendar
- Pamphlet containing RA 10121 in Kankanaey and Ibaloi
- Pamphlet containing RA 9729 in Kankanaey and Ibaloi
- Climate Change in the Philippines (PAGASA Report 2011) in Kankanaey and Ibaloi



KNOWLEDGE AND TRAINING RESOURCE CENTER FOR CLIMATE CHANGE AND DISASTER RISK REDUCTION (KTRC): **OUTPUTS**

- ✓ Established an SMS-based info-board, weather monitoring system



KNOWLEDGE AND TRAINING RESOURCE CENTER FOR CLIMATE CHANGE AND DISASTER RISK REDUCTION (KTRC): **OUTPUTS**

- Emergency Response Protocols for UP Baguio



20/04/2018

KNOWLEDGE AND TRAINING RESOURCE CENTER FOR CLIMATE CHANGE AND DISASTER RISK REDUCTION (KTRC): **OUTPUTS**



- ✓ **Completed researches:**
 - Rainwater harvesting and purification systems (Jose Abucay, Jr., Ian Jasper Agulo and Chelo Pascua)
 - Landslide bioengineering: Chrysopogon Zizaniodes (Vetiver Grass) as Potential Species for Land Bioengineering in Atok, Benguet (by Dora Balancod)
 - Capacity and Needs Assessment: Towards Enhancing Baguio City's Emergency Response Capabilities.

KNOWLEDGE AND TRAINING RESOURCE CENTER FOR CLIMATE CHANGE AND DISASTER RISK REDUCTION (KTRC): **OUTPUTS**

- ✓ **Completed Research:**
- Enhancing stakeholders' capability in utilizing the rainfall threshold in the landslide early warning system of Tublay (D. Nolasco and I. Agulo)

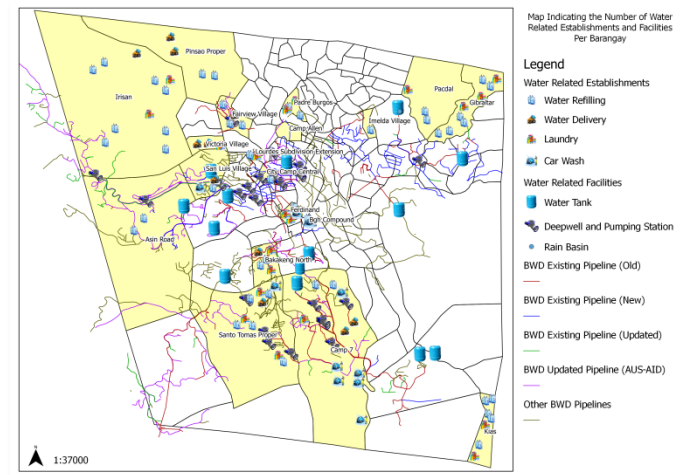
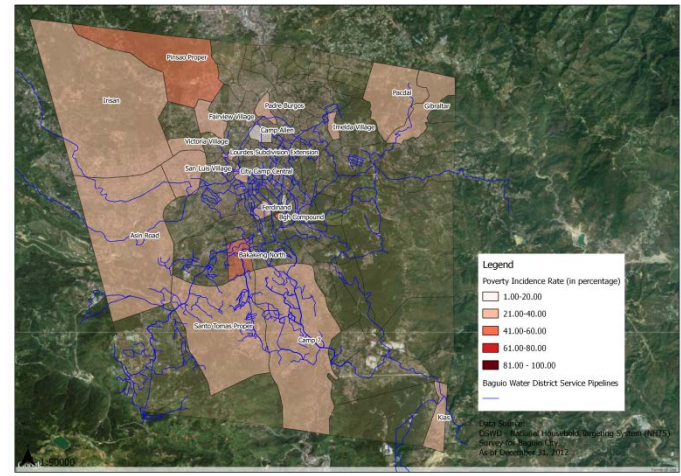


KNOWLEDGE AND TRAINING RESOURCE CENTER FOR CLIMATE CHANGE AND DISASTER RISK REDUCTION (KTRC): **OUTPUTS**

**Other (non-UNWFP
funded) Completed
Researches:**

Water Security and Urban Resilience Study

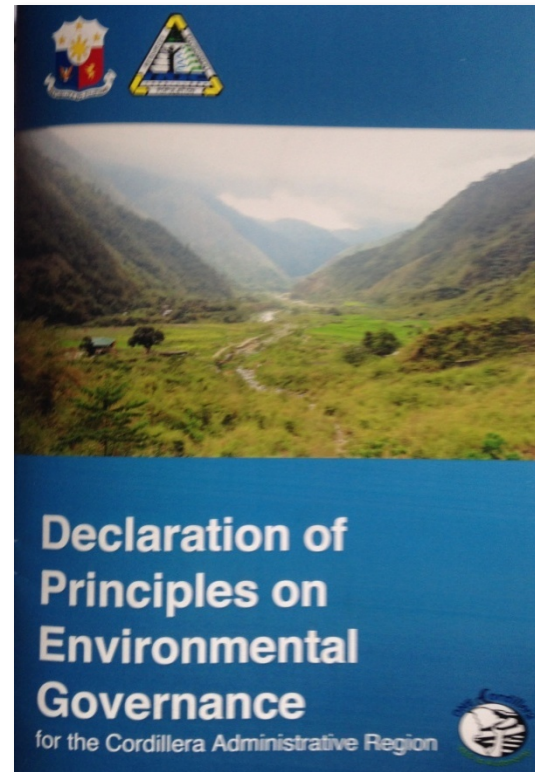
An analysis of
community-based
solutions or
recommendations on
water security and
urban resilience.



KNOWLEDGE AND TRAINING RESOURCE CENTER FOR CLIMATE CHANGE AND DISASTER RISK REDUCTION (KTRC): **OUTPUTS**

Other completed (non-
UNWFP funded)
researches:

Declaration of
Principles on
Environmental
Governance for
Cordillera
Administrative Region
(CAR)



KNOWLEDGE AND TRAINING RESOURCE CENTER FOR CLIMATE CHANGE AND DISASTER RISK REDUCTION (KTRC): **OUTPUTS**

Other completed (non-UNWFP funded) researches:

Fresh Air, Bad Fumes Out: Reducing Air Pollution in Baguio CBD

By: Dr. A. Costales and Dr. M. Angeles Catelo



CORDILLERA STUDIES CENTER
University of the Philippines Baguio

Fresh Air In, Bad Fumes Out: Reducing Air Pollution in Baguio CBD

by ACHILLES COSTALES, University of the Philippines Baguio
and MARIA ANGELES CATELO, University of the Philippines Los Baños

Chronic exposure of people to high concentrations of air pollution exacts adverse impacts on human health—triggering particular respiratory and cardiovascular symptoms. In Baguio City, diesel fumes from PUJs and taxis were identified as the main generators of the air pollutant PM_{10} , and of the even more hazardous finer particulate $PM_{2.5}$. This study estimated health impacts using health-risk coefficients of air pollution exposure on particular diseases. On average, around 14 percent of total number of pre-mature non-traumatic mortalities in Baguio were attributable to exposure to high concentrations of air pollution. The direct and indirect costs of illness amounted to around PHP 24 million per annum. The study asserts that public policy interventions that work to substantially reduce the PM_{10} (and $PM_{2.5}$) levels in the CBD will have the impact of reducing the proportion and number of mortality and morbidity attributable to air pollution exposure. It cites one such proposal presented by the DOST-CAR involving the investment in an electricity-powered Automated Guideway Transit (AGT) system, following a 4-kilometer circumferential route in the CBD, through main streets currently traversed by PUJs and taxis, as a cost-efficient alternative.



Monday, **14 September 2015**, 8:30am to 12nn
College of Social Sciences Audio Visual Room
OPEN TO THE PUBLIC



KNOWLEDGE AND TRAINING RESOURCE CENTER FOR CLIMATE CHANGE AND DISASTER RISK REDUCTION (KTRC): **OUTPUTS**

All of these were ACTION or APPLIED researches, meaning, research findings were immediately fed into POLICY and IMPLEMENTATION phases of public and private sector programs and projects.

KNOWLEDGE AND TRAINING RESOURCE CENTER FOR CLIMATE CHANGE AND DISASTER RISK REDUCTION (KTRC): **OUTPUTS**

Disaster Protocol Development for UP Baguio



KNOWLEDGE AND TRAINING RESOURCE CENTER FOR CLIMATE CHANGE AND DISASTER RISK REDUCTION (KTRC): **OUTPUTS**

Curriculum and Instructional Materials Development



KNOWLEDGE AND TRAINING RESOURCE CENTER FOR CLIMATE CHANGE AND DISASTER RISK REDUCTION (KTRC): **OUTPUTS**

Summer Institute for Primary and Secondary School Teachers



20/04/2018

KTRC OUTCOMES

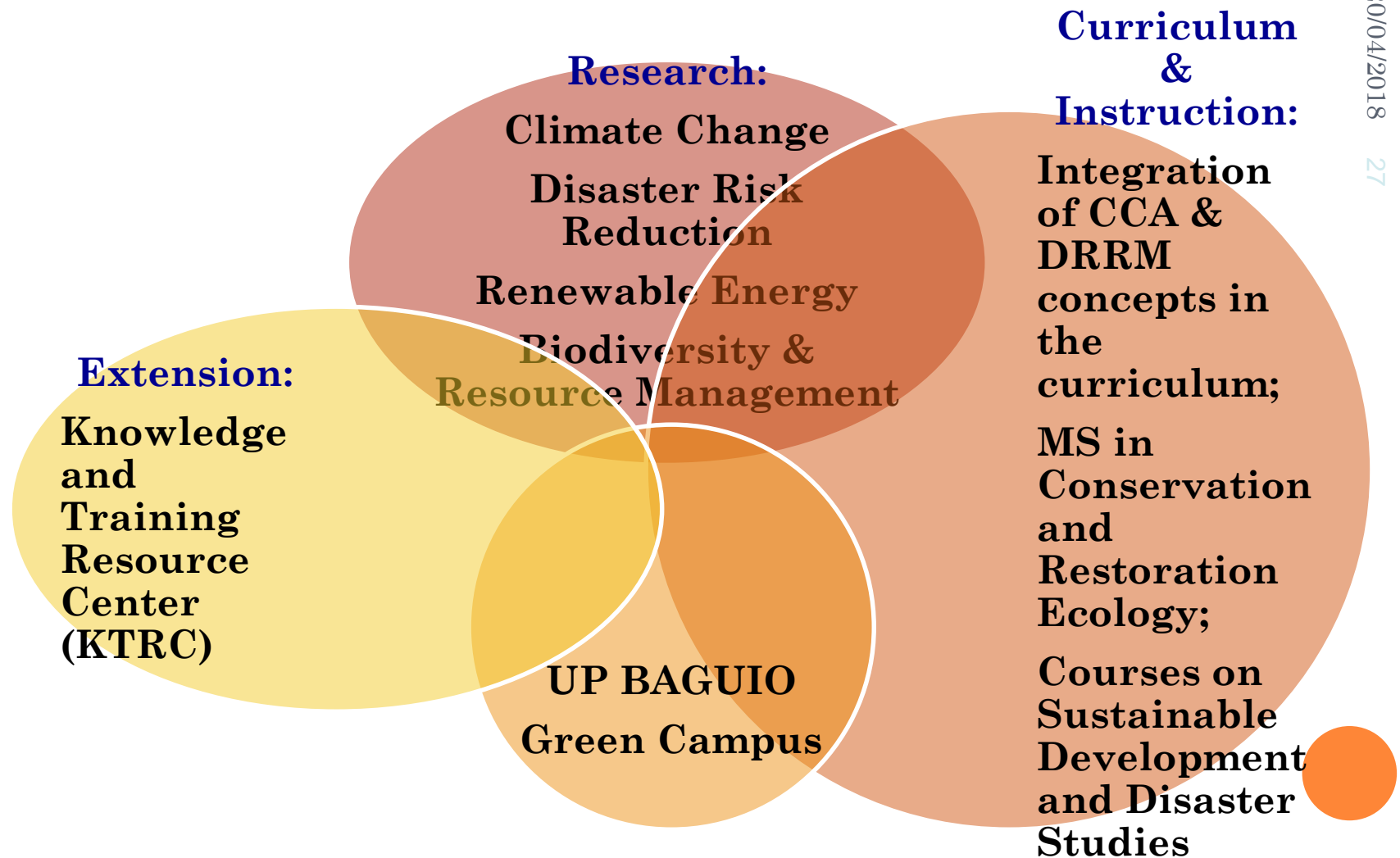
- ✓ **Increased knowledge** on DPR and CCA in the context of upland/indigenous communities
- ✓ **Increased awareness** among the education sector and LGUs (including barangay leaders) in Baguio and Benguet on DPR and CCA;

KTRC OUTCOMES

- ✓ **Improved mechanisms** (policies/protocols/guidelines) for DPR in UP Baguio, Public Primary and Secondary Schools and LGUs in Baguio and Benguet;
- ✓ **Better prepared** to respond to disasters and adapt to climate change (NOW, compared to three years ago).

HOLISTIC AND INTERDISCIPLINARY APPROACH:

E.G. CLIMATE CHANGE AND SUSTAINABILITY SCIENCE



DISASTER PROTOCOLS FOR UP BAGUIO

OPERATIONAL MANUAL

- Baguio City emergency numbers
 - Incident Command System
 - Communication Protocol
 - Campus emergency procedures
 - Safety and security command
 - DRRM core group
 - Emergency plans
 - Evacuation and exit maps
 - Monitoring forms for emergency evacuation
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- ✓ Training needs
 - ✓ Equipment requirements

THANK YOU