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Ti Similla

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**An Interview with Dr. Purificacion Delima,
Dean, College of Arts and Communication, UP Baguio**

Pambansang Summit sa Wika 2011: Countering hegemonies

“Small languages and cultures are the first ones to be victimized”

What preparations were done for the Summit?

Work started in June 2010 when the call for proposals was issued through various means. For example, posters, invitations to schools and other institutions were released; online promotions were created such as the PSW link in the College of Arts and Communication (CAC) site on the UP Baguio website, a Facebook homepage and an e-mail address: cac.psw2011@gmail.com. Brian our CAC clerk and a student assistant monitored communications on the gmail address. The Secretariat headed by Ria Florendo did full-blast posting of invitations. The Executive Committee manned by the College Executive Board took care of abstract proposals received and the overseeing of work. These were the two committees that started the work. Just this month we created all the working committees. Thanks to those who accepted heading the committees, we now have the program committee, headed by Junley Lazaga; the workshop committee, headed by Candy Torres; the socials committee led by the CAC Socials Committee through Shine Queri, Yanyan Fajardo and Joy Abellada;

the Food and Amenities Committee, headed by Rina Afable and Iday Mendigo.

Alam natin kung ano ang trabahong ginagawa ng workshop, food at program committees, pero partikular ang naiatang na trabaho sa socials committee; ito ay ihanda ang programa sa welcome socials na tinawag kong “Umali Kayo: Gabi ng mga Wika at Kultura.” Ito yung event na hiningan ko kay Chancellor ng food funding support sa halagang 10K. I wish to say that this amount will go a long way in support of the purpose of this cultural night, which is to recognize all living languages and cultures, both local and foreign ones extant in the Philippines.

So far, how many have signified interest in attending?

We have no count but we are optimistic about getting a large participation based on inquiries we’ve gotten and requests for formal invitations for institutional funding support. On the other hand, while we’re hopeful for a big number of participants, we’re also apprehensive that our plenary and parallel venues may be too



Dr. Purificacion Delima: Summit Convenor

small for everyone’s comfort. There’s this mixed feeling then.

How many panels and paper presentations are now scheduled?

There are 39 paper presenters on the list. These make up seven session panels: three for *Wika, Edukasyon at Teknolohiya*; two for *Wika, Kultura at Lipunan*; and two for *Estado ng Wika sa Iba’t Ibang Larangan*. There will be four parallel sessions in the afternoon of Day 1, April 29 and three parallel sessions in the morning of Day 2, April 30.

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Who are the main speakers?

1) Marilou Leviste Jacob, current Executive Director of the National Commission on Culture and the Arts (NCCA); 2) Virgilio Almario, National Artist for Literature; 3) Rolando Tolentino, current Dean of the College of Mass Communication, UP Diliman; 4) Catherine Young, project coordinator of Summer Institute of Linguistics International, now based in Bangladesh, to be represented by Director Cslenn Stellsmith and Assistant Director John Young of SIL Philippines; 5) Lolita Delgado Fansler, President of Mangyan Heritage Center in Calapan City, Mindoro Oriental.

What considerations led you to conceptualize this Summit?

My training in linguistics, both theoretical and applied, has created this passion for the well-being and sustained existence of languages and cultures, especially the small ones, based on number. These are usually the weak ones too, because they are very vulnerable to hegemonies surrounding them. Small languages and cultures are the first ones to be victimized, if not eaten up by big elements in society, not only by big cultures and languages themselves, but also by political and economic power elements. These powers usually create the miserable conditions of marginalized communities, resulting in unhappiness and discontent in lives.

Because of the influences of the powerful, not only locally in the Philippines but also in the global scenario, culture bearers and guardians themselves have been demotivated in promoting and sustaining their own linguistic and cultural heritage. And so we clearly see and observe today the lack of parents' initiative and effort to transmit their native languages and cultures to the youth. This vanishing motivation for inter-generational transmission of languages and cultures is the strong factor that will likewise cause the vanishing of our indigenous languages and cultures. This is a trend that should be appalling for everyone because it means the loss of

cultural and linguistic identity in the end.

What issues in language will surface in discussion, do you think?

Based on the abstract proposal topics, these will be in focus: 1) Is it L1 or L2 that is effective for learning? 2) Is English in the Philippines still a hegemonic language? 3) What is the role of the national language, Filipino, in a multilingual scenario? 4) Are our institutions, governmental and non-governmental, determined to pursue a multilingual scenario? What may be the forces against this pursuit? 5) Can the Philippines really be capable of foregoing its colonial language captivity after all these years of English emphasis in all Philippine societal domains? 6) What can help the pursuit of such a positive direction, emulating progressively sound economies such as China, Korea, India, not to go beyond Asian territories?

Is the issue of bilingualism and early education still current?

Yes, the issue remains hot. Despite the new language policy, the Mother Tongue Based Multilingual Education, (and it's now three years old), full-blast implementation remains in limbo. Problems of teacher competency, availability and production of learning materials are huge obstacles to overcome. But always, I say, and to quote a cliché: if there's a will, there's a way. It is strong will and determination coupled with truly systematic planning and study that will spell the success of MLE. It thus requires concerted effort, mainly through the DepEd and the institutions and systems within its jurisdiction. It's as simple as that.

Do you see how the Summit will impact on policies in education?

Mainly, as in all conferences and forums, the PSW 2011 forum hopes to create not only a sense of awareness of the urgency to nurture Philippine languages and cultures, but most especially to make participating individuals and institutions

resolve to do something toward promoting, sustaining and enhancing their respective languages and cultures through various strategies and action plans. With a nationwide representation in the Summit, a ripples effect is hoped to be created in the many domains of Philippine society.

What other gains do you foresee?

We hope that the summit will put UP Baguio, especially the College of Arts and Communication, henceforth at the forefront of nurturing and enhancing indigenous languages and cultures, with the Cordillera cultures as a starting point. After the Summit, we hope to see the CAC more collaborative in its research and extension service with local and national institutions. The PSW will be the start of this goal to make UP Baguio more pro-active in its efforts to sustain marginalized languages and cultures. ■



Program

Opening Speeches

Marilou Leviste Jacob: "Pagkilala sa mga wika ng Pilipinas: Tungo sa pagsulong ng Lahing Pamana"

Catherine Young: "Pagtaya sa Estado ng mga Wika sa Pilipinas"

Virgilio Almario: "Pagpapalakas ng mga wika"

Rolando Tolentino: "Estado ng mga wika sa iba't ibang larangan"

Lolita Delgado Fansler: "Mga wika ng Pilipinas sa senaryong global"

Parallel Sessions, Papers and Presenters

I. Wika, Edukasyon at Teknolohiya

Novelyn Barcena: "Pagsusuri ng teacher talk sa mga interaksyong pangklasrum"

Lorna Beduya: "ICT integration in

English language instruction for second year high school students”

Marilyn Brioso: “Integrasyon ng computer technology sa pagtuturo ng Filipino”

Nestor De Guzman, Yeasa Bingcang and Mary Grace

Razon: “Wika at humor: Hawak kamay tungo sa mabisang pagtuturo”

Elizer De los Reyes: Mainstream language and the ‘other’:

Constructing the indigenous in secondary schools’ texts”

Jimmy Fong: “Teaching Ibaloy as a Philippine language: Issues and challenges”

Emmanuel Gonzales: “Development at evalwasyon ng isang prototipong programa sa pagtuturo ng Filipino bilang banyagang wika”

Eric Grande: “Multilingualism in the continuing education of health workers toward quality basic health services”

Jane Lartec: “Ang pagsulat sa Filipino ng mga mag-aaral na may kapansanan sa pandinig”

Norbert Lartec and Gemma Perey: “Kakayahang panggramatika sa Filipino ng mga mag-aaral sa University of the Cordilleras”

Godfrey Montera: “Pagtataya sa mga saloobin ng mga instructor at mag-aaral na Cebuano sa epekto ng pagtuturo ng wikang Filipino”

Edna Nagtalon: “L1/MLE instruction and advocacy at the College of Teacher Education”

Jeanette Onongen: “An antidote against the declining English proficiency of Filipino tertiary students”

Leticia Pagkalinawan: “Mga estilo at estratehiya sa pag-aaral at pagkatuto: Isang mungkahing dulog sa mahusay na pagtuturo ng Filipino”

Florinda Palma-Gil and Ria Rafael: “Filipino bilang wikang panturo ng wikang Hapon”

Joey Villanueva: “Paghahawan ng mga balakid tungo sa mas kompetitibong pagkatuto ng mga dayuhang mag-aaral ng wikang Filipino: Isang natatanging pag-aaral”

Purificacion Delima: “NMK (*Naimbag nga morning, kapamilya*): Ebidensya ng natural na paggamit ng wika sa multilingwal na konteksto at impact sa pagtuturo”

II. Wika, Kultura at Lipunan

Rosalie Calpito: “Kahulugan ng mga terminong patawad sa mga diskurso ng mga maikling kuwentong Ilokano”

Anna Coloma: “The emergent Tarlac variety of Kapampangan in Tarlac City: A descriptive study”

Nestor De Guzman: “Ang mga kulturang popular sa pagpapayaman ng wikang Filipino

Evangeline De la Cruz; Voltaire Oyzon and Michael Villas:

“The acoustic properties of Waray vowels”

Christopher Dofitas and Mark de Chavez: “Mga salik na nakakaapekto sa pagpasa ng wikang Gaddang sa nakababatang henerasyon”

Wennielyn Fajilan and Rachele Rodriguez: “Sawikaan at ang pagbabanyuhay ng wikang Filipino: Ilang tala ukol sa ugnayan ng wika at kulturang popular sa kasalukuyan”

Firth McEachern and Elizabeth Calinawagan: “Projections of language use in an urban center of Northern Luzon Philippines”

Norma Mendoza: “Mga kuwentong bayan ng Kabulowen Dumagat: Isang linggwistika’t cultural na pagsusuri”

Wilfredo Mina: “Insight into Filipino dynamics through family metaphors”

Michael Villas: “Waray poetry and the language issue: A critical discourse analysis”

Louward Zubiri and Kate Janagap: “Language usage of 3rd and succeeding generations of Chinese Filipinos”

Purificacion Delima: “Promoting community-based initiatives for linguistic and cultural diversity”

III. Estado ng Wika sa Iba’t Ibang Larangan

Severino Alviento: “Significance of language used in local legislation”

Sherma Benosa: “Ilocano orthography: issues and recommendations”

Evangeline De la Cruz, Rocini Tenasas, Regalado Tupaz, Michael Villas and Voltaire Oyzon:

“The acoustic properties of Waray vowels: Towards a modern Waray orthography”

Jerico Esteron: “Mula Pangasinan tungong Filipino: Pagsasalin ng ilang mga ‘anlong’ ni Santiago Villafania”

Junley Lazaga: “Pagsasalin sa Filipino ng ilang daniw may diin sa pagsalba’t pagsakripisyo at panghihiram”

Firth McEachern and May Alzate: “Contemporary Philippine language planning in a global context”

Edna Nagtalon: “A handbook on Ilocano rhymes and jingles”

Anna Christie Torres: “Ngangagaman bahag at si William Henry Scott: Pagsasalin at ang diskursong Kordilyera”

Mark De Chavez: “Wika sa merkado: Wikang gamit sa pabalat ng mga produkto”

Jay-Ar Igno: “Filipino fonoloji: Isang pagsusuri sa wika ng brodkast-midya”

Rommel Tabula: “Semantic change of the selected Ilocano words of Bannawag subscribers in the UNESCO Heritage City of Vigan”

More information from cac.psw2011@gmail.com

April *Timek*: Part I

Reclaiming Baguio's Pristine Air and Green Environment: Would it Make Economic Sense?

■ By Achilles Costales

Air Quality in the City

Air quality is measured by the levels of certain ambient air pollutants that are major environmental health hazards. These include particulate matter - total suspended particulates (TSP) and PM_{10} , carbon oxides (CO and CO_2), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), Ozone (O_3), among others. The Philippine Clean Air Act of 1999 sets standards for TSP, PM_{10} , CO, NO_2 and SO_2 . The connection between the deterioration of air quality and human health impacts is fairly established. From Cassidy et al. (2007):

Epidemiological studies show that there is a close correlation between exposure to air pollutants and mortality and morbidity, including asthma, chronic obstructive pulmonary disease, cardiovascular disease, lower birth weights, cancer, and premature births. Furthermore, particulate matter generated from combustion processes, particularly diesel exhaust particulates, are highly toxic and often result in more exacerbated health effects.

Focusing on particulate matter (PM) standards, total suspended particulates (TSP) refer to particulate matter with aerodynamic diameter between 20-50 micrometers. PM_{10} , on the other hand, refers to particles with aerodynamic diameter less than 10 micrometers, which may



reach the upper part of the airways and the lungs. Standards on critical values of PM_{10} are set for maximum allowable exposures, in micrograms per cubic meter ($\mu g/m^3$), on a short-term basis (24-hr mean) and long-term basis (annual mean). Long-term critical values are lower than the short-term standards. Table 1 compares the standards for particulate matter adopted by the Philippines (CAA 1999), the European Union (EU), and the UN World Health Organization (WHO). For PM_{10} , both the EU and WHO standards

are more stringent than those prescribed in the 1999 CAA of the Philippines.

The EU Directive also imposes that the number of days in which the short-term limits are breached should not exceed 35 days within a given year. In addition to its Air Quality Guideline (AQG), it also sets graduated interim targets (IT's) for the short-term PM_{10} levels, between 50 to $150\mu g/m^3$, and for the long-term levels, between 20 and $70\mu g/m^3$. These targets correspond to the magnitudes of increased mortality risks associated with

larger values of the IT's. For the 24-hr standard, remaining in the lowest-level target of PM_{10} not exceeding $150\mu g/m^3$ implies an average increase of about 5% in short-term mortality risk over the levels associated with meeting the 24-hr AQG. For the annual standard, staying at the lowest-level target of PM_{10} not exceeding $70\mu g/m^3$ implies an aver-

Standards	PM_{10}		TSP	
	24-hr	Annual	24-hr	Annual
1999 Philippines Clean Air Act (CAA)	150	60	230	90
2005 EU Directive	50	40	-	-
2005 WHO Air Quality Guideline (AQG)	50	20	-	-

Sources: DENR-EMB, EU 2011, CAI-Asia 2010.

Table 1. Comparative standards for Air Quality for PM_{10} and TSP. (In $\mu g/m^3$)

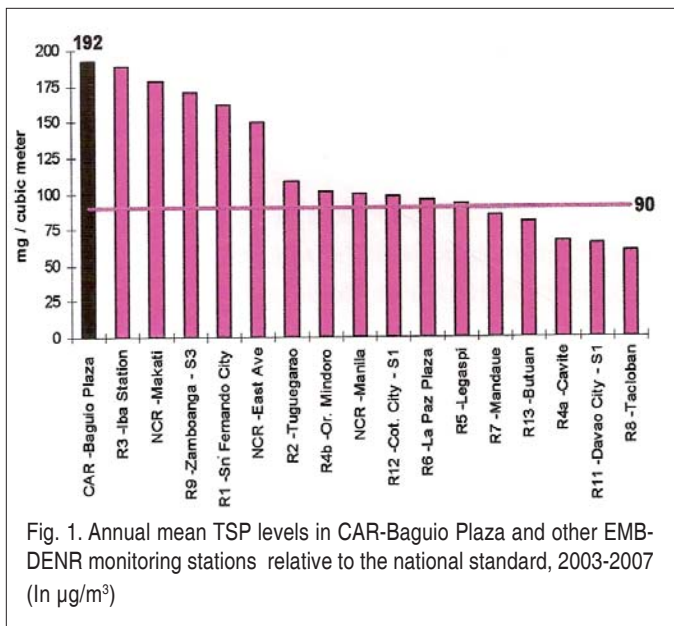


Fig. 1. Annual mean TSP levels in CAR-Baguiu Plaza and other EMB-DENR monitoring stations relative to the national standard, 2003-2007 (In $\mu\text{g}/\text{m}^3$)

age increase of around 15% in long-term mortality risk.

Baguiu TSP levels

Over the years, how did Baguiu compare with the other cities in the Philippines in terms of air quality? The EMB-DENR National Air Quality Status Report 2005-2007 showed total suspended particulates (TSP) across air quality monitoring stations in various cities in the country. Figure 1 reveals that over the years spanning 2003-2007, the CAR-Baguiu station registered the highest TSP mean level ($192\mu\text{g}/\text{m}^3$), exceeding the national standard by a factor of 2.

In recent years, the TSP measure of air quality has now been replaced by the finer particulates measure, the PM_{10} , since coarser particulates could be filtered via the nose and mouth (Clean Air Initiatives for Asia, 2010).

Baguiu PM_{10} levels

Since 2007, the EMB-DENR CAR - Baguiu air quality monitoring station started measuring the PM_{10} levels. Table 2 shows the quarterly and annual mean levels of PM_{10} in Baguiu from 2007 to 2010.

The quarterly entries have two quarters with missing entries. These missing entries are associated with equipment malfunction over some days within the quarter.

Throughout the four-year period, the annual mean levels of PM_{10} in Baguiu were in violation of the national standard of $60\mu\text{g}/\text{m}^3$ set by the Philippines CAA of 1999. Moreover, in none of the years did the mean levels of PM_{10} pass the WHO lowest interim target (IT-1) set at

$70\mu\text{g}/\text{m}^3$ associated with increased long-term mortality risk by 15% relative to the AQG. Using the WHO annual mean guideline as standard, the Baguiu PM_{10} annual mean levels were higher by 266% to 430%.

On average, the PM_{10} levels subside during the 3rd Quarter. This may correspond to the rainy season and typhoon period when economic activity slows down, rainfall washes down some of the particulates, or the stronger winds blow some proportion away. Still, on a quarterly basis, there was also no period of the year where the Baguiu PM_{10} levels passed the national standard.

On an annual basis, taking the last three years, a worsening of the PM_{10} levels has been taking place. This indicates that between 2008 and 2010, the air quality of Baguiu had been worsening.

The EMB-DENR CAR - Baguiu computerized equipment

records PM_{10} and other ambient air pollutants at its monitoring station on real time basis. For short-term evaluations over a 24-hr period, minute-by-minute levels are captured. A sample period was obtained covering the days 8-11 February 2011. The data are averaged on an hourly basis to obtain a picture of how the PM_{10} levels behave over a 24-hour period. Figure 2 (next page) depicts the behavior of PM_{10} levels in the Baguiu Central Business District (CBD) on ordinary working days.

Tracked over four days, the graph of the hourly PM_{10} levels shows a strong regular pattern of peaks and troughs. The recorded levels register a mean of $67.3\mu\text{g}/\text{m}^3$. This level is well within the 24-hr Philippines standard of $150\mu\text{g}/\text{m}^3$. Can we conclude that the air quality of Baguiu is relatively acceptable? Note, however, this value is still 35% above the WHO/EU 24-hr guidelines.

The regular pattern of the hourly behavior of PM_{10} levels in the Baguiu CBD indicates that it reaches peak levels at around 06:00 and 07:00 in the morning, and another peak from 17:00 to 19:00 in the evening. Using the Philippine 24-hr $150\mu\text{g}/\text{m}^3$ guideline, the Baguiu PM_{10} levels regularly breach the critical value in the morning rush hour, then also breaks the $100\mu\text{g}/\text{m}^3$ mark in the evening rush hour. Using the common WHO/EU 24-hr guideline, however, citizens in the Baguiu CBD are exposed daily to PM_{10} levels that exceed the $50\mu\text{g}/\text{m}^3$ critical value for almost their entire active hours, from

Quarter	2007	2008	2009	2010	Quarterly average
1st		76	86	112	91.3
2nd	95	77	91	126	97.3
3rd	83	66	80		76.3
4th	84	74	98	80	84.0
Annual mean	87.3	73.3	88.8	106.0	
% in excess of the National 1-yr standard ($60\mu\text{g}/\text{m}^3$)	46	22	48	77	
% in excess of the WHO 1-yr AQG ($20\mu\text{g}/\text{m}^3$)	337	266	344	430	

Table 2. Quarterly and annual means of PM_{10} in Baguiu, 2007 – 2010.

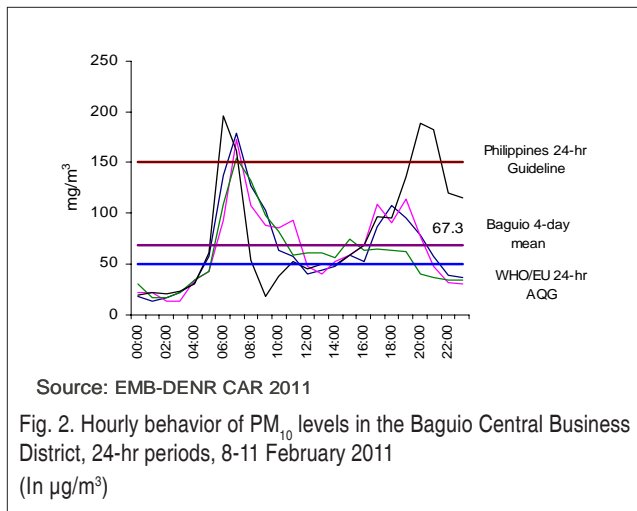


Fig. 2. Hourly behavior of PM₁₀ levels in the Baguio Central Business District, 24-hr periods, 8-11 February 2011 (In µg/m³)

05:00 in the morning until 20:00 in the evening. The levels abate only when the residents are already in their homes, and may not necessarily be enjoying the benefits of the lower air pollution in the city center. Thus, on a daily basis, an ‘averaging out’ of the actual hourly pollution levels gives somehow a false sense of security, and masks the seriousness of the levels of exposure over the span of the day when the levels of pollution impact on them the most.

How ‘acceptable’ or how ‘bad’ the air quality of Baguio really is? It now becomes obvious that the assessment depends on the standard that is being adopted as the norm. The more ‘lenient’ the standard being used, the ‘better’ the air quality appears to be. This means that there would be lesser political pressure on the local and national authorities to undertake measures to curb the current air pollution levels. When the health of the citizens is at risk through exposure to the current high concentrations of ambient air pollutants, the potential risk is not removed by adopting a more ‘permissive’ standard.

An independent study on the air quality of Baguio by Cassidy, *et al.* (2007), using the levels of concentration of finer and even more dangerous particulates (PM_{2.5}), found a similar pattern of hourly concen-

trations of the ambient air pollutant in the Baguio CBD. The mean level over a three-week period in December 2004 was determined to be at 72.9 µg/m³. The guideline set by the WHO for PM_{2.5} is 10 µg/m³. For the US Environmental Protection Agency (EPA), standard is set at 15 µg/m³. For the EU, the standard is 25 µg/m³. In general, the standards set for PM_{2.5} are more stringent than those allowable for larger particulates. The

authors used the figures they obtained to compare the Baguio PM_{2.5} levels with those observed in selected cities of the world that had higher mean levels than the US EPA standard. The comparison is shown in Table 3.

From their findings, the authors observed that:

Excluding the studies in Beijing, China, no other study observed an average ambient PM_{2.5} concentration as high as the levels present in Baguio City. ... Continuous ambient concentrations of the magnitude seen in Baguio are rarely seen in developed countries and are sporadically seen within developing countries, except in areas prone to elevated concentrations partially due to local topography. The combination of pollution sources and the local topography makes Baguio City’s ambient air quality worse than that seen in most locations throughout the world.

The evidence at hand on the levels of ambient air pollut-

ants in Baguio, set against the national and international minimum standards for a healthy air quality, point to an inescapable conclusion: the current air pollution levels in Baguio, on the basis of the mean levels of PM₁₀ and PM_{2.5}, respectively, pose a potential risk to the health of local citizens. For this alone, there exists a societal problem at hand, and the issue merits foremost policy attention, recognition, and concerted policy design and intervention to bring down the levels of the known ambient air pollutants to the level of the national, if not international standards for public health.

Will the Problem be Given Proper Recognition?

What chances are there that the extent of the problem would indeed be recognized? Are there any complaints from the citizens of Baguio, and a clamor for measures to bring down current air pollution levels? A real cause for concern is that the finer ambient particulates are imperceptible to the man-on-the-street. When he/she suffers respiratory or coronary ailments from these air pollutants, the connection would not necessarily be established. For indeed, what proportion of the local residents would likely be informed of the nature of these ambient particulates, their levels of concentration in the air they

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Sampling Location	g/m ³
Beijing, China (1999-2000)	116.0
Beijing, China (2003)	93.6
Baguio City, Philippines (2004)	72.9
Seoul, South Korea (2001-02)	48.5
Turin, Italy (2000-01)	44.9
Mexico City, Mexico (1997)	38.7
Guatemala City, Guatemala (1997)	37.9
Los Angeles - South Coast Basin (2002-04)	24.8
Barcelona, Spain (2000-01)	22.2
Paris, France (2000-01)	17.8

Source: Cassidy, *et al.* 2007.

Table 3. Mean PM_{2.5} concentrations in Baguio CBD and various cities in the world.

Colonialism and Gender

A Report on American Colonization and Gender Relations in Central Cordillera (1900-1941)

■ By Sabrina Nikki Ramos

Missionary teaching reified gender stereotypes

Within the social sciences, there is now a growing critical inquiry into the notion of diffusionism: the idea that development can only take place when there is exposure to an outside group. Accordingly, if left alone, 'primitive' or 'elementary' forms of life would remain the same and improvement would be painstakingly slow. This in turn necessitates the apparent need to open one's doors (or culture) to outside influence (usually in the form of colonial knowledge and influence).

However, what this idea takes for granted is that not all influences from outside are necessarily good and would contribute to improvement. One should be careful however not to draw an equally erroneous conclusion that cultures are 'pure' and consist of a homogenous and unified system of ideas and values that if tampered with, would result in its demise. Rather, what is necessary is a grounded and fair analysis of how cultures mediate outside influences such that agency and power relations are not taken for granted nor complacently evaded.

Many are of the view that gender relations in the Cordillera are for the most part egalitarian and that the current power formations that we see at play in terms of gender could be traced back to 'influence' from outside, more specifically colonial influence from the Americans. The question then that we are faced with is this, are we correct to interpret gender relations in Cordillera in this light? This is precisely what Dr. Raymundo Rovillos, the Dean of the College of the Social Sciences attempted to address last February 18, 2011 when he delivered a talk that inquired into the effects of American colonialism on gender relations in the Central Cordillera. Employing archival research as a method, the study explored the role of education and mission in influencing gender relations in terms of gender ideology, gender division of labor and sexuality, com-

paring gender practices prior to and during the colonial regime.

It was observed that from 1900-1905, the gender division of labor in Ifugao was supposedly based on the capabilities that were deemed 'natural' to men and women. Thus, men were given the hardest work such as rice field construction, blacksmithing and wood gathering. Women on the other hand were in charge of basket weaving, planting rice and caring for



the growing rice. Interestingly, one can see that even if the women were given relatively lighter load, they in fact did most of the work as can be seen in the division of labor when it comes to rice farming. It is worth noting however, that there were some tasks that both men and women contributed to such as spading fields, harvesting, carrying rice, cooking and child caring/rearing.

This then indicates that in terms of gender ideology it is noticeable that indigenous culture is one in which women have always had a measure of equality with men. This is especially true as can be seen from the examples above as both men and women contributed to work outside and inside the home. Since it was the men who did the difficult work, it was but fair that women compensate in doing more work than them. Thus, there seems to be an equal recognition of the importance of both

men and women's contribution. Women's sexuality however can be seen to be inextricably related to their role as child-bearers, for the reproduction of the clan/kinship. In the same way that they were in charge of caring for children, they were also tasked with caring for and planting rice, thus exhibiting their 'natural' affinity with nurturing tasks.

However, with the onset of the colonial regime from 1905 to 1941, there were stark differences that took place. In line with the framework of benevolent assimilation, the colonial regime gave particular importance to educating the Igorots. It was imperative that the culture and customs of the Igorots be studied with great care in order to facilitate better governance. Moreover, the general thrust of education can be characterized to be a simple form of industrial training, equivalent to what we now know as vocational courses. Igorots can be educated to be better carpenters, better gardeners and farmers: they can be the best that they can

in the realm of manual labor, but they should not traverse this sphere as doing so would entail departing widely from their habitual course of life. Of course one should not forget that knowledge of a cultivated (colonial) language is also necessary "to enable them to deal advantageously with the civilized inhabitants by whom they are surrounded."

All of this implies that the colonial regime looked at the Igorot people as incapable of development when left alone in their natural surroundings. The same is true even with Christian missions as these served as an effective colonial instrument.

As can be seen in the quote above, the Igorot people were seen to have a potential for development, but great care was said to be exercised in identifying those who have superior intelligence and capacity for leadership.

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Model organisms as tools in biological research

Studies contribute to medical research on human diseases

■ By Karen Ballada and Deemson Mones

The Department of Biology, in cooperation with the Lecture Series Committee of the College of Science, conducted a seminar-workshop entitled “Model Organisms for Biological and Biomedical Researches” on March 7, 2011. Aimed at encouraging colleagues in the academe to further their research activities, the Department chose the workshop topic as many biological researches involve the use of model organisms to evaluate, validate, and even to establish scientific concepts.

The value of model organisms in scientific researches was highlighted by Dr. Paul Medina, a recipient of the *Balik-Scientist* Program of the Department of Science and Technology (DOST). As Medina mentioned in his two-part lecture, a model organism is a non-human species that is extensively studied to understand particular biological phenomena, with the expectation that discoveries made in the model organism will provide insight into the workings of other organisms. He underscored that a model organism is an alternative to using human subjects when the nature of the experiment makes it impractical or less ethical to do so.

In his lecture, Dr. Medina shared his experiences and knowledge in handling some of the commonly used model organisms. Such include *Escherichia coli* (bacterium), *Saccharomyces cerevisiae* (yeast), *Ceanorhabditis elegans* (nematode), *Mus musculus* (mouse), *Daphnia* (water flea), and *Drosophila melanogaster* (fruit fly).



Daphnia (water flea)

E. coli, a gram negative bacterium, is perhaps the most well studied organism. While it is a common enteric bacterium, most laboratory *E. coli* have lost their ability to thrive in the intestines. *E. coli* DNA material consists of a single bacterial “chromosome” and multiple plasmids. *E. coli* is commonly used in recombinant DNA technology. Yeast, on the other hand, is another example of a microorganism often used as a model organism. It is a single, free-living cell, only 3 microns in diameter (4,000 of them lined up would measure an inch). It reproduces by budding and doubles every 90 minutes, has 12 million base pairs of DNA, and has 6,000 genes, of which at least 31 percent have human equivalents. Hybridized yeast strains are being utilized in researches. These properties of the above-mentioned organisms make them good models to study bacterial and yeast transformations associated with biological phenomena.

Another model discussed in Dr. Medina’s lecture is the *C. elegans*, a free-living (not parasitic) nematode living in soil and feeding on bacteria that thrive on decaying vegetal matter. N2 strain (a hybrid) is used in research and has been a model organism since 1974. It is the first organism whose genome was completely sequenced. *C. elegans* genome size is relatively small (9.7×10^7 base pairs or 97 Megabases) consisting of 5 pairs of autosomes and a pair sex chromosome. About 35% of *C. elegans* genes have human homologs and human genes replace their *C. elegans* homologs when introduced into *C. elegans*. Such characteristics make *C. elegans* a perfect model for researches and has been employed in studies such as in autism, drug testing, kidney diseases, aging, circadian rhythm clock, herbal effects, and drug discoveries.

Daphnia (water flea), on the other hand, is an organism used as fish food. It is also currently utilized in bioassay of chemicals in freshwaters, such as pollutants and toxins (an ecotoxicological indicator). Its high fecundity makes it the standard in toxicological testing of freshwater. So far, there are over 100 species of water flea but the most studied are *Daphnia pulex* and *Daphnia magna* species. Unfortunately, *Daphnia* is not naturally found in the Philippines, though

a smaller close relative – the *Moina* - is found locally. As per record, *Daphnia* is the first crustacean to have its genome sequenced and is the animal with the most genes numbering to 31,000 compared to humans having only 23,000. *Daphnia*'s high gene number is largely due to its genes multiplying at a higher rate than other species. This occurs at about a three-fold rate higher than other invertebrates, 30% greater than humans. Dr. Medina mentioned that more than one-third of *Daphnia*'s genes are undocumented in any other organism. In other words, they are completely new to science. Of all sequenced invertebrate genomes so far, *Daphnia* shares the most genes with humans. Due to *Daphnia*'s genetic wealth, it is emerging as a model organism for a new field of science - Environmental Genomics. This field endeavors to understand how the environment and genes interact. Since the majority of duplicated and unknown genes are sensitive to environmental conditions, their accumulation in the genome could account for *Daphnia*'s flexible responses to environmental change.

Mus musculus (laboratory mouse) is another perpetual model organism used in research. Its genetic and physiological similarities to humans allows for the generation of disease and treatment



Daphnia is central to a new field, environmental genomics

models. Its entire genome sequenced allows for the generation of specific mutant lineages and reverse genetics studies. Genetically, the lab mouse has 40 chromosomes with three billion bases.

It is the organism that is the most genetically identical to humans among model organisms. Currently, there are 426 major inbred strains available and a significant gene functional studies involves gene knockouts. A *knockout mouse* is a genetically engineered mouse in which one or more genes have been turned off through a targeted mutation. By causing a specific gene to be inactive in the mouse, and observing any differences from normal behavior or condition, researchers can infer its probable function. Currently used mouse models for human disease are for Alzheimer's disease, Down syndrome, cystic fibrosis, cancer, glaucoma, types 1 and 2 diabetes, epilepsy, heart disease, muscular dystrophy, and many more. Unfortunately, use of lab mice draws negative attention from animal rights activists (i.e. PETA) and is considered immoral in some social circles.

Drosophila (fruit fly) is considered an awesome research tool that can be used to investigate biological and biomedical questions. This is due to its small size (~ 4mm), very fecund (~ 50 eggs/day/female), with short generation time (14 days), a large number of visible markers, a small number of chromosomes (4), amenable to various molecular manipulations, and 75% of human



Drosophila (fruit fly)

disease genes have counterparts in *Drosophila*. Diverse research areas using flies include studies on developmental processes, genetic mechanisms, neurodegenerative disease, aging, metabolic disorders, alcoholism and other addictions, cancer, heart disease, and others.

During the practical sessions which followed immediately after the lecture, the junior faculty members of the department assisted Dr. Medina in giving demonstrations on handling the model organisms mentioned above. Freda Wong demonstrated the proper techniques employed in performing intraperitoneal injection, retroorbital bleeding, and dissection of mice. Noreen Follosco, on the other hand, demonstrated techniques in the preparation and maintenance of *Drosophila* cultures. Moreover, she demonstrated a technique in isolating polytene chromosomes. Jaime Cañedo also demonstrated the morphology and biology of *Daphnia* as well as the maintenance of *Daphnia* culture. Dr. Medina himself showed actual cultures of *C. elegans* and discussed how to maintain the stock culture. He also took the chance to teach the participants simple lab techniques such as determining a gram negative or gram positive bacteria using sodium hydroxide solution instead of employing the conventional gram staining method. ■

What the team brought home from Isabela

■ By Jennifer Inovero



After shooting at Gamu stadium

The 2011 National State Colleges and Universities Athletic Association (SCUAA) was held on February 21-26, 2011 at the Gov. Melanio Singson Sports Complex, Alibagu, Ilagan, Isabela. This was participated in by athletes from regional selections all over the country— Region I (Ilocos region), Region II (Cagayan Valley), Region III (Central Luzon), Region IV (Southern Tagalog), Region V (Bicol region), Region VI (Western Visayas), Region VII (Central Visayas), Region VIII (Eastern Visayas), Region IX (Zamboanga Peninsula), Region X (Northern Mindanao), Region XI (Autonomous Region in Muslim Mindanao), Region XII (SOCCSKARGEN), the National Capital Region, Cordillera Administrative Region (CAR) and CARAGA region, ‘the land of the brave and the fearless’. The delegates were billeted in various public schools in Isabela, where a warm welcome and superior hospitality from the provincial government and the people of Isabela was felt by the participants.

The UPB women’s varsity basketball team earned the right to represent CAR in the said meet after emerging as champions in the CARASUC eliminations held in Lamut, Ifugao two weeks earlier. We left Baguio on Sunday, February 20, via Ambuklao road and arrived in Ilagan, Isabela at 5:00 pm. We had lunch at Solano, Nueva Vizcaya, halfway to our destination. After travelling for almost 8 hours, we went straight to Alibagu to see the venue of the games and then we proceeded to Gamu Central School where all CAR delegates were billeted. The team had three ‘new’ teammates from Mountain Province State Polytechnic College (MPSPC), the only selected players from the seven participating schools in the CARASUC. Our first night in Isabela was spent mostly for rest and a little ‘get to know

each other’ since everybody was tired and we had to be up early the following morning for the opening parade.

Day 1, February 21, Monday: The team was ready at six. We decided to go to the venue ahead of the others, as we had to meet with Prof. Florendo who just arrived in Isabela a few hours earlier, bringing with him our CAR uniforms from Baguio. Assembly was at the Ilagan Municipal hall, with the opening parade starting a few minutes past 8. All delegates wore their colorful regional colors in jogging pants, t-shirts and jackets, displaying a festive morning mood for Isabela. The delegates from each region marched to the sports complex (just a stone’s throw away) and took turns in being presented to the guests and the people of Isabela. The opening program ended shortly after 12 noon and games immediately followed.

As I tried to get hold of the schedule for basketball women, I was very surprised (and at the same time disappointed) to know that CAR was not included in the bracketing (earlier made in SCUAA Manila office) and so we were not in the schedule of games. I inquired about this with coaches from Region III, NCR and Region IV, the tournament manager and the tournament head. With the CAR representative to the SCUAA finally talking to the tournament head and after several hours of discussions and arguments, we were finally assigned under Bracket B since teams under Bracket A were already playing at the time the ‘new’ schedule was made. There were 9 entries for basketball women: two (2) brackets for a single round robin elimination type. Bracket A entries were Regions II, V, VI and NCR while Bracket B entries were Regions I, III, IV, VII and CAR. After a very long day

spent under the scorching heat of the Isabela sun, most of us had big headaches. We had dinner before going back to our quarters for a well deserved rest and good night’s sleep.

Day 2, February 22, Tuesday: Game 1: CAR vs Region VII (Central Visayas). The team had to be up for an early morning jog around the oval, coupled with our usual strengthening exercises (100 push-ups and 250 crunches). After warm up, we went straight to Gamu stadium (about 200 meters from our quarters) for shooting drills and review of plays with MPSPC players (this was the first time that the team practiced with them). Late brunch followed. After some rest and refreshing baths, we were already at the venue before game time.

However, our opponents arrived one and a half hours late, having played their first game earlier in the morning. In sports, there is such a thing called ‘defaulting time’ and if rules were to be followed strictly, we should have won our first game by forfeiture. There was even a little argument with the tournament manager because he even blamed us for ‘squeezing in’ on the schedule of games. He approached me in a not-so-polite manner and so I reasoned out his ‘irrational’ arguments. In the end, he apologized and the game finally started two hours later. Losing momentum and with the team shooting only 36% field goals, 53% free throws, and committing 28 turnovers, Region VII won the game at 72-87 as the final score.

With our first loss, we went back to our quarters in Gamu with a not-so-heavy heart because we knew that we played good basketball and fought as a team despite the players’ ‘first game jitters’. Later that night, we had an assessment of our game. Our field goal per-



Warm up

centage was our first game's weakness. Another session of the 'in between' game was played again that night for relaxation and 'bonding time' before retiring.

Day 3, February 23, Wednesday: Game 2, CAR vs Region IV (Southern Tagalog). After the routine cardio and strengthening workout, the team completed extra shooting drills, hoping to improve our field goal percentage. From the Ilagan sports complex, games for basketball women were moved to the Roxas gym, a 30-45 minute jeepney ride from Gamu. Our game, however, started at 7:00pm, three hours earlier than scheduled. The game was slow at the start, with both teams having low scores after three quarters. Every ball possession for CAR, especially when Perucho drove down to our frontcourt, everybody in the crowd loudly cheered for the team. Indeed Perucho played the game of her life, converting shots from anywhere inside the court with whatever 'magical' move she knows so well. I have never coached a game like this before and I have never felt all these goose bumps all over my body while coaching in the sidelines. If the UP Baguio crowd was there, I am sure that they will be very, very proud of how the team played.

If heart rate monitors were attached to each one of us, the tachycardia could have put us on the verge of 'cardiac arrest'. We could have really won this game had we made even just one shot from the free throw line. Region IV's pregnant assistant coach even jokingly mused that she almost gave birth with the game's twists of turnovers. The game finally ended at 9:40 pm, with 82-81 as the final score. After some exchange of handshakes, Region IV players and their coaches even requested for a friendly 'picture taking' with Perucho, their 'idol' and with the rest of the team.

Everybody was silent during the first few minutes of our jeepney ride back to our quarters. However, it did not take the team long enough to laugh together again and momentarily forget what happened earlier in the game. We arrived in Gamu at 10:30 pm for a quick dinner, quick shower and a quick/short assessment of our game before everybody was lulled to sleep by tiredness and 'heavy hearts'. Honestly not knowing exactly

how and what to feel that night, I told my players straight from the heart that even if we did not win this game, I still cannot feel that we lost earlier. I am very proud to say that the team gained a more essential value and fact of life—that is, respect—from the crowd inside the gym, because of their skills and attitude. The team had definitely won each of the hearts of the people of Isabela inside the Roxas gym, even the hearts of our opponents and their coaches. We still had two games to be played the following day, versus Region III and Region I.

Day 4, February 24, Thursday: Game 3, CAR versus Region III, 7:00 am. With only a few hours of sleep, the team still managed to finish their push-ups and crunches before leaving quarters for our third game. Breakfast was at five, with most players still very sleepy and tired from the previous night's game. Playing again at a delayed game schedule under a hot morning sun, Region III got the better off the team, finishing the game with a 13-point advantage, 57-70 as the final score. This game was even made more dramatic when I was slapped with my first ever technical foul in my 6 years of coaching. Bad officiating (since our first game) should have no room for games like these, especially when your players are working very hard to win a game. Who would not complain about numerous 'inconsistencies' and 'failures' as—'no official ball' policy, 'no defaulting time' policy, there were no ground rules discussed, tournament manager doing a walk out during the coaches' meeting, no licensed referees officiating the games, table officials who are obviously not familiar with basketball hand signals for player numbers and

arrogant table officials and tournament manager? These should not be repeated again as a sign of respect to the game of basketball, the game that we all love.

The team played their last game (at a delayed time schedule again as usual) still with a big heart but obviously with tired bodies. However, they still managed to put up another gallant fight, with two key players sidelined with injuries even before overtime. Ando, who rarely suffers from an injury, landed on the wrong foot after an attempt at the basket, getting a sprained left ankle in crucial time. Perucho, who ran after an opponent speeding for a fast break was charged with a blocking foul, instead of a very obvious offensive foul from that player from Region I. To avoid a bad fall, Perucho reacted instinctively, 'flying' and falling on the floor with her left arm protecting her body, which caused her left wrist to swell due to hard impact. We brought her to a nearby hospital for x-ray after the game and she was on medication and arm sling for more than a week. Luckily, there was no fracture or dislocation in her arm. We could have won this game also if only we had converted a bonus free throw. We lost the game by three points, the final score was at 88-91.

As coach, I am still proud of my players even if we brought home a 0-4 win-loss card. They are a very young and inexperienced team. But they play with a very big heart each time they face their much bigger and more experienced opponents, while trying to live up to be true Lady (Fighting) Maroons representing not just UP, but CAR as a whole. ■



Zone defense: Game versus Region III

Reclaiming Baguio, *from page 6*

breathe in their most active time of the day, and by how much these levels exceed the accepted health standards? As long-time residents have become accustomed to the gradual worsening of the air quality of the city, the incremental changes might hardly be noticeable, and the current conditions are perceived as 'normal'. It would take an outsider, or a new arrival, to 'spot the big difference'. Yet an outsider who makes a loud noise about the air quality in Baguio, and displeases the local authorities, might be declared *persona non grata*.

It is also probable that local authorities, well-meaning as they would be, might not themselves be informed of the gravity of the situation, and are convinced that the measures they are undertaking now to control the air pollution levels are quite sufficient.

There are significant economic and social costs to the city and to its residents if the hazardous ambient air pollutants are not brought down. The mirror image of this is that there will be economic and social benefits to the city and to the local citizens, and even to visitors, if the air is transformed to become much cleaner and the environment becomes greener. What would it take to do so? Designing and implementing realistic measures to approach that cleaner air and greener environment will certainly entail costs – *'there is no such thing as a free lunch.'* What feasible options are out there but might have not yet been thought of? ■

Part 2 in May *Ti Similla*



Colonialism and Gender, *from page 7*

However, all is naught if they are not educated in superior conditions for it is only then that their higher faculties could be cultivated. Needless to say, this could only be done by religious evangelization.

The missions were also replete with gender ideology as the education of girls was strictly guided and supervised for the purpose of training them to become Christian wives and for them to play a role in developing model Christian families. Accordingly, by doing so the girls could exercise their influence on their fellow Igorots. In addition, education of boys and girls was starkly different. Whereas boys were trained for local leadership or more generally trained for engagement in the public sphere, women were educated to be protectors of the private sphere: caring for the home and housework.

Rovillos highlights how these missions were influenced by eugenics in their aim to produce a new generation of civilized individuals and this could only be done when educated Igorot men were united with educated Christian Igorot women. Women especially played a key role as they identified women to be the protectors of tradition compared to men. Thus, if they were able to train and educate the Igorot women, they had "won half the battle" of producing a civilized society.

It is worth noting however that this task proved difficult as they were unable to get as many girls as they would have liked as the parents were reluctant to allow their children, especially the girls, to be educated in mission schools. Since women did most of the work, to allow the girls to study then was to rid the parents of much needed help. The effect of education on men and women was found to be skewed as men were more literate, were able to attain a more superior education and were more engaged in professional service compared to women.

Rovillos also brings to light the fact that American colonialism introduced a gender ideology based on notions of a middle class, Christian family and that missionary effort and education had the greatest impact in the area of sexuality. Moreover, gender stereotypes on gender division of labour were introduced especially among the educated, but had little impact on the rest of the population. ■



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