POSITION PAPER ON THE POLICY CONCERNING DISASTER-RELATED DATA GENERATED BY THE UNIVERSITY OF THE PHILIPPINES

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The University of the Philippines is now in a position to make a difference with regard to disaster management and prevention in the Philippines, and possibly the world. It can either make or break the program of government on disasters. Soon, the University will have to decide on whether to support the National Government policy on Open Data or get us back to the old practice of controlling data because of commercial motives, under the pretext ofcost recovery or sustainability. Such data, which can be made either fully open access or controlled, are critical in saving lives.

Control of data because of intent to commercialize severely compromises opportunity and limits hard-earned progress to elevate disaster risk related knowledge. Such behavior, if practiced by Government Departments, Bureaus, and Offices of the National government and State Universities and Colleges (SUCs), where cost barriers become an issue in disseminating hazards-related data and information, impedes progress to improve the quality of disaster risk models because the development of innovative tools and techniques become limited. As a result, efforts by local communities, including businesses that seek to improve our ability to mitigate the harsh impacts of hazards and management of our environment are undermined.

This document lists, in the form of questions and answers, facts and arguments that may help the administrators of UP understand issues related to the release of NOAH and DREAM products funded by the Department of Science and Technology (e.g., LiDAR data and hazard maps).

Is there a National Policy of the government that can guide UP to release NOAH data for free?

1. Yes, the national government has an open-data policy, which guarantees the constitutional right of people to information on matters of public concern; seeks to drive government decision-making based on available and sound data; establishes linkages with CSOs, the private sector, and academe and aspires to create opportunities that benefit both government and public. *The data policy states that data be made publicly available and accessible by default; be open and machine readable formats; and offered free and without restrictions subject only to proper source attribution* (data.gov.ph).

2. There is a DOST data sharing (A.O. 003) and Intellectual property policy (A.O. 004) that can guide UP.

   Key elements of the DOST sharing policy include: 1) Consistency with the Joint Memorandum Circular No 2014-01 or the Open Data Philippines; 2) Adherence to the precept that publicly-funded research data are produced in the public interest and should therefore be accessible to the maximum extent possible; 3) The social benefits from sharing publicly-funded research data are produced in The public interest and the advancement of public services **based on timely and accessible** national and local research data; 4) Consistency with Republic Act No. 10055 or the Philippine Technology Transfer act of 2009, which recognizes intellectual property (IP) rights and the need to restrict the release of proprietary information that may compromise such rights.

   Who owns the IP and IPR? Section 1 of the intellectual property policy (Administrative order no 004), states that IPs and IPRs derived and generated from R&D activities funded by DOST, whether such funding is in whole or in part, **shall, in general,** be vested in the RDI that actually performed the activities. However, in Chapter 3, section 3 of the same document, it states that **DOST assumes ownership of IPs and IPRs, be it potential or otherwise**, which are vested with the Research Development Institute (RDI) when it involves **protecting public interest, particularly national security, nutrition, health**, or the development of other vital sectors.and IPR

   Data and information generated by NOAH and all of its component projects (i.e., DREAM, Landslides Hazard Mapping Project, etc.) deal with disasters and therefore are considered important in protecting public interest and national security.AR

3. The General Appropriations Act of 2015 states that "all government entities to adopt a policy of openness for all datasets created, collected, processed, disseminated, or disposed through the use of public funds to the extent permitted by applicable laws and subject to individual privacy, confidentiality, national security, or other legally-mandated restrictions. Openness means that **datasets published by agencies shall be machine-readable, in open formats, and released with open licenses**".

Does the Philippines have an international commitment for Open Data?

Yes, we have an international commitment for making disaster data openly accessible, reliable, and timely.

1. In 2011, President Aquino made a commitment to open data and the Open Government Partnership at the Google offices in New York (data.gov.ph). In

President Aquino's statement, he said "The ever-quickening pace of communication and ever-increasing opportunities for engaging in conversations across sectors and borders is both a boon and a bane. Anyone with access to an Internet connection can reach millions of people and dispense pearls of wisdom or, perversely, misinform and mislead in pursuit of a selfish agenda. **The government must open itself to those pearls of wisdom, wherever and whenever they may originate**." The Joint Memorandum Circular No 2014-01 or the Open Data Philippines memo was issued soon afterwards and the open data website (data.gov.ph) was established.

2. The commitment to open data in disaster efforts can also be seen in the Statement of the Philippines delivered by our permanent representative to the United Nations, Ambassador Cecilia Rebong, to the United Nations and other international organizations during the GEO ministerial summit (Rebong, 2014). To quote Ambassador Rebong, "Considering these characteristics of our country, the Philippines recognizes the value of Earth observations in addressing such challenges as climate change adaptation, resilience to natural hazards, as well as food security, energy security, and water security… Indeed, access to timely, integrated, and actionable data and information about the Earth system is vital in order to respond to our societal needs and challenges. We are pleased to note GEO's intent to assist developing countries in **raising our capacities to acquire, share, store, maintain, and utilize space-based, air-borne, and in situ Earth observation data that is available on a full and open basis.** We look forward to better access to timely and reliable data, the building of our capacity in this sphere, as well as the development of our information infrastructure… Among others, the Philippines will continue to play its role in biodiversity monitoring, through the ASEAN Centre for Biodiversity which we host, and through the Asia-Pacific Biodiversity Observation Network. Being a member of the Asian Water Cycle Initiative (AWCI), the Philippines will also continue to work with the other members of the GEOSS/AWCI and participate in its various activities including its capacity-building programs."

3. We deal with products that are directly related to disaster risk reduction and we should take the lead in getting best practices in DRR applied. Open Data and timely delivery of disaster products are important in DRR. Promotion and enhancement of access to these items, particularly geospatial data, discussed and emphasized in the recently drafted UN disaster risk reduction framework (Hyogo Framework for Action 2 or HFA2) are imperative for DRR.

   The pertinent provision in the Sendai Framework for disaster risk reduction is found in Article III (Guiding Principles) Section G, where it is stated that "Disaster risk reduction requires a multi-hazard approach and inclusive risk-informed decision-making **based on the open exchange and dissemination of disaggregated data**, including by sex, age, and disability, **as well as on easily accessible, up-to-date, comprehensible, science-based,**

non-sensitive risk information, complemented by traditional knowledge"

Does the University of the Philippines have a commitment for Open Data?

1. The University of the Philippines is a State University College (SUC) and should in principle adhere to the policy of Government on Open Data (JMC No. 2015-01; Guidelines on open data implementation). In line with government's commitment to sustain data transparency, the Open Data Task Force released the Joint Memorandum Circular no. 2015-01 in compliance with Section 24 of Republic Act no. 10651, otherwise known as the 2015 General Appropriations Act (GAA). The JMC includes the following general principles for open access of government data:

    a. Guarantee the constitutional right of people to information on matters of public concern
    b. Drive government decision-making based on available and sound data
    c. Establish linkages outside government, especially with CSOs, the private sector and academe
    d. Create opportunities for innovation that benefits both government and the public.

    Also in the JMC, it clearly states that data must be publicly accessible by default, be in open and machine-readable format, and have an open license.

2. In view of the vision of the University of the Philippines, which takes the lead role in the development of a globally competitive Philippines; and its mission, which is to perform its unique and distinctive leadership in higher education and development and to lead as a public service university for the government, the private sector and civil society, it is prudent to promote the noble objectives of the government policy on Open Data.

3. It is our moral obligation **not to charge for what has already been paid for by the Filipino taxpayer**. After all, Filipinos invested more than 2 billion pesos for the DREAM and Phil Lidar programs. Deliverables of a project funded by DOST should be released at the soonest possible time and without any cost to both public and private sectors.

Does the DAP issue play an important role in choosing the Open Data Policy for the Lidar and Hazard maps?

The primary objectives of the NOAH and DREAM programs are to create detailed hazard maps and address the disaster problem of the country. Central to the distribution policy for LiDAR and Hazard Map distribution should consider the primary purpose of the programs, for which huge government funds were allotted.

DREAM was funded largely by DAP funds, which in itself is a controversial issue. Aside from the large budget of DREAM (more than 2 billion pesos), the DAP funding source automatically makes UP under public scrutiny. Filipinos will surely frown at UP and DOST when they learn that DAP funds allotted for disaster work are being used for commercial purposes by the University of the Philippines.

Is it correct to sell NOAH and DREAM data to private Filipino groups?

Why get taxpayers pay for a product which they already paid for? An analogy to this argument is building roads in a city and getting non-government citizens to pay a toll for using the road network. The roads were built so that people can perform their normal business in order for the city to prosper. Why make private citizens or people from the business community pay again for what they already paid for? Imagine if we will ask a private citizen or a businessman for a toll fee for the use of the road network to rescue a relative on the other side of the city during a disaster. Asking for payment for the toll delays the private volunteer rescuer from reaching his/her goal on time and compromises opportunity.

Has there already been collateral damage because of plans to commercialize Lidar data?

One good example of the compromise of opportunity is the delay in the availability of LiDAR data to NAMRIA due to the hesitation to release the data because of thoughts related to commercialization. NAMRIA could have already used the LiDAR products for rehabilitation and reconstruction efforts of OPARR in Yolanda affected areas. NAMRIA made all their IFSAR products available to OPARR and NOAH but we did not provide NAMRIA with LiDAR data for the Yolanda affected areas. We would have wanted to provide the best products for the stakeholders in need.

If all government funded projects and agencies think in this manner, then we are not providing what the Filipino people truly deserve. UP being a service institution should always think of the benefits to the people first and should set the role example for everyone. If all institutions and government agencies would think of commercialization first, under the pretext of "cost recovery and sustainability", then we are not performing well our original objectives. **The reason why there is government is because it needs to provide good service to its people. And the reason why people pay taxes is for people to get the best service from the government.**

In the case of Yolanda, LiDAR data could have been used extensively by government agencies, civil society organizations and all groups involved with the Yolanda reconstruction and rehabilitation effort. Because of thoughts and actions related to the sale of LiDAR data to the private sector, UP lost a perfect opportunity to fully utilize our potential to help in Yolanda's aftermath. As of the time of writing this document, almost 2 years after the disaster, LiDAR data **has not been distributed**

in full to government agencies, even if it is required in the Joint Memorandum Circular for the identification of safe and unsafe areas in the Yolanda and Reconstruction and Rehabilitation efforts (DENR-DILG-DILG-DND-DPWH Joint Memorandum Circular, 2014). This is because of **limitations posed by the interagency MOA of UP concerning the distribution of LiDAR products**.

In meetings I have attended, UP has become the laughing stock because it has not distributed in full the LiDAR data to both government agencies and private sector because we are still waiting for the interagency MOA on the distribution of LiDAR products to be signed. If there was no concept of commercialization and everything was Open Access, this predicament would not have happened.

Is the commercialization argument for DREAM valid for disaster mitigation work?

Spin-offs and making NOAH and DREAM into a self-sustaining institute is fine. However, it should not be at the expense of the delivery of services and products to the Filipino people, especially for disaster work. Commercialization or thoughts about possible commercialization of the LiDAR products has this effect - delays in the best possible service and product outputs. DREAM already benefitted from the funds given to them by DOST, which is a government entity and the money used to fund DREAM came from taxpayers' money.

If it becomes a self-sustaining institute that gets revenue from sales, it should first deliver all the products and services to the public, for free and without delay. This includes all the LiDAR products (e.g. point-cloud data, DTMs and DSMs, building footprints) for the 18 major river basins and the rest of the watersheds included in Phil LiDAR 1 and 2. Production of these LiDAR DTMs DSMs, point-cloud data, and building footprints, were already paid for through service contracts, MOOE and equipment purchases under the program.

What are the products and services that can be sold by NOAH and DREAM?

Services and products offered to other countries and for private entities wanting to have a current LiDAR survey for their property, for example, are the ones that can be sold, not the services and products already paid for by government (i.e. DTMs and DSMs of the 18 major river basins and watersheds included in Phil LiDAR 1 and 2). There is a huge market for LiDAR surveys in the future. There is also a big demand for high-resolution topographic maps in the Asian region and proceeds offered to consumers can be used to sustain operations and research requirements of the DREAM spin off. Since there was no private investment in the purchase of the LiDAR equipment, then services that will eventually be offered by DREAM to local and foreign companies will be highly competitive and favored.

Does NOAH and DREAM have the advantage over private consultancy groups?

NOAH and its DREAM components already have the advantage over other companies and private groups that can produce **interpreted data and information** from the LiDAR data. Because of the huge resources already given to UP, NOAH and DREAM are already in a good position to be self-sustaining. Since DREAM is the pioneer in the Philippines for LiDAR, they are the best people that can be hired by all the LGUs and private sector to process further the LiDAR data and create derivative products. **But this does not mean that they can hold monopoly over the services that add value to the LiDAR product**. Other entities should be allowed to compete with the DREAM spinoff company in this respect. In effect, the spin-off company of DREAM would be competing against private companies or groups selling only the value added products, which are interpreted data and not the raw LiDAR data, which taxpayers already paid for.

4.

Why are raw and system data important for disaster mitigation efforts?

Raw and system data generated by the NOAH and DREAM programs are not exclusively read and processed by UP researchers. There are other entities that have the capability to manipulate datasets. By restricting access, we prevent scientists, inventors, researchers, innovators and enthusiasts, both local and international, to explore the raw data and generate products that may even be better than what UP can produce. NOAH or DREAM researchers are not the only people capable of generating the best topographic and hazard maps and should never be claimed as such. The worst that can happen in disaster mitigation efforts is for scientific discovery by the community to be hindered. We want to be able to put at the forefront of battle against disasters the best scientific and technological products, without any delay.

A good example of system and raw data that are now made available are the .vol and .netcdf files of the Doppler radar system. These were previously inaccessible to academic researchers but because they were released in 2012 by PAGASA to NOAH, conversion of the raw data was made possible. They can now be viewed in the NOAH website and mobile apps as rainfall intensity for LGUs and everybody to view and use as a basis for disaster management and preparedness. Furthermore, research using the raw Doppler data was able to reveal 24-hour accumulated rainfall for the Habagat 2012, 2013 and 2014 events, showing heavy rain clouds emanating from mountain peaks. For the 2012 and 2013 Habagat flood events, these mountain peaks were found on the Natib and Mariveles volcanoes. In trying to understand the Habagat flood problem in Metro Manila and for science to significantly progress, we need to make raw data freely available to everybody because researchers need them.

The original concern of the NOAH program is to save lives. Saving lives in disaster

work means readily accessible data before disaster strikes. **Exercising control compromises opportunity and creates delays in data and product availability**, which is critical in saving lives. All of us would agree that bureaucratic red tape (i.e. writing request letters and approval) causes delays. We need to get ahead of Yolanda- and Pablo-like disasters by delivering the best hazard maps at the soonest possible time. NOAH and DREAM are not the only entities that can deliver this kind of product. It can also be generated by other agencies such as NAMRIA, MGB and the agencies and organizations they work with. Even private innovators and researchers may deliver a good disaster map, perhaps even better than what NOAH and DREAM currently produce.

What are the current trends in Open Access data for disaster mitigation and prevention?

1. The global trend in management of disasters encourages an open data policy. This was a key message in the 2014 World Risk Summit, which was held in London and attended by key players in disaster risk mitigation, including Mayors of major cities, Google, NASA, World Bank, Stanford and Bristol University, etc.
2. Open access to LiDAR data to the public is fast growing. The Netherlands, Denmark, Finland and the United states are already providing government acquired LiDAR data for free. Even the UK Environmental Agency, the group that trained DREAM LiDAR researchers will have an Open Data policy by September 2015 (Matthew, 2015).
3. There is global effort to map in 3D the Earth's surface with high-resolution instruments. NASA will deploy GEDI or the Global Ecosystems Dynamics Investigation LiDAR soon. GEDI is a laser-based instrument being developed for the International Space Station, which will provide a unique high-resolution 3-D view of Earth's forests, helping to fill in missing information about their role in the carbon cycle.
4. The carbon cycle is now mapped with the use of high-resolution imagery. Since Climate Change is a global problem, everybody must cooperate, collaborate and share their data so that we get the best analysis of this global concern.
5. There is a concerted effort to fight floods on a worldwide scale. Big groups such as NASA, Cabot Institute, Bristol University, Google, Stanford University, World Bank, and others are collaborating to fight floods on a global scale by bringing together government, industry and humanitarian agencies to support the development of a high-resolution and higher accuracy global DEM. The advanced global DEM would use existing LiDAR data and stereo satellite images. New LiDAR elevation data would be acquired on board disaster-relief aircraft or on drones deployed over flood plains (Schumann, 2014).

The worldwide effort to map our environment in detail demonstrates that sharing high-resolution data like what NASA does to their imagery and 3D data is important in addressing Climate Change and disaster problems. DOST and UP are pioneers

this side of the world with the use of high-resolution geospatial data for Climate Change Adaptation (CCA) and Disaster Risk Reduction (DRR). The last thing that we want to happen is to lag behind the rest of the world in the near future in terms of promoting open access data for disaster prevention and mitigation only because we want to exert control due to plans of commercializing LiDAR and hazard map data. This type of control is not in sync with global trends in CCA and DRR, which needs to have positive action now. Delays brought about by exertion of control are not consistent with the lessons we learned from past disasters where the impacts of natural hazards got ahead of scientific knowledge (i.e. Yolanda and Pablo). Every minute counts!

References:

DOST Administrative Order 003

DOST Administrative Order 004

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Hyogo Framework for Action 2005-2015

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