Statistics Without Borders Projects: Human Rights, Humanitarian, and Developmental Projects World-Wide

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Abstract

Statistics Without Borders, http://community.amstat.org/statisticswithoutborders/home, (SWB) is pro-bono out-reach group of the American Statistical Association (ASA). The organization of Statistics Without Borders began in 2008 with a conversation of possible volunteer opportunities for members of ASA. In less than a decade, SWB has grown to over 2300 world-wide volunteers, a combination of ASA and non-ASA members, with 20 or more national and international projects per year which have covered topics from humanitarian assistance, education, human rights, migration projections, and health issues. SWB also has partnered with two professional associations and four professional organizations. People from all walks of life would like to use their professional skills to better societies throughout the world. The goal of SWB is to work with non-profit organizations or governmental agencies who either cannot afford a statistical professional or who would like to be educated on how such a professional can assist them in developing a better organization or aspect of society. The goal of this paper is to introduce the audience to some of the SWB projects over the past few years. I would also like to start a conversation with people and organizations on how to work together to both develop SWB projects and to invite other professional statistical associations to develop partnerships with SWB.

Keywords: Statistics Without Borders; American Statistical Association; Human Rights, Humanitarian, Volunteerism

1. Introduction

Statistics Without Borders, http://community.amstat.org/statisticswithoutborders/home, (SWB) is pro-bono out-reach group of the American Statistical Association (ASA). The organization of Statistics Without Borders began in 2008 with a conversation of possible volunteer opportunities for members of ASA. In less than a decade, SWB has grown to over 2300 volunteers, a combination of ASA and non-ASA members, with 20 or more national and international projects per year which have covered topics from education, human rights, migration projections, and health issues.

The mission of SWB is to improve decision making and knowledge in efforts that promote welfare through the proper application of statistical principles and best practices, where access to such resources is limited. The objectives to obtain these goals are:

1. To advocate for objective, impartial, and sound decision making using best statistical practices.
2. To provide analytical services through client projects for public benefit that support goals that are nonreligious, nonpolitical, and non-personal, with a focus on developing countries.
3. To assists organizations outside of the for-profit sector, with priorities given to organizations with limited access to statistical resources.
4. To strengthen its clients and their communities by helping them build their capacities in statistics, data science and analytics, and promotes best practices in these areas.

2. Types of Projects

SWB has worked on a variety of humanitarian, educational, and international development projects.

SWB has worked closely with Digital Humanitarian Network (DHN), http://digitalhumanitarians.com/, "…a consortium of Volunteer & Technical Communities (V&TCs) …that provide an interface between formal, professional humanitarian organizations and informal yet skilled-and-agile volunteer & technical networks"… under the umbrella of the United Nations-Office for the Coordination of Humanitarian Affairs (UN-OCHA) providing a variety of data and statistical support for humanitarian relief.
Many of these DHN clients come with a pre-existing data-set. As with any pre-existing data sets, there is a substantial effort required to first make the data fit for the purpose. For each project, SWB volunteers work with the client to

1. understand the practical objective(s) of the project,
2. understand, clean, transform, and/or the data,
3. understand the desired end-product: how the responding organization might use the visualizations to ensure a positive end utility.

SWB team members also work with resources from the United Nations, the DHN organization, and Tableau to produce visualizations, guidebooks, reports, and presentations. Team members collaborate, sharing best practices and offering critical feedback to both each other as well as the sponsoring organizations and project coordinators. The result of such collaborative efforts has enabled Statistics Without Borders to make important contributions in helping crisis response organizations.

1. Some Digital Humanitarian Network projects:
   A. SWB worked with NetHope, https://nethope.org/, in a collaborative effort to create dashboards and storyboards for Ebola-related data sets, https://public.tableau.com/profile/jenniferchan.nethope.#!/vizhome/EbolaCaseDataSierraLeone_0/DBNatlAdmin2Cases. The primary aim of the project was to help responding organizations and personnel who plan and coordinate response activities to make data-driven decisions.
   Visualizations of data:
      1) Telecommunication connectivity needs, using data from surveys of responding organizations:
         Mobile connectivity strength in West African countries
         Types and methods of collecting data and data transfer
         Staffing for responding organizations to give operational picture of the anticipated demand for connectivity.
      2) Tracking Broadband Global Area Network (BGAN), a global satellite network for internet and voice communications usage and activity in Ebola-affected areas to understand impact and effectiveness of the BGAN terminals on the ground.
      3) Understanding the needs for and the impact of the Ebola-response resources, using data from the Humanitarian Data Exchange, (HDX), https://data.humdata.org/ebola, an open repository of data collected from various sources and systems, implemented through an initiative of the United Nations and currently in the process of building up. The HDX data sets were combined with other data sets to analyze the following:
         a) Locations and sizes of safe-and-dignified burial teams
         b) Locations and activities of Ebola testing laboratories
         c) Locations and numbers of infected healthcare workers
         d) Volume (in recipients and amount) of food aid being received through the World Food Program
         e) Locations of internet, radio, and voice communication services

f) Primary and secondary education establishments to help understand which schools need the most help.

B. The United Nations Office for the Coordination of Humanitarian Affairs (UN OCHA), has an open platform for sharing data. In 2016, UN OCHA sought assistance in creating data visualizations to explain the scope of, impact of, and mobility in, the Mediterranean Refugee Crisis (i.e., the European Migrant Crisis), to help policymakers make better decisions. The purpose of the project was to visualize the migration of people to Europe, January 2014 through May 2016, to help in planning and management of the crisis, http://docs.humdata.org/european-refugee-and-migrant-trends-visualized/. The data used was organized through the Humanitarian Data Exchange, https://data.humdata.org/. One goal of the Humanitarian Data Exchange (HDX) is to make humanitarian data easy to find and use for analysis.)

C. In 2014, SWB partnered with Humanity Roads for the Social Media Emergency Management Analysis project. In the wake of an emergency, social media generate a rapid influx of copious amounts of data that can provide a real-time picture of difficult-to-reach areas, leading to a more effective response that delivers aid, information, and resources where they are needed and saves lives. However, as with any analysis - particularly of big data - definition of the objectives, data collection, management, and extraction, valuation and filtering of data, and analysis methods ultimately determines the validity and usefulness of any findings; this is even more challenging in an emergency. Emergency managers, analysts, and other decision-makers need to work collaboratively and communicate effectively under difficult and rapidly-changing circumstances. SWB and Humanity Road illustrated these issues through an analysis of Twitter data following the landfall of Typhoon Haiyan (Typhoon Yolanda), which struck Southeast Asia in 2013. For its work, SWB was one of the recipients of the Da Vince Award, http://humanityroad.org/2014-davinci/ from Humanity Road for the co-authorship of the Guide to Social Media Emergency Management Analytics, http://humanityroad.org/smemanalyticsguide/, a tool specifically aimed at emergency managers and analysts.

2. Additional humanitarian projects

A. In the Eastern Burma Retrospective Mortality Survey project, SWB partnered with Community Partners International (CPI), http://cpintl.org. The organization requested long-term support in the areas of survey research and biostatistics. The organization requested assistance in analyzing survey data on health and human rights in the Burma region.

B. The Dalit Rights Commission project started in mid- 2013 and has been off-and-on to date, depending upon grant money for the organization. The goal of the DRC was to develop and test a quantitative tool, the Caste Freedom Index, to measure the effects of how the label of Dalit has a discriminating effect on the economic and social class systems in India, Nepal and South-east Asia. Some of the stages of this project were to:

1. Work with DRC in the grant process to explain and incorporate the roles and responsibilities for a statistician.

2. Develop the Freedom Index, creating a tool to measure “the themes” behind the levels of discrimination.

3. Develop a survey by taking into consideration languages, develop geographical sampling, and train a team to conduct surveys.

4. Collect, record, and analyze the secondary socio-economic data (e.g., crime statistics, demographic, economic data).

3. Educational and International Development projects
   A. One on-going project is People's Uni, http://www.peoples-uni.org, a free internet school which has a goal to build "…Public Health capacity via e-learning at very low cost; SWB periodically requests volunteers to teach statistics courses.
   B. SWB worked with Global Community Service Foundation, (GCSF), on the Health Survey of Mothers and Infant Care project in Myanmar. The purpose of the survey was to assess a maternal and infant care program administered by (GCSF), in the Inle lake area of Myanmar, and to identify ways to expand it. A survey of over 300 mothers about their fertility history, medical care, and beliefs. The results of the survey identified maternal and infant care knowledge gaps of women and health care workers and the need for additional educational programs for both health care workers and mothers. Statistics without Borders (SWB) members worked closely with the organization to design and implement the surveys, as well as process and analyze the data.
   C. The American Bar Association: Rule of Law Initiative requested SWB to both develop and teach a four-hour session at their Spring retreat in Washington, D.C. The purpose was to educate staff on when and how to use statisticians in both the development of projects/surveys and with data analysis.
   D. The Instituto Nacional de Salud, http://www.ins.gov.co/Paginas/inicio.aspx, requested two Spanish speaking SWB volunteers to travel to Lima, Peru for a week-long workshop to train staff in the free statistical software R. The project included both the development of the week-long class and the teaching of the class.
   E. Kopernik, http://kopernik.info/, requested assistance in testing the effect of a water filter on carbon emissions in Indonesia. Kopernik has been introducing a ceramic water filter that eliminates the need for fuel in water purification, and their goal is to determine the amount of emissions reduced by the introduction of the filter. Kopernik requested assistance in designing the experiment, including choosing the correct statistical test(s) and control units.

3. Partnerships

American Association for the Advancement of Science (AAAS-On Call Scientists), https://www.aaas.org/oncallscientists, "Scientists have much to contribute to the work being undertaken by human rights organizations, national human rights institutions, and United Nations field offices throughout the world. On-call Scientists was created to facilitate such contributions. Through On-call Scientists, human rights organizations gain access to vital technical assistance to enhance their work and scientists have the opportunity to contribute to and gain a better understanding of human rights. From its inception, the Program has called attention to the wealth of specialized knowledge that scientists, engineers, and health professionals can bring to the range of technical and substantive issues critical to conducting human rights work."

Digital Humanitarian Network, http://digitalhumanitarians.com/, is a network-of-networks which "… aims to form a consortium of Volunteer & Technical Communities (V&TCs) who can provide an interface between formal, professional humanitarian organizations and informal yet skilled-and-agile volunteer & technical networks."

Data Kind, http://www.datakind.org/, has a goal to harness "… the power of data science in the service of humanity."

Peoples Uni, http://www.peoples-uni.org, has a goal "…to contribute to improvements in the health of populations in low- to middle-income countries by building Public Health capacity via e-learning at very low cost."

Royal Satirical Society: International Development Section, http://www.rss.org.uk, has a vision "… to work with and through others to maximize the influence of the Society in international development. The target audience for the IDS is all those with an interest in development and statistics."

Stat-Help, http://www.stat-help.com/, has a "… purpose is to provide prompt, reliable, and understandable information about data analysis to our clients. The best part is that we are currently providing this service completely free of charge. "

4. Conclusions

Only a few of the Statistics Without Borders projects have been covered. SWB, a pro-bono out-reach group of the American Statistical Association, has 20-25 projects per year, working specifically with non-profit organizations and governments to support goals that are nonreligious, nonpolitical, and non-personal, with a focus on developing countries. The projects have ranged from human rights, international development, education, and health related issues. Please contact me, cathy.furlong@cox.net, or set-up a time to talk, about either developing a project or partnership.

References

Statistics Without Borders, http://community.amstat.org/statisticswithoutborders/home
American Statistical Association, http://www.amstat.org/