

Day Two ES718
A new workshop on
innovation in global health
ANJALI SASTRY

Image removed due to copyright restrictions. See SMART Health India (Systematic Medical Appraisal, Referral and Treatment) at the [George Institute website](#).

Plan for today

- Early Skype call with Sangath (60 – 90 minutes)
- Introduction to experts on call, sign-ups, and plan for the day; quick team check-in with Anjali Sastry re action plan (30-60 minutes)
- Teams work on their own most of the day, using web resources, phone calls, site visits, Skype, and email to interact with experts on call
- Lunch hour is flexible.
- During the day today: each team must *check in with Anjali Sastry* for feedback, advice, discussion (30-minute slot; sign up in morning)
- By end of day (before 5 pm), each team will
- *develop a focused set of quick questions and discussion topics for NGO staff contacts (to prep for tomorrow morning's call). Send this message out by direct email to your contacts before the end of the day*
- *draft a 4-slide presentation that you will update tomorrow*
- send Anjali Sastry a STATUS UPDATE email explaining who you met, confirming that you have a draft deck, and mentioning the research you've done today

Key background knowledge you'll need

1. India health outcomes; budget and government
2. technology, mHealth
3. innovations in mental health care; mental health in India
4. India healthcare delivery (esp mental hlth), service quality, HR, task shift
5. India health system
6. India social factors, poverty, equity

Aging

Alcohol use disorders, addiction

Child development and disability

Maternal mental health

**OUR FOUR FOCAL AREAS ARE
GLOBAL NEEDS**

Sustaining Healthy Behavior Change

Personalized Health Technology

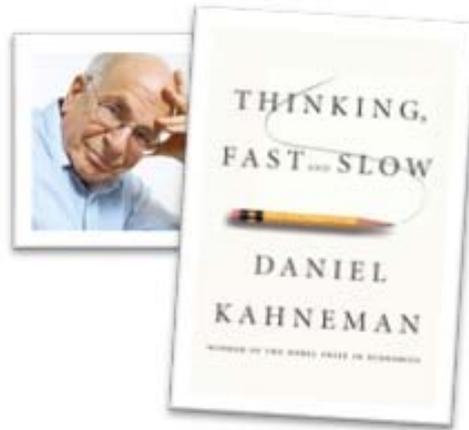
wirelessly and simultaneously tracks behavior change and delivers tailored recommendations to advance individual health.



+

Behavioral Economics

incentivizes and nudges individuals to make healthy decisions.



+

Smart Data Analytics

Analyses using health data provides new insights to drive healthy behaviors.



Healthy Behavior Change

HEALTH IN INDIA

Image removed due to copyright restrictions. "[Patients and their Families Sit in a Makeshift Anteroom on the Children Floor of Dr. Ram Manohar Lohia Hospital in New Delhi.](#)" India's Health Care Crisis. Time Magazine Photo Gallery.

context:
India's
burden of
disease
2004
(Lancet 2011)

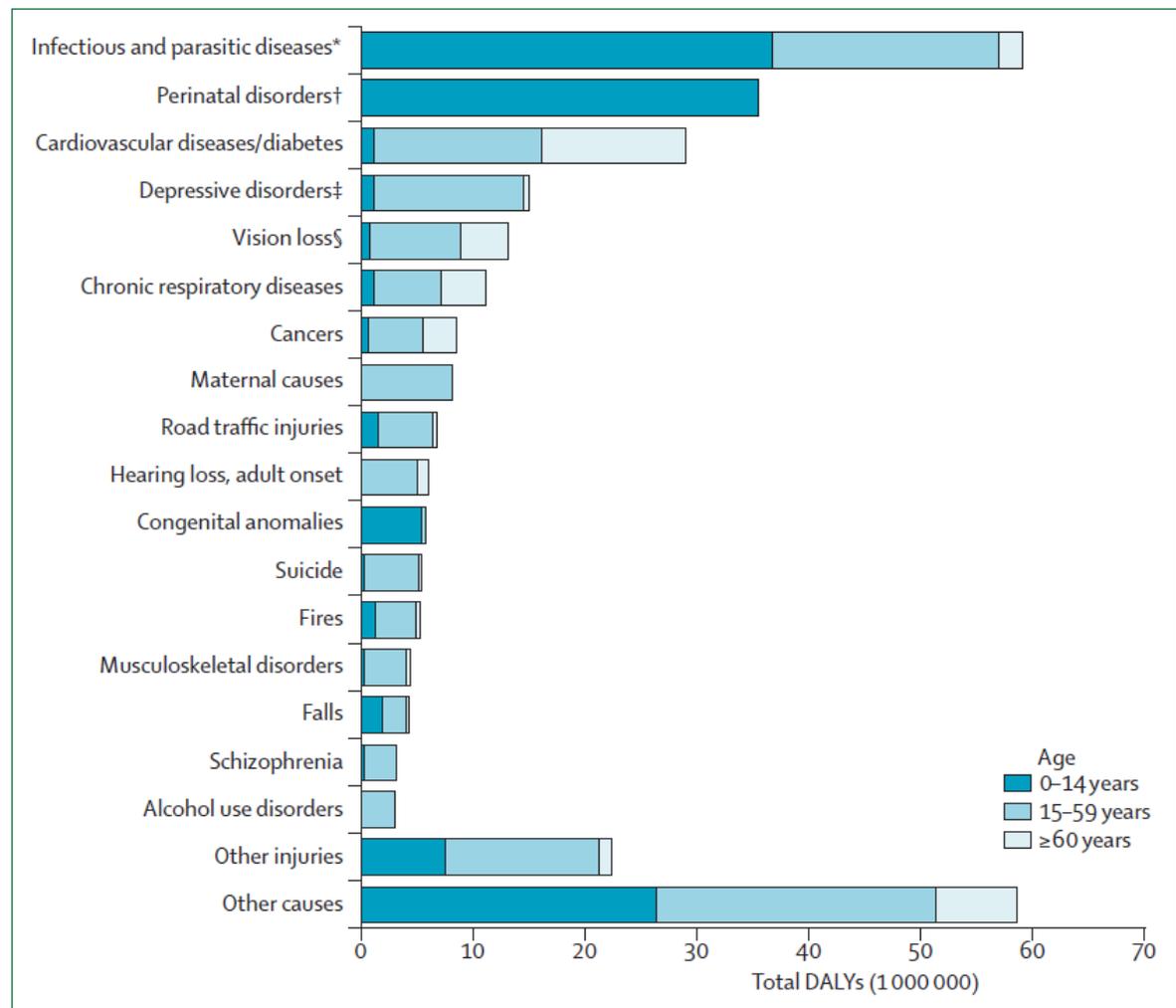


Figure 2: Estimated burden of selected diseases and injuries in India in 2004

Data are provided in the webappendix pp 4-7. DALYs=disability-adjusted life years. *Includes acute respiratory infections. †Includes disorders arising in the perinatal period (eg, prematurity, birth trauma, and neonatal infections) but not all deaths occurring in the neonatal period (first 28 days). ‡Unipolar major depression and dysthymia. §Vision loss due to glaucoma, cataracts, macular degeneration, and uncorrected refractive errors (vision loss due to infectious causes and injury are included in relevant cause categories).

Courtesy of Elsevier, Inc., <http://www.sciencedirect.com>. Used with permission.
 Source: Patel, Vikram, et al. "Chronic Diseases and Injuries in India." *The Lancet* 377, no. 9763 (2011): 413-28.

Cost effectiveness of interventions

	Extremely cost effective (<INR4400 [US\$100] per DALY averted)	Cost effective (INR4400–44 000 [\$ 100–1000] per DALY averted)	Less cost effective (>INR44 000 [\$1000] per DALY averted)
Population-wide interventions	Prevention and control of tobacco and alcohol use (through measures to reduce advertising, availability, and affordability of products, especially bidis and locally brewed alcohols); dietary salt reduction programme; screening for refractory error and provision of glasses	Screening for hearing loss and provision of hearing aids; road traffic injury prevention (enforcement of speed limits, drink-driving law, motorcycle helmet use, and seat belt use)	Bicycle helmet use by children
Primary-care interventions	Preventive drug treatment for high blood pressure (systolic blood pressure >160 mm Hg)	Preventive drug treatment for high cholesterol; preventive combination therapy for individuals at high risk of a CVD event; flu vaccination (for people aged >60 years) and smoking cessation programmes for people with COPD; brief interventions for alcohol misusers; depression treatment	..
Secondary-care and tertiary-care interventions	Treatment of stage I breast cancer (lumpectomy and radiotherapy); extensive breast cancer programme (treatment of all stages and biannual screening for women aged 50–70 years)	Treatment of acute MI with aspirin or streptokinase; treatment of post-acute MI with aspirin, ACE-inhibitors, β blockers, or statins; treatment of post-acute ischaemic stroke with aspirin, statins, or blood-pressure-lowering drugs; treatment of CHF with ACE-inhibitors or β blockers; extracapsular cataract extraction with posterior chamber lens implant	Treatment of acute MI with ACE-inhibitors or β blockers; organised stroke unit care; treatment of severe COPD disease and exacerbations; intracapsular cataract extraction by use of aphakic glasses; schizophrenia treatment

This table only includes interventions for which cost-effectiveness estimates have been calculated. Daly=disability-adjusted life years. CVD=cardiovascular disease. COPD=chronic obstructive pulmonary disease. MI=myocardial infarction. ACE=angiotensin-converting enzyme. CHF=congestive heart failure.

Table 2: Intervention strategies categorised by level of health system and cost-effectiveness

Courtesy of Elsevier, Inc., <http://www.sciencedirect.com>. Used with permission.
 Source: Patel, Vikram, et al. "Chronic Diseases and Injuries in India." *The Lancet* 377, no. 9763 (2011): 413-28.

India's investment in healthcare

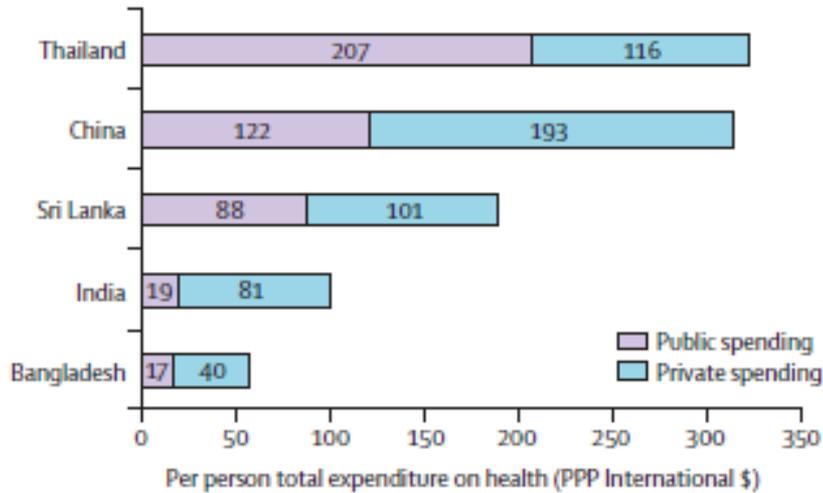
At 0.94% of GDP, public spending on health is among the lowest in the world

A recent call for India to address **major shortcomings** highlights:

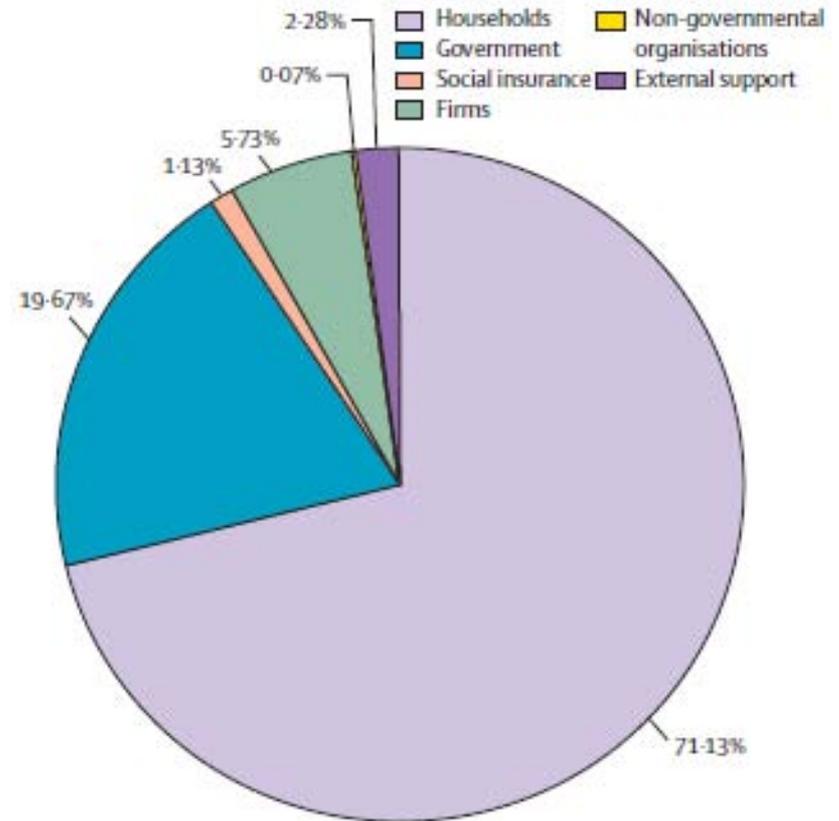
- Low per person spending that results in very high private out-of-pocket expenditures on health
- Large inefficiencies in public and private sectors that reduce efficiency and effectiveness of health expenditures
- Insufficiency of services to address health needs
- Practically no financial protection for most Indian people against medical expenditures

Health expenditures in India and selected countries during 2005

Data from WHO PPP=purchasing power parity.



Sources of funds for health care in India during 2004–05



Courtesy of Elsevier, Inc., <http://www.sciencedirect.com>. Used with permission.
 Source: Kumar, A. K. Shiva, et al. "Financing Health Care For All: Challenges and Opportunities." *The Lancet* 377, no. 9763 (2011): 668-79.

Who pays for healthcare in India?

Private expenditures account for 78% of total health spending in the country

In 2004, 28% of ailments in rural areas went untreated because of financial reasons—up from 15% 8 years earlier

In urban areas, 20% of ailments were untreated for financial reasons, a doubling over 8 years

47% of hospital admissions in rural India and 31% in urban India were financed by loans and the sale of assets



Learn
more

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**CAREFULLY-SELECTED EXPERTS ARE
STANDING BY**

Adeline Boatin

global maternal health; practicing physician
MGH; Uganda

Adeline Boatin, MD, MPH received her undergraduate education at Harvard College and her medical degree from the Columbia University College of Physicians and Surgeons. She received an MPH with a focus on international health at the Harvard School of Public Health. Dr. Boatin recently completed a 4-year residency in Obstetrics and Gynecology at the Harvard Integrated Obstetrics and Gynecology Residency Program. She is currently a Global Health Fellow and Clinical Instructor in the Department of OB/GYN at the Massachusetts General Hospital. Her career focus is on improving maternal health outcomes in low resource settings. She has a particular clinical and research interest in obstetric surgical outcomes in low resource centers and introducing quality measures and quality improvement in this area.

<http://www.mghcgh.org/>

<https://giving.massgeneral.org/adeline-boatin-md-mph/>

Gari Clifford

affordable tech, mHealth, innovation, analytics
Emory, Georgia Tech, Oxford; global

Dr. Clifford is trained as a PhD in Neural Networks and Biomedical Engineering from the University of Oxford, United Kingdom. He received postdoctoral research training from the Massachusetts Institute of Technology when he later became a Principal Research Scientist, managing the development of the world's largest open access critical care database (MIMIC II). Since 2009, he has served as Associate Professor and Fellow of Kellogg College at the University of Oxford in the Department of Engineering Science, including leading the Intelligent Patient Monitoring Group, and Director of the Centre for Doctoral Training in Healthcare Innovation at the Institute of Biomedical Engineering (IBME). Dr. Clifford has an international reputation in critical care data analysis and the application of signal processing and machine learning to medicine. Dr Clifford helped found the Sleep, Circadian Rhythm and Neuroscience Institute (SCNi) at the University of Oxford, where he is an Honorary Professor and leads one of its five themes.

<http://oxcaht.org>

<http://www.robots.ox.ac.uk/~gari/>

Joaquin Blaya

mHealth, chronic disease, design, electronic records, app adoption
eHealth Systems, Chile; GHD Online, global

Joaquin Blaya, PhD, is currently CEO at eHS (www.ehs.cl) and a Research Fellow at the Brigham & Women's Hospital. His work focuses on the use of IT in improving health care in resource poor settings and in promoting the use of open source software and open standards to improve local capacity building and interoperability between information systems.

<http://www.ghdonline.org/users/joaquin-blaya/contributions/>

<http://www.ghdonline.org/users/joaquin-blaya/>

Jon Jackson

mHealth, community health workers, app adoption
Dimagi; India, global

Jonathan Jackson is a social entrepreneur and innovator with extensive mobile technology expertise in both low-income and high-income settings. He has co-founded multiple organizations focused on improvement healthcare and poverty alleviation globally. As cofounder and CEO of Dimagi Jonathan has overseen the growth of the company from just the founding team to over 90 world-wide employees. He made an uncompromising commitment to open source software and developed a highly interactive collaborative culture that fosters partnerships across academics, philanthropists, and implementers. Jonathan has overseen the development of multiple innovative health projects, including CommCare, the leading mobile case management solution for community healthcare workers, and CommTrack, a last-mile logistics platform deployed nationally in multiple countries. Jonathan earned bachelors and masters degrees in Electrical Engineering and Computer Science from the MIT. Jonathan also co-founded Cogito Corp, a pioneering behavioral analytics company. He is also a visiting scientist at Brigham and Women's Hospital Decision Systems Group, and a lecturer at the Harvard-MIT Division of Health Sciences and Technology.

<http://www.theguardian.com/sustainable-business/dimagi-technology-poor-communities-member-spotlight>

<http://www.dimagi.com/>

Jon Payne

mHealth, electronic records
PIH, Mhealth alliance; Nigeria, global

Jonathan Payne, MS, is a health software engineer turned public health practitioner using information and communication technologies to transform health delivery in low and middle income countries. He is currently launching the mHealth Standards and Interoperability Working Group for the mHealth Alliance, hosted at the United Nations Foundation. He is director of the Maternal Concept Lab, a cross-cutting collaborative that is making the world's best practices for maternal-child health available in standards-based, digital formats. Jonathan also leads the mHealth Working Group at Partners In Health. He previously worked with D-tree International to manage the implementation of maternal health protocols on mobile phones in Bihar, India, in collaboration with CARE India. He has worked or traveled in over 30 countries, and worked as a consultant for international not-for-profits, academic medical centers, and the private sector. Jonathan received a M.S. at the Harvard School of Public Health and B.E. from Vanderbilt University.

<https://www.youtube.com/watch?v=p6UUDKx6FeY>

<http://www.maternalconceptlab.com/wiki/Team>

Joost Bonsen

startups, alumncos, media lab, development ventures
MIT Media Lab

Joost studies Innovation Everywhere, from invention in research labs through action in entrepreneurial startups and innovation ecosystems generally. His MIT Management of Technology master's thesis was on The Innovation Institute: From Creative Inquiry Through Real-World Impact at MIT. Bonsen ran the MIT Founders Project which quantified the economic impact of MIT-related entrepreneurs, findings published by BankBoston as MIT: Impact of Innovation. Formerly an entrant, mentor, judge, and Lead Organizer of the MIT \$100K Entrepreneurship Competition, he was instrumental in the growth of and recent doubling of the prize fund to include a Development and Social Impact Track. He is co-founder of the Howtoons Project which distributes educational cartoons showing kids everywhere "How To" build things using everyday materials and tools. He is co-founder of the MIT Innovation Club, TechLink and numerous entrepreneurial events and gatherings, including the

MIT Chairman's Salons. Joost was co-creator and founding Teaching Assistant or instructor of several MIT classes and seminars, including the IAP Nuts & Bolts of Business Plans with Joe Hadzima and Developmental Entrepreneurship and Digital Innovations with Sandy Pentland, and most recently Neurotechnology Ventures with Ed Boyden & Rutledge Ellis-Behnke. His weekly television show HighTechFever has run since 1999 (over 250 unique interviews with inventors, entrepreneurs, venture capitalists, professional service providers, and more) and his entrepreneurial networking VentureNights at the MIT Muddy Charles Pub since the mid-1990s. Joost did his Bachelor's in Bio-Electrical Engineering at MIT.

<http://d-lab.mit.edu/courses/development-ventures>

<http://alum.mit.edu/www/jpbonsen>

Karan Singh

smartphones for mental health, app adoption, analytics
ginger.io; US

I co-founded Ginger.io, a behavioral analytics company that uses sensor data from your smartphone and our machine learning engine to identify disease signatures embedded in patients' communication and activity patterns across a number of chronic diseases.

I recently earned an MBA from MIT Sloan as part of the dual-degree Harvard-MIT Health Science & Technology (HST) program, and a fellowship through the MIT Legatum Center. I'm currently taking time off from HST to drive Ginger.io. I worked at Humedica (EMR analytics), ZS Associates (healthcare consulting) and Signal Point Partners (mobile ventures). I love burritos. And, the Cal Bears.

<https://ginger.io/>

<http://about.me/kvsingh>

Rebecca Weintraub

global health; practicing physician; online communities; credentialing
GHD Online, BWH, Harvard Inst for GH; global

Rebecca Weintraub, MD, is an assistant professor at Harvard Medical School and faculty director of the Global Health Delivery Project (GHD) at Harvard University. She is currently a Berkman Fellow at Harvard Law School and Associate Director of the university-wide Harvard Global Health Institute. She is an associate physician at Brigham and Women's Hospital in the Division of Global Health Equity and practices medicine within the Department of Medicine as an attending. GHD has published a global health delivery curriculum of over 30 Harvard Business School case studies with Harvard Business Publishing, available online at no cost to the public. Weintraub is a co-faculty lead for the Global Health Delivery Intensive at Harvard, a joint Harvard Medical School and Harvard School of Public Health training to introduce key principles in global health delivery to providers and implementers. In 2008, GHD launched GHDonline.org, a network of virtual professional communities that today connects more than 13,500 global health implementers from 182 countries and 4,000 organizations.

Her research projects, funded by the Agency for Healthcare Research and Quality, World Health Organization, the Global Fund and the Bill & Melinda Gates Foundation, focus on strategies to generate value-based delivery in global health. Weintraub co-founded Jumpstart, the national AmeriCorps program, and is a technical advisor to Ashoka Living Goods and non-profits promoting the work of health entrepreneurs. She graduated from Yale University and Stanford Medical School and completed her medical training at Brigham and Women's Hospital.

<http://www.globalhealthdelivery.org/>

http://www.brighamandwomens.org/Departments_and_Services/medicine/services/socialmedicine/weintraubbio.aspx

Rich Fletcher

low-cost diagnostics, analytics, mobile health
Media Lab; India

Rich Fletcher grew up in New Jersey, and came to MIT as an undergrad to meet and study with Doc Edgerton (which he did), where he was a double major in Physics and Elect.Eng., minor in Visual Art and Design. Specializing in wireless sensors and mobile technologies, Dr. Fletcher has done field work in over a

dozen developing countries and currently leads several research efforts in the area of global health, agriculture, environmental monitoring, behavior medicine, and mental health. Rich is Colombian (native speaker), and was a captain in the US Air Force, working at the Air Force Research Lab at Wright-Patterson AFB before coming back to MIT to study at the Media Lab. After getting his PhD he worked in industry for 6 years before coming back to MIT to work on Mobile Health. In a prior life, Rich has also worked as a photographer and formally studied visual art and design.

<http://web.media.mit.edu/~fletcher/>

http://www.idtechex.com/contact/team/dr_rich_fletcher.asp

Rubayat Khan

mHealth, analytics, community health workers, app adoption
mPower; Bangladesh

Rubayat Khan is a social entrepreneur from Bangladesh interested in the rapidly growing intersection between data technologies and international development challenges. He is Co-Founder and Chief of Research & Innovation of mPower, a social enterprise which helps development organizations collect, analyze and use realtime data for decision making, using mobile technologies. In that capacity, he has designed and managed large projects with reputed NGOs and governments in several countries of Asia and Africa, including BRAC in Bangladesh and the Ministry of Health in Egypt.

He has recently founded his new venture called Devintel, which uses cutting edge data analytics and predictive modeling tools to make development interventions more impactful and efficient. On its first groundbreaking project, DevIntel is working with the Johns Hopkins School of Public Health to predict risk of death for pregnant women and babies in rural Bangladesh.

Rubayat has a background in development, public health and technology management. He is also a researcher, blogger and political activist. He finished his Masters in International Development at the Harvard Kennedy School of Government, and received the Raymond Vernon Award for excellence, leadership and commitment to international development

<http://www.mpower-social.com/>

<http://www.mpower-social.com/#!/rubayat/c1w4u>

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Spring 2015

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