A Whole-of-Society Approach to NCD Prevention and Control: Focused and Time-Bound Convergence in Science, Policy and Innovation

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Session Tackling NCDs to enhance sustainable development

WORLD HEALTH SUMMIT

BERLIN, OCTOBER 22, 2012
Agenda

1. Whole-of-Society Approach to NCDs for Sustainable Development

2. WoS Transformation In Canada and India: Harnessing Top Down and Bottom-Up Forces

3. Building Convergence for Real-World Change with Impact and Scale One Project at a Time

4. Challenges and Possibilities
Whole-of-Society Approach to NCDs for Sustainable Development

Turning Convergence of Diet, Lifestyle and Diseases on Its Head

Paths of Convergence for Agriculture, Health, and Wealth
The World Converging with the West
Eating as a Neurobehavior
NCDs as Drivers of Healthcare Costs
Convergence in Development, Nutrition, and Health Literature: The *World* Converging with the *West*

- Convergence in GDP and Income
- Convergence in Agriculture, Industry, Urbanization
- Convergence in Diet and Lifestyle
- Convergence in Diseases and Health Care Needs
- Convergence in Healthcare and Economic Crises
NCDs Prevention and Control: Linked to Sustainable Development and Sustainable Health Systems

Fig. 1. Noncommunicable diseases and the macroeconomy (Smith, Science 2012)
Turning Convergence on its Head for Whole-of-Society Solution

Convergence of Science, Policy and Action Across Sectors, Levels and Time, Around Common Goal of NCDs Prevention/Control and Sustainable Development

Private Sector – Agri-Food and Other Lifestyle Related Domains
- Innovation in HN food; active living
- Improving availability of HN food
- Promoting HN food
- Adjusting LN food

Private Sector- Bio-tech, Pharma, Medicine, Health, Healthcare
  - Access to diagnostic and medicine
  - Preventative and Personalized Medicines

Civil Sectors
- School and work environment
- Media and advertisement
- NGO campaigns

Government Sectors
- Regulation on labeling, nutrition content, taxing,
- Education
- WHO programs
- ...

At multiple levels (global, national, provincial/regional, local/community, individual)
PNAS Special Feature on Paths of Convergence for Agriculture, Health and Wealth

Cover image: Pictured are open-air markets amidst heavy traffic in Hyderabad, India, showing the chaotic environments that populations in developing countries must contend with to obtain produce. Much of the food in these markets is transported from small farms outside the city and carried through clogged streets by a vast ad hoc network of small trucks, scooter trucks, and bicycle carts. Laurette Dubé et al. propose a roadmap for progress toward sustainable global nutrition security. Such roadmaps could help reduce hunger and poverty, and halt the spread of noncommunicable chronic diseases. See the article by Dubé et al. on pages 12294–12301, which introduces the Agriculture Development and Nutrition Security Special Feature. Image courtesy of Alex R. Freedman (Community Cooperative Farms, Sheffield, MA).

From the Cover

12294  Paths of convergence for agriculture, health, and wealth
12369  Topological soft matter
12680  The influence of Ig isotype
12805  Cell walls constrain diffusion
WoS Transformation in Canada and India: Harnessing Top Down and Bottom-Up Forces

Montreal, Quebec, Canada, North-America, Americas, Global
Palwal, Haryana, India, South-Asia, Global
What are Sectoral Policies for NCDs?

• Major Reports
• WHO, 1996
• National Academies 2012
• World Bank 2011
• OECD 2010
• World Economic Forum 2011
• UN NCDs Summit, 2011

  – Nutrition labels/Advertising
  – Public information/Education
  – Regulation of school / workplace meals/wellness
  – Tax unhealthy/ subsidize healthy foods/lifestyle
  – Maternal and Child Interventions
  – Universal Access Care
  – Social Security/ Minimal Employment
Surveillance of WoS Transformation on Both Sides of the Nutrition/Health/Healthcare/Economic Divides: Canada and India
Policy Convergence Efforts in India
(India Planning Commission and Haryana State-INCLEN involvement)

Ministry
1. Ministry of Women & Child Development
2. Ministry of Health & Family Welfare
3. Ministry of Human Resource Development: Department of School Education and Literacy
4. Ministry of Agriculture
5. Ministry of Consumer Affairs, Food & Public Distribution

Indicative Action Point
Strengthening the services to the women in the reproductive age group
Every contact of sick children with health department to be considered for sickness and nutrition management.
Health ministry will provide the services like growth monitoring, linked with Mid Day Meal program, screening of Diseases, immunization, health & nutrition education and imbibe good health practices.
Nutritional status, presence of morbidity in the household to become one of the criteria for selection of social security beneficiary.
Expedite finalization of draft National Food Security Act, with other sectors
Bottom-up WoS Transformation: Shifting Drivers of Food Supply and Demand

Bottom-up WoS Transformation:
Quiet Revolution in the India Food Chain, Reardon 2012

a) Rapid change in both modern sector AND transforming traditional chain: from small holder to small/medium entrepreneurs: **93% of food system is private sector**
b) Implications for consumer food security and farmer incomes
c) Importance of off-farm segments of supply chain; better farm-non farm/rural-urban balance
d) But nagging constraints in public goods and regulations
e) Need differentiated strategies for the TWO INDIAS & marginal farmers vs. others
Bottom-up WoS Transformation to Address Rural Livelihood and Healthcare Challenges

- No access to clean water
  
in 200,000 villages in rural India, leading to 100s of thousands of child deaths/year from untreated diarrhea

- Poor access to trained medical talent
  
less than 0.6 physicians per 1000 people, long waits at government clinics; poor quality treatment from village-based fake doctors; high cost to see a doctor in town (>$10 in lost income, travel, and fees);

- Poor access to approved medicines
  
often no diagnoses, informal supply chain, uneven quality

Healthpoint Services directly addresses these challenges with a powerful value proposition
The Healthpoint Concept
a village unit that replaces ...

Contaminated Water

Healthcare Transportation Costs

Understaffed Gov. Clinics

Informal Supply Chain

11/2/2012

CONFIDENTIAL
With this, an integrated village unit: E Health Point

On October 28, 2009, Healthpoint Services, in partnership with Ashoka and Naandi Foundation, inaugurated a new model to tackle these challenges and transform the rural healthcare sector.
While receiving diagnostic tests, a patient’s medical history is captured in an electronic health record. **Advanced, low-cost point-of-care diagnostics enable high quality, evidence-based healthcare.**
Bottom-up WoS Transformation: Information Technology Bridge Between the Many Facets of Healthcare: Emerging Multinational INFOSYS

For making Healthcare accessible to all and spread the benefits across different segments of society, all parameters need to be worked upon.
Next Frontier for India, Canada and the Rest of the World

• Harnessing the power of business, community and other actors through the whole of society, including individuals and families

• Capitalize on innovation and value creation as the two drivers of modern economic development

• Finds paths of convergence for a transition from tradition to modernity that enables NCDs prevention/control and sustainable development
Building Convergence for Real-World Change with Impact and Scale One Project at a Time

Roadmap Projects: Global Obesity; Pulses; Iron Sufficiency; Reaching Unreachable Mother and Child
Outcomes lead to progress:
Learning and solutions help create the next roadmap towards health and prosperity for all.

Complex problems that plague the world

Brain-to-Society Diagnostic
Social needs and challenges driving science

Collective stakeholder engagement

Real-life, real-time solutions

Tangible Outcomes:
Education
New products
Policy
Communications
Reward mechanisms

McGill World Platform processes

BRAIN sciences

SOCIETY sciences

HEALTH sciences

SYSTEMS AND NETWORK sciences

SCIENCE-SOCIETY collaboration

Roadmaps: The Multiplier Effect of Convergence
Convergence Building Workshops:

F2F Milestones Along Continuous Process...

Delhi June 2012...Bellagio Nov 2013....Dakha May 2013...Mtl Nov. 2013
Roadmaps – Convergent Innovation to Address Nutrition Security

- **Roadmap 1**: ActivInsight for Healthy Eating
- **Roadmap 2**: Address Iron Deficiency-Anemia
- **Roadmap 3**: Dietary Diversity with Pulses
- **Roadmap 4**: Maternal & Child Health Tracking Systems to Reach the Unreacheable
The Case for Pulses

India, Canada & Globally

The Landscape

India is the largest producer of pulses in the world (24% global share)

Gap between increasing demand and stagnant supply

In the last 15 years, Canada became a global leader in promoting pulse production, research and export

Canada works to increase the use of pulse ingredients in the food industry to support specific health benefits
Rising pulse prices linked to long term neglect of pulse sector by government policies

Rising coarse grain prices linked dietary diversification >> rising use of coarse grains in meat and diary production

Source: Headey, Chiu and Kadiyala 2012; using USDA 2011 data; Also see Dev 2012
Innovation & Agriculture
Consumer Preference
The Case for Pulses

India, Canada & Globally

Actors Involved

1. **Pulse Canada**
   National industry association that represents growers, processors and traders of pulse crops in Canada

2. **International Pulse Trades & Industry Confederation (UAE)**
   International organization that represents companies and entities involved in pulses production, consumption and promotion

3. MNC Food & Beverages Co.
4. MNC Food & Beverages Flavoring Co.

Actors Required

1. Grassroots organization for take-up
2. Smallholders collectives (India & elsewhere)
3. Technology partner → Increase the ease of consumption
4. Western world champion → promote pulse consumption

For “Stealth” consumption of pulses through food processors
The Network of Partners

- Agriculture
- Government
- Consumer Goods Companies
- Retail Distribution System
- Consumers
Challenges and Possibilities for WoS Solution to NCDs Prevention/Control and Sustainable Development
Bridging Divides to Scale Up Convergence

• Bridging agriculture, health, and economic mindsets in their contribution to *the commons* in which choice is made.
• Bridging reason and passion in individual and collective choice.
• Bridging state, market and community.
• Bridging cooperation/competition.
The MWP combines the joint power of the best minds and leading organizations in private industry, health and social domains with the most recent developments in genetics, neuroscience, management and computational systems sciences.

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