International Seminar on India-Japan Partnership for Achieving Sustainable Development Goals

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Introduction

- 1.26 billion people; nearly 20% of humanity
- Added 450 million people over the 25 years to 2016
- Life expectancy has increased from 35yrs at independence to nearly 70 years now
- Proportion of people living in poverty has reduced by half in last 30 years
- “Dual disease burden", i.e., continuing communicable diseases and a spurt in non-communicable or "lifestyle" diseases.
Population and Urbanisation

THE WORLD'S POPULATION

The seven most populous countries

In 2011
- China: 1.33 billion
- India: 1.17 billion
- U.S.A.: 306.8m
- Indonesia: 243.3m
- Brazil: 191.5m
- Pakistan: 180.8m
- Nigeria: 162.3m

In 2050
- India: 1.69 billion
- China: 1.31 billion
- Nigeria: 433m
- U.S.A.: 423m
- Pakistan: 314m
- Indonesia: 309m
- Bangladesh: 226m

Evolution of the World's Population in billions

1 to 1800
1800 to 1900
1900 to 2000

Source: UK/MED

India's pace of urbanisation

<table>
<thead>
<tr>
<th>Year</th>
<th>Rural</th>
<th>Urban</th>
</tr>
</thead>
<tbody>
<tr>
<td>1960</td>
<td>0.1</td>
<td>0.1</td>
</tr>
<tr>
<td>1980</td>
<td>0.2</td>
<td>0.2</td>
</tr>
<tr>
<td>2000</td>
<td>0.3</td>
<td>0.3</td>
</tr>
<tr>
<td>2010</td>
<td>0.4</td>
<td>0.4</td>
</tr>
</tbody>
</table>

Source: Equity express.com
Nations within a nation: Epidemiologic transition variations across Indian States

GBD 1990-2016

Epidemiologic Transition assessed

GBD cause list broadly consists of:

- CMNNDs i.e., communicable, maternal, neonatal and nutritional diseases, and
- NCDs and injuries

Epidemiologic Transition Level is ratio of CMNNDs to that of NCDs and injuries combined

Lancet 2017; 390: 2437-60
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Commonest Causes and Risk Factors for DALYs in India (GBD 2016)

5 individual causes of DALYs in India (2016)

- Ischaemic heart disease
- Chronic obstructive pulmonary disease
- Diarrheal diseases
- LRTIs
- Cerebrovascular disease

5 Leading Risk Factors for DALYs in 2016

- Malnutrition
- Air pollution
- Dietary risks
- High Systolic BP
- High Fasting Plasma glucose

Lancet 2017; 390: 2437-60
Contribution of major disease groups to DALYs (1990 to 2016)

India had 33% of the total DALYs from CMNNDs, 55% from NCDs, and 12% from injuries in 2016. In 1990, this was 61%, 30%, and 9% of DALYs, respectively.
Unsafe water and sanitation

Unsafe water and sanitation was the second leading risk responsible for disease burden in India in 1990, but dropped to the seventh leading risk in 2016, contributing 5% of the total disease burden, mainly through diarrhoeal diseases and other infections.

The massive effort of the ongoing Swachh Bharat Abhiyan in India has the potential to improve this situation.
The impact of air pollution on deaths, disease burden, and life expectancy across the states of India: the Global Burden of Disease Study 2017

India State-Level Disease Burden Initiative Air Pollution Collaborators

<table>
<thead>
<tr>
<th></th>
<th>Population-weighted annual mean PM$_{2.5}$ μg/m$^3$ (95% UI)</th>
<th>Percentage of population using solid fuels (95% UI)</th>
<th>Population-weighted ozone concentration in parts per billion (95% UI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low SDI states (675 million)</td>
<td>125.3 (87.5–167.3)</td>
<td>72.1 (71.1–73.0)</td>
<td>63.6 (63.5–63.8)</td>
</tr>
<tr>
<td>Middle SDI states (387 million)</td>
<td>58.7 (44.8–76.6)</td>
<td>46.7 (45.7–47.8)</td>
<td>59.0 (58.7–59.4)</td>
</tr>
<tr>
<td>High SDI states (318 million)</td>
<td>56.6 (44.0–71.6)</td>
<td>31.0 (30.0–32.1)</td>
<td>56.3 (55.8–56.8)</td>
</tr>
<tr>
<td>India (1380 million)</td>
<td>89.9 (67.0–112.0)</td>
<td>55.5 (54.8–56.2)</td>
<td>60.1 (59.9–60.2)</td>
</tr>
</tbody>
</table>

Population in 2017 given in parentheses. SDI=Socio-demographic Index. UI=uncertainty interval.

Table 1: Distribution of annual mean PM$_{2.5}$ concentration, proportion of population using solid fuels, and ozone concentration in the states of India grouped by SDI, 2017
Figure 1: PM$_{2.5}$ concentration and use of solid fuels in the states of India, 2017
(A) Population-weighted mean ambient air PM$_{2.5}$ (B) Proportion of population using solid fuels.
1990:
85%: 700 million people using solid fuels

2010:
60%: 700 million people
Figure 3: DALY rates attributable to air pollution and tobacco use in India, 2017.
Error bars represent 95% uncertainty intervals. DALY = disability-adjusted life-year.
Universal health Coverage

- The goal is to provide health services without suffering financial hardship
  - a system for financing health services
  - access to essential medicines and technologies
  - a sufficient capacity of well-trained, motivated health workers

- Convened by the World Health Organization (Country Office) in India, 10 organizations including DFID, GIZ, ILO, UNAIDS, UNDP, UNFPA, UNICEF, USAID and the World Bank are working together to promote greater commitment to Universal Health Coverage in India
Challenges for Universal Health Coverage

- Doctor population ratio is **0.62 : 1000** while WHO recommends 1: 1000

- India is short of **1.94 million** nurses, according to an India spend analysis of data from the Indian Nursing Council (INC) and the World Health Organization (WHO)

- Also, there is a severe deficiency in the well trained paramedics and technicians in India,

- **80 %** of hospital beds and health care providers are in urban areas
Lack of Health Infrastructure

<table>
<thead>
<tr>
<th>Population</th>
<th>Rural (72%) 742 Million Population</th>
<th>Urban (28%) 285 Million Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital %</td>
<td>31</td>
<td>69</td>
</tr>
<tr>
<td>Hospital Bed %</td>
<td>20</td>
<td>80</td>
</tr>
<tr>
<td>Doctors %</td>
<td>08</td>
<td>92</td>
</tr>
<tr>
<td>Doctors/100,000 people</td>
<td>05</td>
<td>50</td>
</tr>
<tr>
<td>Spurious Pharma sales %</td>
<td>75-80</td>
<td>20-25</td>
</tr>
</tbody>
</table>

600,000 Villages (67%)
**Human Resources Shortages: India**

**Physician per Thousand Population, 2005-2012**

- **Global average**: 1 physician
- **Japan**: 2.1
- **Russia**: 4.3
- **China**: 1.5
- **USA**: 2.4
- **UK**: 2.8
- **Brazil**: 1.8
- **Thailand**: NA
- **Malaysia**: 1.2
- **Indonesia**: 0.2
- **Philippines**: NA
- **India**: 0.7

- India has 0.7 physicians per 1,000 patients, lower than the WHO stipulation of a minimum ratio of 1:1,000.
- In India there is an acute shortage of doctors; there would be shortage of around 600,000 doctors in the next 10 years.

**Hospital Beds per Thousand Population, 2005-2012**

- **Global average**: 2.9 beds
- **Japan**: 13.7
- **Russia**: 9.7
- **China**: 3.9
- **USA**: 3.0
- **UK**: 3.0
- **Brazil**: 2.3
- **Thailand**: 2.1
- **Malaysia**: 1.8
- **Indonesia**: 0.6
- **Philippines**: 0.5
- **India**: 0.9

- India's hospital bed per thousand population is below the global average of 2.9 beds.
Human Resource Shortages in India

**Physicians**
- India: 0.6 per 1,000 people
- China: 1.4
- Brazil: 1.2
- Global avg.: 1.3

**Hospital beds**
- India: 0.9 per 1,000 people
- China: 2.2
- Brazil: 2.6
- Global avg.: 3.0

**Nurses and midwives**
- India: 1.3 per 1,000 people
- China: 2.0
- Brazil: 3.0
- Global avg.: 2.8

Source: WHO, E&Y Analysis
Private Sector in Healthcare: The Boon and the Bane

- 80% of health expenditure is in private sector in India
- Indian healthcare industry that has grown to $81.3 billion.
- Only 3% of private health care covered by insurance
- As per NFHS-3, private sector primary service provider for 70% urban and 63% rural households
- Prompt facilities which may not be available in government sector
- Non-transparency and alleged collusion and corruption

Just to add perspective, China spends 5.6 times more, the US 125 times more on health as compared to India
Challenges for Universal Health Coverage

- **Public sector** provides an estimated 20% of outpatient and 40% of hospitalization services.

- **Private sector** has nearly two-thirds of all functional hospital beds and around 85-90% of qualified allopathic physicians.

- All countries achieving UHC have been spending on an average of 6% of GDP while India is spending **upto 2.5%** on a large Population of 1.2 Billion.

- In the public health sector, there is an inadequate mix of promote, preventive, diagnostic, curative and rehabilitative services.

- **Private sector** largely focuses mainly on diagnostic and curative services rather than preventive.
Lacunae in Establishment of Effective Public Health Care Model

- Health is a state subject
- 70% of health expenditure born by States till date
- Lack of the GP; envisaged as a “Basic Doctor” in Bhure Committee Report
- May be the “Family Medicine” Doctor of today
- Public sector share of spending 1% of GDP
- Our peers in this low public spending are Burundi, Myanmar, Sudan, and Pakistan in SEAR
Targets by 2030 to attain SDG-3 Goals

- Reduce the global maternal mortality ratio to **70 per 100,000 live births**
- Reduce neonatal mortality to **12 per 1,000 live births** and **under-5 mortality to 25 per 1,000 live births**
- End the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases
- **Reduce by one third premature mortality from non-communicable diseases**
- Strengthen the **prevention and treatment of substance abuse**, including narcotic drug abuse and harmful use of alcohol
- **By 2020, halve** the number of global deaths and injuries from road traffic accidents
Targets by 2030 to attain SDG3 Goals

- Ensure **universal access to sexual and reproductive health-care services**, including for family planning, information and education, and the integration of reproductive health into national strategies and programmes.
- Achieve **universal health coverage**, including financial risk protection, access to quality health-care services, safe, effective, quality and affordable essential medicines and vaccines for all.
- **Reduce** the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.
Targets Achieved so far

- The **Infant Mortality Rate** has declined from **57 in 2005-06** to **41 in 2015-16**.

- **Under-5 Mortality Rate** has fallen from **74 to 50** over the same period.

- **Institutional deliveries** increased from **38.7% in 2005-06** to **78.9% in 2015-16**

- The government aims to **immunize all** unimmunized and partially immunized children against vaccine-preventable diseases by **2020**.
The National Health Policy, 2017 has specified targets for
- universalizing primary health care
- further decreasing under-5 mortality,
- preventing premature deaths due to non-communicable diseases as well as increasing government expenditure on health
Targets under National Health Policy 2017 to attain SDG-3 Goals

Communicable Diseases

- Achieve the global target of 90:90:90 for HIV/AIDS by 2020

Eliminate

- Kala-Azar by 2017,
- Lymphatic Filariasis in endemic pockets by 2017
- Leprosy by 2018

- Achieve & maintain a cure rate of more than 85% in new sputum positive TB patients; and reduce incidence of new cases to reach elimination status by 2025
Targets under National Health Policy 2017 to attain SDG-3 Goals

Women and Children

- Reduce Infant Mortality Rate to **28** by 2019
- Reduce Maternal Mortality Ratio to **100** by 2020
- Reduce Neo Natal Mortality to **16** by 2025
- Reduce Under-Five Mortality to **23** by 2025
- Completely **immunize 90%** of newborn children by 2025
- Immunize all unimmunized and partially immunized children against vaccine-preventable diseases
- Enhance skilled birth attendance to more than **90%** by 2025
- Increase antenatal care coverage to **90%**
Pradhan Mantri Jan Arogya Yojana (PMJAY), to provide health insurance worth Rs 500,000 (US$ 7,124.54) to over 100 million families every year. Sponsored Scheme contributed by both center and state government.

Mission Indradhanush with the aim to improving & achieve at least 90 per cent immunisation coverage by December 2018 which will cover unvaccinated and partially vaccinated children in rural and urban areas of India.
In 2017, the Government of India approved National Nutrition Mission (NNM), a joint effort of Ministry of Health and Family Welfare (MoHFW) and the Ministry of Women and Child development (WCD) towards a life cycle approach for interrupting the intergeneration cycle of Under Nutrition.

4.45 million patients were benefitted from Affordable Medicines and Reasonable Implants for Treatment (AMRIT) Pharmacies.

National Medical Commission Bill 2017, it aims to promote area of medical education reform.
Health is a multi-sectoral approach which involves various departments as definition of healthcare changed from curative to preventive care and need initiatives in improvement in sectors:

- Clean water *(Swajal scheme)*
- Sanitation *(Swachh Swasth Sarvatra)*
- Pollution free environment
- Economic condition *(Pradhan Mantri Jan Dhan Yojna)*
- Research in alternative Medicine like *AYUSH*
- Universal Health Coverage *(Pradhan Mantri Jan Arogya Yojan)*
India – Japan Collaborations

A Bilateral agreement between India & Japan under the aegis of the Memorandum of Cooperation in the field of Healthcare

- For implementation of concept of ICT based hospital work was entrusted to NEDO of Japan for a demonstration project.
- Purpose of NEDO’s demonstration project was to exhibit the effectiveness of Japan’s advanced technologies
- Work and cost shared between Japan and the host country based on NEDO guidelines
- MOU signed by the MOH, Ministry of Finance and AIIMS on 29th November 2016
- Cost Borne by NEDO approx. Rs 75 crores and Rs 28 crore borne by Indian Government.
Scope of Work

- The project includes replacement of Air conditioning chiller Plants of aggregate capacity of 4500 TR by energy efficient VFD technology based chillers.
- Replacement of approx. 32000 CFL light fittings by LED.
- Providing capacitor banks in the existing sub stations for improvement of power factor.
- Electrical automation monitoring system, solar generating panels of approx. 670 KW capacity.
- Aggregation of existing IT servers and medical data integration platform.
- The expected saving to AIIMS, after the completion of the project would be about Rs 18 crore per annum w.r.t the electricity bill.
Installed Equipment

- LED Lights
- Energy Management System
- IT system
- HVAC (High efficiency Chiller)
- Solar Power System
India – Japan Collaborations

- School of International Biodesign (SIB) funded by DBT – collaboration between Stanford University, IIT-Delhi, AIIMS-Delhi and Queensland University of Technology.
- SIB aims to train next generation medical technology innovators and create an ecosystem of frugal medical innovations through fellowships.
- The School has a tie up with international universities such as:
  - Queensland University of Technology, Australia
  - Tottori University, Japan
  - Hiroshima University, Japan
  - Other Universities from Europe and North America
India – Japan Collaborations


- March 2019 - MOU between All India Institute of Medical Sciences (AIIMS), New Delhi and Japanese Association for Acute Medicine (JAAM) & Japanese Association for the Surgery of Trauma (JAST) will be signed
India – Japan Collaborations

Under this MoU areas of cooperation are:

I. Exchange of medical staff for training and education
II. Share programs in emergency, trauma & disaster medical care for paramedics, nurses, and physicians
III. Exchange of information in these areas

Key activities

- Patient care in the JPN APX Trauma Center in AIIMS
- Additionally Introduction to programs in Japan-Simulation training & Emergency & disaster management
Thank you