EC EXTERNAL SERVICES

EVALUATION UNIT

OUTCOME AND IMPACT LEVEL INTERVENTION LOGIC & INDICATORS

HEALTH SECTOR

WORKING PAPER:

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This working paper outlines a set of indicators at the outcome and impact level for the health sector. It does not focus on implementation (e.g. output level indicators such as recruitment and training of doctors), or indicators at the global level (e.g. economic growth and poverty reduction) but aims to improve the development of indicators between these two levels (i.e. the 'missing middle').

It is hoped, by setting out a clear set of indicators, that this work can be used to guide the development and monitoring of programming level tools, such as CSP's. These indicators should also increase our understanding of the wider impact of development assistance.

This work builds upon existing international best practices (e.g. WHO key indicators).

HEALTH SECTOR: OUTCOME AND IMPACT INDICATORS

Introduction

This short paper outlines a key set of effects and indicators covering expected outcomes and impacts of country support to the health sector. It is designed to assist country teams to develop a set of indicators for the programming level and guide the production of documents such as Country Strategy Papers (CSP). It also aims to fill, as much as possible, the 'missing middle' between implementation indicators (e.g. recruitment of doctors) and global impact indicators (e.g. poverty reduction).

EC Unisanta Health Programme, Brazil

Methodology

This paper is based on intervention logic that outlines a chain of expected effects (outputs, outcomes and impacts) for a successful intervention. For each outcome and specific impact, a set of indicators has been identified that can measure their achievement. A full set of effects is outlined in the intervention logic diagram on page 3 and the indicators are summarised in Annex A. For full details on the methodology used for this working paper, please see the 'methodological approach' paper.

This paper is predominately based upon the Millennium Development Goals (MDG)[1], current thinking within the Health Metrics Network of the World Health Organisation (WHO)[2] and draws its key indicators from the WHO Statistical Information System[3] and internationally agreed MDG targets.

Output Clusters

Output clusters cover products resulting from development interventions:

a) Health Care Worker Recruitment and Training – "Increased number of qualified health care workers recruited and trained to an acceptable standard"

b) Essential Medicines and Equipment – "Improved research and development and reduced cost of essential drugs and equipment"

c) Infrastructure – "Increased number and improved maintenance of hospitals and health centres, alongside vital supporting infrastructure (e.g. roads)"

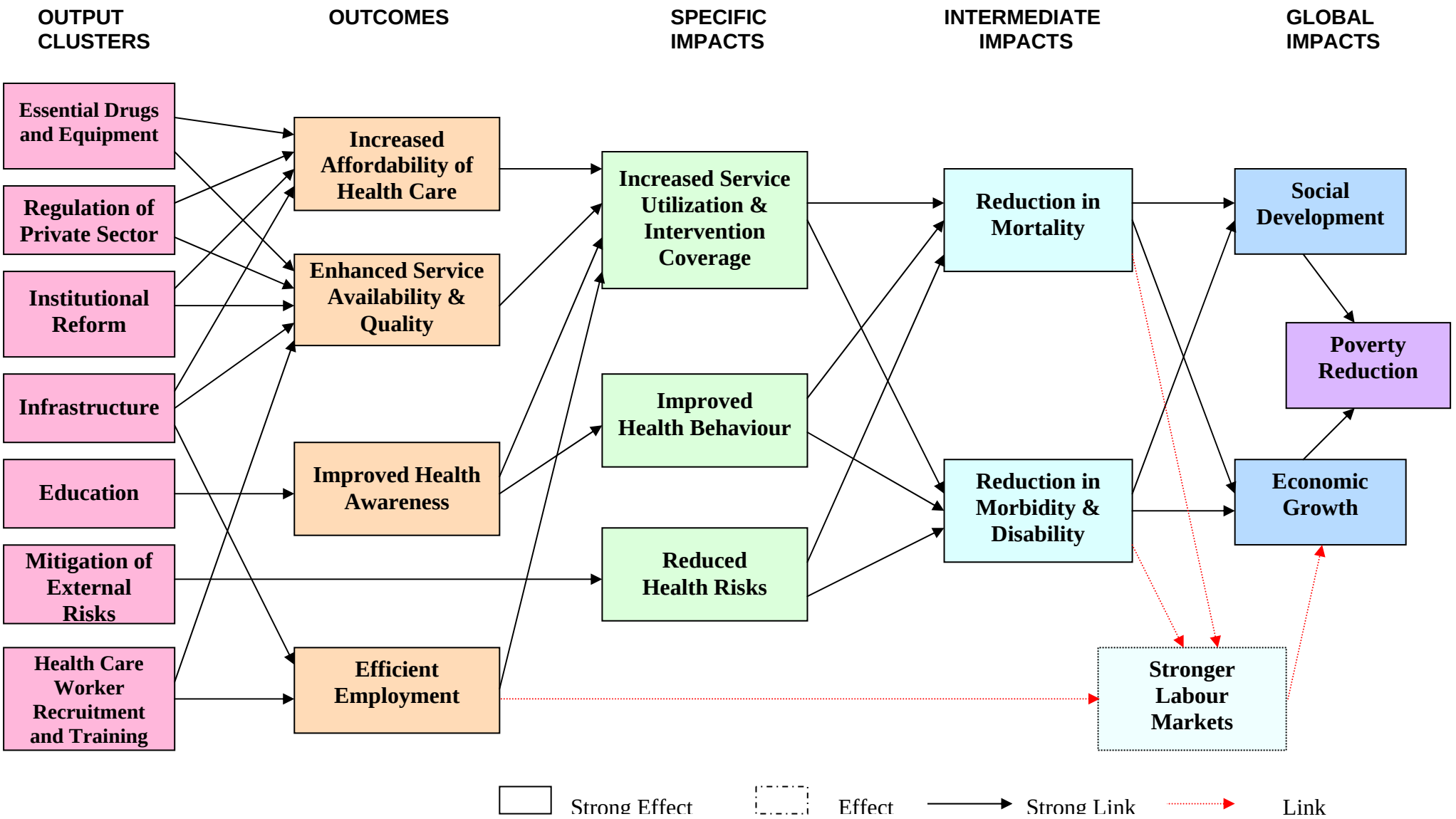
d) Institutional Reform – "Reforms to improve the governance of health sector in order to improve public sector performance, fair financing and ensure effective targeting of key health issues"

e) Regulation of Private Sector – "Effective regulation of health sector to improve performance and provision from private sector health providers (including research and development)"

f) Education – "Improved education on health problem identification, treatment and mitigation"

g) Mitigation of External Risks – "Mitigation of external environmental risks (including water and sanitation, climate change, conflict and pollution) that effect health outcomes"

[1] United Nations MDG's (http://www.un.org/millenniumgoals/)
[2] The intervention logic is largely based upon the 'three domains of measurement for health information systems' outlined in the WHO 'Framework and Standards for Country Health Information Systems'. (http://www.who.int/healthmetrics/documents/hmn_framework200803.pdf)
[3] WHO SIS (http://www.who.int/whosis/en/index.html)



Inputs: financial, human and material resources etc. Activities: funding, planning, monitoring, technical assistance, construction etc

Outcomes

Outcomes relate to the likely or achieved short-term and medium-term effects of an intervention's outputs:

Increased Affordability of Health Care

1. Household expenditure (out-of-pocket)
   Examples: Proportion of population with access to affordable essential drugs on a sustainable basis[4]
   Proportion of out-of-pocket spending in total health spending
   Proportion of population making out-of-pocket payment for health
   Average out-of-pocket budget share amongst those who have spent out-of-pocket
   Proportion of population incurring catastrophic health expenditures
   Proportion of the population pushed into poverty because of out-of-pocket payments
   Proportion of population that has been sick and could not afford care
   Distribution of out-of-pocket spending across socio-economic groups[5]

Enhanced Service Availability & Quality

2. Qualification of health care workers
   Example: Proportion of qualified health care workers (based on academic qualifications)

3. Well equipped health facilities
   Example: Proportion of health facilities that meet basic service capacity standards (e.g. basic amenities, equipment, infection control, human resources, tracer drugs and diagnosis)[6]

4. Access to health facilities
   Example: Proportion of population within 1 hour of primary health care and 2 hours from hospital

5. Hospital beds
   Example: Hospital beds per 10,000 population[7]

> "An average of 56.7% of the population was within 30 minutes of a health facility in 2003.
>
> In the urban areas, 72.8% persons are less than 30 minutes from a health facility, compared to 38% in rural areas."
>
> EC Ghana Evaluation, 2005

6. Availability to health care workers
   Examples: Density of health care workers such as: community and traditional health workers; dentistry personnel; environment and public health workers; nursing and midwifery personnel; pharmaceutical personnel; and physicians[8]
   Level of health worker absenteeism
   Average waiting time at health facility or provider
   Gender mix of health care workers dealing with reproductive health services

7. Availability of drugs
   Examples: Proportion of population with advanced HIV infection with access to antiretroviral drugs[9]
   Stock-out rates (absence) of essential drugs in health facilities[10]

[4] MDG Indicator 8.13 (linked to MDG Target 8e which is focused on cooperation with pharmaceutical companies, in order to provide access to affordable essential drugs in developing countries)
[5] All but the first indicator have been taken from the EC report 'Out-of-pocket Health Expenditure and Household Surveys in Developing Countries' (http://www.cc.cec/dgintranet/europeaid/activities/thematic/e3/documents/monitoringoop_.pdf). Please see Annex 7 of this report for more detailed information on these indicator examples.
[6] Taken from WHO Toolkit for Monitoring Health Systems Strengthening – Service Delivery
[7] WHO Health Systems Resources Indicator. Normally >1/1,000 population but needs to be adapted to needs, population density and other local variables.
[8] WHO Health Systems Resources Indicators. The WHO standard is 20 doctors and 100 nurses per 100,000 population.
[9] MDG Indicator 6.5 (linked to MDG Target 6b which looks to achieve, by 2010, universal access to treatment for HIV/AIDS for all those who need it). Also linked to WHO Health Service Coverage Indicators on antiretroviral therapy coverage.
[10] Taken from WHO Toolkit for Monitoring Health Systems Strengthening – Governance. < 5% of health centres are during >10 days in the year with out-of-stocks of selected essential medicines.

Improved Health Awareness

8. Awareness of infant and maternal care
Examples: Correct knowledge of infant and maternal care

9. Awareness of HIV/AIDS
Examples: Correct knowledge of HIV/AIDS[11]

10. Awareness of water borne diseases
Examples: Correct knowledge of how water borne diseases are transmitted

Other key health awareness issues, which are very much country specific according to their wealth, demographics, culture, climate and stability could include:
- Understand the need for a balanced diet of food
- Understand the dangers of drug use and excess alcohol/tobacco consumption
- Understand the dangers of being exposed to harmful chemicals
- Aware of family health problems

Efficient Employment

11. Employment in heath sector
Example: Optimal number of health care workers employed in the health sector (based on needs and capacity of existing facilities)

Specific Impact

Specific impacts cover positive and negative, primary and secondary long-term effects produced by a development intervention, directly or indirectly, intended or unintended:

Increased Service Utilization & Intervention Coverage

12. Antenatal care coverage
Examples: Antenatal care coverage (at least one visit and at least four visits)[12]
Proportion of births by caesarean section[13]

13. Births attended by skilled personal
Examples: Proportion of births attended by skilled health personnel[14]
Proportion of births by caesarean section[15]

14. Child immunisation
Example: Proportion of 1 year-old children immunised against measles, diphtheria and hepatitis B[16]

EC/UNFPA Reproductive Health Initiative for Asia

15. Family planning
Example: Unmet need for family planning[17]

16. Malaria treatment
Example: Proportion of children under 5 with fever who received treatment with any antimalarial[18]

[11] MDG Indicator 6.3
[12] MDG Indicator 5.5
[13] WHO Health Service Coverage Indicator (please note that care must be taken with this indicator, as if the proportion is too high bad incentives maybe in place that are encouraging providers to provide more caesarean births than is required)
[14] MDG Indicator 5.2 and WHO Health Service Coverage Indicator
[15] WHO Health Service Coverage Indicator (please note that care must be taken with this indicator, as if the proportion is too high bad incentives maybe in place that are encouraging providers to provide more caesarean births than is required)
[16] MDG Indicator 4.3 (just covers measles) and WHO Health Service Coverage Indicators
[17] MDG Indicator 5.6

17. Tuberculosis (TB) detection and treatment
Examples: TB detection rate (%) under directly observed treatment, short-course (DOTS)[19]
TB treatment success (%) under DOTS[20]
Children under 5 with acute respiratory infections (ARI) symptoms taken to facility[21]
Proportion of tuberculosis cases detected and cured under directly observed treatment short course[22]

18. Antiretroviral therapy coverage
Example: Antiretroviral therapy coverage (%)[23]

19. Diarrhoea treatment
Example: Proportion of children under 5 with diarrhoea receiving oral rehydration therapy (ORT)[24]

20. Child vitamin supplementation
Example: Proportion of children aged 6-59 months who received vitamin A supplementation[25]

<u>Improved Health Behaviour</u>

21. Contraceptive use
Examples: Contraceptive prevalence rate[26]
Adolescent birth rate[27]

22. Malaria prevention
Examples: Use of insecticide-treated bednets and appropriate anti-malarial drugs (especially children under 5)[28]

23. Hand washing
Example: Proportion of people hand washing

24. Road safety
Example: Percentage of drivers wearing safety belt

EC Funded Health Centre, Senegal

Other key health behaviour issues, which are very much country specific according to their wealth, demographics, culture, climate and stability could include:
- Women who have had regular mammography[29] and PAP smear[30] tests[31]
- Prevalence of tobacco use among adolescents and adults[32]
- Per capita recorded alcohol consumption among adults[33]
- Prevalence of adults who are obese[34]
- Proportion of people boiling water before usage
- Proportion of people who visit their doctor on a regular basis

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[18] WHO Health Service Coverage Indicator
[19] WHO Health Service Coverage Indicator
[20] WHO Health Service Coverage Indicator
[21] WHO Health Service Coverage Indicator
[22] MDG Indicator 6.10
[23] WHO Health Service Coverage Indicator
[24] WHO Health Service Coverage Indicator
[25] WHO Health Service Coverage Indicator
[26] MDG Indicators 5.3 & 6.2 and WHO Health Service Coverage Indicator (contraception prevalence) and WHO Risk Factor Indictor (condom use for 15-24 year olds)
[27] MDG Indicator 5.4 and WHO Demographic and Socioeconomic Indicator
[28] Covers MDG Indicators 6.7 and 6.8 and WHO Health Service Coverage Indicators which focus on children under 5
[29] Test conducted to detect signs of breast cancer
[30] Test conducted to detect signs of cervical cancer
[31] WHO Health Service Coverage indicators (usually associated with more developed countries)
[32] WHO Risk Factor Indicators
[33] WHO Risk Factor Indicator
[34] WHO Risk Factor Indicator (splits by men and women)

Reduced Health Risks

25. Safe drinking water and basic sanitation[35]
Examples: Proportion of population using an improved drinking water source[36]
Proportion of population using an improved sanitation facility[37]

26. Food safety complimented
Examples: Reported incidence of infections caused by key food borne pathogens (e.g. salmonella, campylobacter jejuni, listeria monocytogenes, shigella and hepatitis A)
Reported outbreaks of infections casused by key food borne pathogens

27. Air pollution
Example: Proportion of population using solid fuels[38]
Levels of lead and carbon monoxide in the air

Intermediate Impacts

Intermediate impacts are similar to specific impact but are longer-term in nature and are the last cause and effect chain level that can be monitored effectively and at the same time demonstrative sufficient attribution to the output clusters:

Reduction in mortality

28. Life expectancy
Examples: Life expectancy at birth[39]

29. Maternal mortality[40]
Examples: Maternal mortality ratio[41]
Neonatal mortality rate[42]

30. Child mortality[43]
Examples: Under-five mortality rate[44]
Infant mortality rate[45]
Adult mortality rate[46]

"All basic health indices have experienced dramatic improvement in Vietnam over a ten year time frame (1995 –2005); for example, the infant mortality rate declined from 45 to 18 per 1000, the under-five mortality rate from 62 to 28 per 1000, and the maternal mortality ratio from 110 to 80 per 100,000 live births."

EC Vietnam Evaluation, 2009

31. Adult mortality
Examples: Deaths due to HIV/AIDS[47]
Death rates associated with malaria[48]
Death rates associated with tuberculosis[49]

Other key mortality issues, which are very much country specific according to their wealth, demographics, culture, climate and stability could include:
- Age standardized mortality rate for cancer, cardiovascular diseases, non-communicable diseases[50] and injuries[51]

[35] MDG Target 7c
[36] MDG Indicator 7.8 and WHO Risk Factor Indicator (splits data by rural and urban)
[37] MDG Indicator 7.9 and WHO Risk Factor Indicator (splits data by rural and urban)
[38] WHO Risk Factor Indicator (splits data by rural and urban)
[39] WHO Mortality and Burden of Disease Indictor
[40] MDG Target 5a
[41] MDG Indicator 5.1 and WHO Mortality and Burden of Disease Indicator
[42] WHO Mortality and Burden of Disease Indictor
[43] MDG Target 4a
[44] MDG Indicator 4.1 and WHO Mortality and Burden of Disease Indicators (which also breaks down mortality by diarrhoeal diseases, HIV/AIDS, injuries, malaria, measles, neonatal causes, pneumonia and other causes)
[45] MDG Indicator 4.2 and WHO Mortality and Burden of Disease Indicators
[46] WHO Mortality and Burden of Disease Indictor
[47] WHO Mortality and Burden of Disease Indictor
[48] MDG Indicator 6.6
[49] MDG Indicator 6.9 and WHO Mortality and Burden of Disease Indicators (WHO also splits data between those that are HIV negative and positive)

- Number of road injuries and deaths
- Number of occupational injuries and deaths

Reduction in morbidity and disability

32. Spread of HIV/AIDS[52]
    Examples: HIV prevalence among population aged 15-24 years[53]

33. Spread of malaria
    Example: Incidence rates associated with malaria[54]

34. Spread of TB
    Examples: Incidence, prevalence rates associated with TB[55]

35. Disability levels
    Examples: Healthy life expectancy (HALE) at birth[56]
    Disability Adjusted Life Years (DALYs) rate[57]

Other key morbidity issues, which are very much country specific according to their wealth, demographics, culture, climate and stability could include:
- Rate of sexually transmitted diseases in adult population
- Number of confirmed cases for: poliomyelitis (polio), cholera, diphtheria, H5N1 influenza, Japanese encephalitis, leprosy, measles, meningitis, mumps, pertussis (whooping cough), plague, congenital rubella syndrome, rubella, neonatal tetanus, total tetanus and yellow fever
- Years of life lost to communicable diseases[58], non-communicable diseases and injuries[59]

The 'stronger labour market' effect is presented in the intervention logic for illustrative purposes only, as the contribution of health towards its achievement is too difficult to verify.

Global Impacts

Finally, the effects of support to the health sector should contribute to the longer term global impacts of social development, economic growth and poverty reduction. However, due to the complexity of their achievement and the numerous factors influencing them, it is not possible to draw a direct cause and effect link to the health sector. As a outcome, no health sector related indicators have been identified for this level.

[50] Non-communicable diseases are spread by: heredity, surroundings and behaviour
[51] WHO Mortality and Burden of Disease Indictors (associated with more developed countries)
[52] MDG Target 6a
[53] MDG Indicator 6.1 and WHO Mortality and Burden of Disease Indicator, which covers all cases above 15 years old
[54] MDG Indicator 6.6
[55] MDG Indicator 6.9 and WHO Mortality and Burden of Disease Indicators (WHO also splits data between those that are HIV negative and positive)
[56] WHO Mortality and Burden of Disease Indictor
[57] Calculated by the WHO
[58] Communicable diseases are diseases which are transmitted by infections.
[59] WHO Mortality and Burden of Disease Indicators

Annex A: List of Key Indicators for Health Sector

Affordability Outcomes

1. Household expenditure (out-of-pocket)

Service Availability & Quality Outcomes

2. Qualification of health care workers
3. Well equipped health facilities
4. Access to health facilities
5. Hospital beds
6. Availability to health care workers
7. Availability of drugs

Health Awareness Outcomes

8. Awareness of infant and maternal care
9. Awareness of HIV/AIDS
10. Awareness of water borne diseases

Employment Outcomes

11. Employment in heath sector

Service Utilization & Intervention Coverage Specific Impacts

12. Antenatal care coverage
13. Births attended by skilled personal
14. Child immunisation
15. Family planning
16. Malaria treatment
17. TB detection and treatment
18. Antiretroviral therapy coverage
19. Diarrhoea treatment
20. Child vitamin supplementation

Health Behaviour Specific Impacts

21. Contraceptive use
22. Malaria prevention
23. Hand washing
24. Road safety

Reduced Health Risks

25. Safe drinking water and basic sanitation
26. Food safety
27. Air pollution

Mortality Intermediate Impacts

28. Life expectancy
29. Maternal mortality
30. Child mortality
31. Adult mortality

Morbidity & Disability Intermediate Impacts

32. Spread of HIV/AIDS
33. Spread of malaria
34. Spread of TB
35. Disability levels