Sustainable Development Goals and Addressing Non-communicable Diseases

Seema Rath[1], Shraddha Patnala[2], Sean James Bosman[3], Sunitha Srinivas*

[1]Department of Economics, Hugh Kelly Fellow, Faculty of Pharmacy, Rhodes University, South Africa/Government College, Khandola-Goa, INDIA.
[2]Faculty of Arts, Rhodes University, SOUTH AFRICA.
[3]Department of English, Rhodes University, SOUTH AFRICA.

ABSTRACT

Sustainable development can be achieved by eradicating poverty, attaining the wellbeing of the population, and by protecting and improving environments by restricting pollution. Non communicable Diseases (NCDs) are currently responsible for 68% of global deaths and are projected to result in 75% of global deaths by 2030. They account for a large proportion of premature deaths (42%), and most of these casualties occur in developing countries (80%). Thus the increasing burden of NCDs is bound to affect both the levels of poverty and the sustainable development of developing countries much more than it will impact on developed countries. Sustainable Development Goal (SDG) 3.4 has thus been formulated to emphasise the reduction of premature mortality from NCDs by one third, through prevention and treatment thereof, and by promoting mental health and well-being for all by 2030. NCDs are also indirectly related to SDG 3.5, which aims to strengthen the prevention and treatment of substance abuse; SDG 3.8 aims at universal health coverage (UHC); and SDG 3.9 targets asubstantial reduction in the number of deaths and illnesses from pollution and contamination by 2030. To achieve these targets it is necessary to have major interventions to deal with rapid unplanned urbanization and the globalization of markets that promote inactivity and unhealthy diets, as well as to prevent and control pollution, and to plan and implement efficient UHC policies. With the shortage of resources at their disposal, it will be required for developing countries to prevent and control NCDs by focussing more on modifiable risk factors, with all of the stakeholders-the governments, educational institutions, private sector, non-governmental organisations and the community-playing proactive roles.

Key words: Sustainable development, Non-communicable diseases, Low and middle income countries, India.

INTRODUCTION

Eliminating poverty in all its forms, including extreme poverty, is one of the greatest global challenges and is an indispensable requirement for sustainable development.[1] An appropriate health policy could enable sustainable development and poverty reduction. Sustainable development, in turn, can restrict and mitigate the adverse effects of environmental degradation and climate change, which have the maximum relative influence on the least healthy and poorest population segments.[2] Developing countries have been confronted with a double burden of diseases, the continued prevalence of existing communicable diseases, emerging communicable diseases, and the increasing epidemic of non-communicable diseases (NCDs). Most countries have been focussing on the prevention and control of communicable diseases without according sufficient importance to the prevention and control of NCDs. NCDs are rapidly growing as the major cause of morbidity and mortality. Therefore, Sustainable Development Goal (SDG) 3.4 emphasises the reduction ofpremature mortality from NCDs by one third, through their prevention and treatment, and through promoting mental health and well-being by 2030.[3] NCDs are also indirectly related to other SDG targets such as SDG 3.5-to strengthen the prevention and treatment of substance abuse; SDG 3.8- universal health coverage (UHC); and SDG 3.9 –aiming at

DOI: 10.5530/ijopp.9.2.2

Address for correspondence:
Sunitha Srinivas,
Faculty of Pharmacy, Rhodes University PO Box 94, Grahamstown, SOUTH AFRICA.
E-mail: s.srinivas@ru.ac.za

www.ijopp.org

a substantial reduction in the number of deaths and illnesses from pollution and contamination by 2030. The present paper highlights the importance of the SDGs and considers the significance of their incorporation of NCDs, with special reference to India.

Importance of Sustainable Development Goals

The United Nations' new Universal Agenda for Sustainable Development, with 17 goals and 169 targets, seeks to build on the Millennium Development Goals (MDGs) and to fulfil those goals that were previously unrealised. The agenda integrates the three dimensions of sustainable development: the economic, social and environmental (Table 1) that intend to ensure furthering the momentum generated by the MDGs beyond 2015, to provide a life of dignity to all by finally ending poverty and deprivation in all forms, leaving no one behind.[4] Table 1 highlights the similarities and differences between the SDGs and the MDGs. The touchstones used for the developments that guided these policies and their implementation were the original MDGs and their targets.

- The SDGs reaffirm the Universal Declaration of Human Rights created in 1948. These goals cover all three generations of rights granted to people under the United Nations. Most international and national laws conform to these groupings.
- The past has paved the 17 goals for the future. The SDGs for 2030 have been shaped by drawing on the outcomes and limitations of past conventions, declarations, and goals regarding social, economic, environmental, and public health.
- Inclusive and improved framework: The 193 Member States of the United Nations are encouraged to follow this guideline for improving national healthcare, economy, social structures, and environments, with special emphasis being placed on women's empowerment in all of these aspects. The SDGs are the way forward, but to fully appreciate the depth and necessity of each of these goals, the world needs to see them in action. Where governance has been lacking, people must be encouraged to take responsibility for their own well-being. Accountability is integral to realizing any of these Sustainable Development Goals over the next 15 years.
- The SDGs are consistent with international laws, but are not enforceable. These goals are "supremely ambitious",[1] and come across as blanket statements when examined for the minute details that any legislation requires. For example: one government department has to cut down on their budget, affecting the availability of resources and opportunities to those who cannot consistently afford it, to support other departments.

Impact of Non-communicable Diseases on Development

Non-communicable diseases(NCDs) account for 68% of global deaths (Figure 1) and are projected to cause 75% of global deaths by 2030.[5] Premature and preventable casualties account for 16% of global deaths that occur at the most productive age of below 60 and around 42% takes place under the age of 70. Low

Table 1: Comparison of Targets of MDGs and SDGs

Goals	MDG (effective from 2000-2015)	SDG (effective from 2016 - 2030)
Poverty	1: Eradicate extreme hunger and poverty	1: No Poverty
Hunger	1: Eradicate Extreme hunger and poverty	2: Zero Hunger
Education	2: Achieve Universal Primary Education	4: Quality Education
Gender equality	3: Promote Gender Equality and Empower Women	5: Gender Equality
Health	4: Reduce Child Mortality 5: Improve Maternal Health 6: Combat HIV/AIDS, Malaria, and other diseases	3: Good Health and Well-Being Non Communicable diseases have been included
Environmental sustainability	7: Ensure Environmental Sustainability	6: Clean Water and Sanitation 7: Affordable and Clean Energy 11: Sustainable Cities and Communities 12: Responsible Consumption and Production 13: Climate Action 14: Life Below Water 15: Life on Land
Economic	8: Global Partnership and Development	8: Decent Work and Economic Growth 9: Industry, Innovation, and Infrastructure
Global/Cultural		10: Reduced Inequalities 16: Peace, Justice, and Strong Institutions 17: Partnerships for the Goals

Source: Compiled from United Nations, 2015[1]

and middle income countries (LMICs) face a bigger challenge of NCDs, as 80% of global NCD related deaths occur in these countries.[6] The increasing burden of NCDs affects global sustainable development, as the morbidity and mortalities caused by them lead to increasingly dependent populations, and decreases in the sustained availability of healthy work forces and a resultant loss of productivity. It also leads to perpetual poverty among the poorer sections due to the premature deaths of earning family members, an increased number of dependents, and disastrous expenditure for lifelong treatments due to morbidity.

Globally, two thirds of NCD deaths were caused by cardiovascular diseases (CVD), cancer, diabetes and chronic respiratory diseases. It is observed that global premature NCD mortality rates decreased by 15% between 2000 and 2012, mainly due to the decline in CVD deaths. This was facilitated by improvements in population-level blood pressure, declines in tobacco use, and progresses in medical treatment. These decreases, however, have been larger in high-income countries than in the LMICs.[3]

The proportion of total deaths due to NCDs in LMICs is relatively low compared to the proportion of NCD deaths globally and in advanced countries, because LMICs face a double burden of diseases, with continued burdens of communicable, maternal, perinatal and nutritional conditions, along with emerging incidences of NCDs. However, the age-standardised death rates due to NCDs in LMICs are significantly more than in high income countries (Table 2). A study conducted involving 23 developing countries revealed that 24 million deaths could have been prevented by actions initiated to prevent and control NCDs, saving an estimated $8 billion, accounting for around 10% of the anticipated loss in national income during the period from 2006 to 2015.[8] These show that the burden of NCDs is grave and will continue to grow unless actions are initiated to prevent and control them in developing countries.

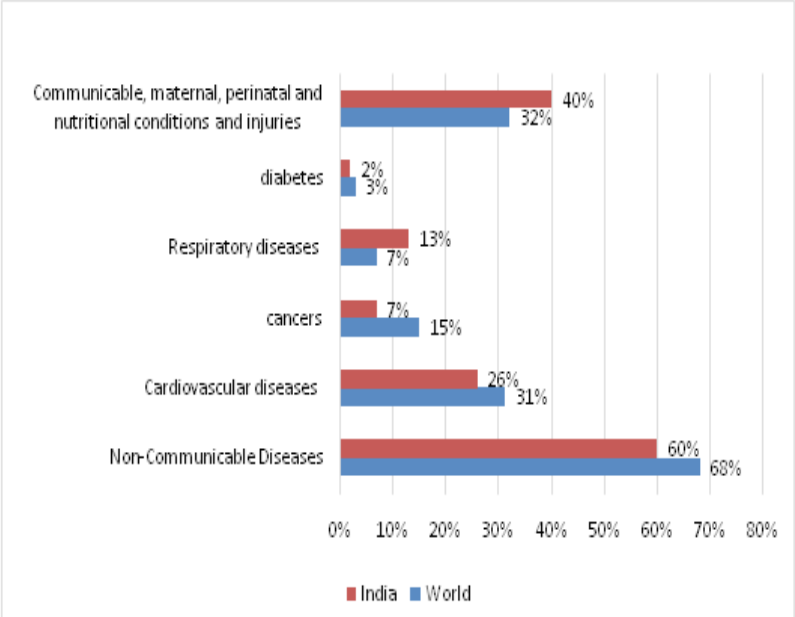

Figure 1: Global and Indian Mortality by Causes (in Percentages to total deaths), 2012.

Table 2: Age-standardised Death Rates due to NCDs, 2012

Region/Country	Deaths per 100,000
Global	539
High-income countries	397
Lower- middle-income countries	673
Low-income countries	625
India	686

Source: WHO 2014[6]

Incorporation of Non-communicable Diseases in SDG 3

Under the health goals, MDGs focused on specific populations, particularly mothers, children and people affected by HIV, TB and malaria.[2] Even though NCDs are growing as a major cause of morbidity and mortality, they have long been misjudged, under documented, and unexposed, and were not accorded special reference in the MDGs. The SDGs, however, include a specific target for NCDs and several targets related to them.[3] They have been included in SDG-3 as a specific target at 3.4 to reduce premature mortality from NCDs by one third through prevention and treatment and promote mental health and well-being by 2030. NCDs are also addressed indirectly as Targets 3.5: to strengthen the prevention and treatment of substance abuse; 3.8: toachieve universal health coverage; and 3.9: to substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination by 2030.[1] Globally, the major causes of NCD deaths are cardiovascular diseases (46% of all NCD deaths), cancers (22%), chronic respiratory diseases (11%), and diabetes (4%).[6]

SDG 3.5: The rise in NCDs can be attributed to modifiable risk factors such as unhealthy diets, the use of tobacco and the harmful use of alcohol, and physical inactivity. The burden of NCDs can be addressed by reducing exposure to and increasing the management of these risk factors.[9] In line with this, Target 3.5 is to strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and the harmful use of alcohol. As prevention is better than cure, it is essential to address modifiable risk factors, especially under huge resource constraints, and to reduce the sufferings of every society. The WHO has suggested various measures to address these risk factors to tackle the problem of NCDs. Addressing these risk factors has been dealt with in other articles in this issue.

SDG 3.8: Target 3.8 intends to achieve Universal Health Coverage, including financial risk protection, access to quality essential healthcare services, and access to safe, effective, quality, and affordable essential medicines and vaccines for all. UHC is a global movement supported by the World Bank, focusing specifically on healthcare systems' finance, research, and up-scaling in developing countries. Achieving access to sound healthcare for poorer population sections has been integral for developing countries and was declared to be a global goal of the United Nations in 2012.[10] Since its emergence in 1978 with the Alma-Ata Declaration, rooted in *Health for All,*[11] UHC has contributed with aid to struggling national healthcare systems and funded research into improving the cost and efficiency of these systems.[12,13] In its 70 year history, the movement has consistently linked itself with important global discussions and strategies to improve healthcare, such as the Bamako Initiative on Health Financing, Health Systems Funding Platform, the 1st Global Symposium on Health Systems Research, and the World Health Report on Health Systems Financing: The path to universal coverage.[14] The WHO Director-General, Dr. Margaret Chan, a strong supporter of the movement, calls it the "…single most powerful concept that public health has to offer".[12] Interlinked with the WHO and the UN throughout its history, this movement has now combined SGD 3 and its own goals to be achieved by 2030:the reduction of out-of-pocket expenses on healthcare to eradicate poverty and to ensure basic access to healthcare services for 80% of the global population.[13]

SDG 3.9: Target 3.9 aims at a substantial reduction in the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination by 2030. Pollution is a public health problem, as it causes more than 1out of 7 deaths globally. The estimates of WHO, IHME and GAHP show that exposures to polluted soil, water and air resulted in an estimated 8.9 million deaths worldwide, of which 8.4 million occurred in LMICs in 2012.[15] Pollution leads to NCDs such as heart disease, stroke, cancers, infections, respiratory disorders, and developmental and neurological disabilities, among other diseases. Exposure to pollution in early life has also been indicated to increase risk of chronic NCDs in adult life, such as hypertension, heart disease, stroke, diabetes, kidney disease and cancer.[15] Therefore, controlling and preventing pollution is essential to addressing NCDs. Developing countries like India have a very high degree of pollution, and it continues to increase due to industrialisation, increasing density of automobiles, expanding populations and indoor pollution caused by biomass fuels or coal. As per the estimates of 2004, water, sanitation & hygiene caused 454,400 Diarrhoea deaths and 14 Diarrhoea caused Disability Adjusted Life Years (DALYs) /1000 capita per year in India.[16] Deaths related to water, sanitation and hygiene accounted for 9.4% of total deaths in India in 2004.[17] Indoor air pollution is very high in India as 82% of the population used solid fuel resulting in 488,200 deaths and 8 DALYs /1000 capita per year. Outdoor Air Pollution caused 119,900 annual deaths and 01DALYs /1000 capita per year.[16]

Studies reveal that in households reliant on biomass fuels or coal in Asia, Africa and the Americas, air pollution levels are exceptionally high, often several times more than the recommended level.[18] In a study involving 23 countries worldwide, over 10% of deaths were caused by only two environmental risk factors: unsafe

water, including poor sanitation and hygiene; and indoor air pollution resulted from solid fuel use for cooking. Globally, children under five are the major sufferers who constitute 74% of deaths due to diarrhoeal disease and lower respiratory infections.[19] Uncontrolled pollution will have a severe adverse impact on sustainable development by aggravating the poverty cycle, damaging the environment and biodiversity, causing lifelong disability, and stagnating economic growth.[15] It is estimated that creation of healthier environments would prevent 13 million deaths globally every year and in some countries, environmental improvements would prevent more than one third of the disease burden.[19] To ensure cleaner air in households, it is essential to control indoor pollution emission rates to address the problem at source. This is a practical approach that can enable testing and certifying different technologies by their emission rates, allowing both implementers and users to make informed decisions based on the cleanliness and safety of the technologies used at home.[20]

Economy, NCDs, and SDGs:[21]

- Finding the balance between economic growth, healthy living, and a clean environment is the key to sustainable development.
- SDG 9 speaks to the business and infrastructure of the Member States to ensure that these three areas work together to realise the grand statements and goals to be achieved by 2030.
- Encouraging healthy living through the work place, through the economy (focused on sustainable growth founded on a clean environment), and through Higher Education (teaching and learning, community engagement, and research with students), will ensure that some of the SDGs are realised within a shorter period.
- Achievement through efficiency in the way natural resources and health are managed through an economy that encourages this kind of collaboration between areas of academic study and local/national infrastructures.

Impact of NCDs in India

India is a lower middle-income country in terms of World Bank classification, and a medium developed country in terms of the human development index (Table 3). It is presently the second most populated country and is projected to be the most populous country by 2023,[22] and is a country with a huge youth population and workforce. The country faces the challenges of poverty, gender inequality (Table 3), and an increasing burden of NCDs (Table 2) along with the burden of communicable diseases and other conditions (Figure 1). Its health expenditure as a percentage of the GDP and per capita health expenses are one of the lowest in the world.[4]

Over the years, the per capita health expenditure has been increasing (Table 4). The contribution of the public sector to the total health expenditure of the country shows a slow increase, especially in recent years, leading to a slight decrease in the proportion of out-of-pocket (OOP) expenses as a proportion of private health expenditure. However, the OOP expenses continue to

Table 3: Development Indicators for India

Indicators	India
World Bank Classification	Lower Middle Income Country (LMIC)
Human Development Index (HDI) Rank, and Category 2014	130 and Medium Developed
HDI (Value) 2014	0.609
Gross National Income Per Capita, 2014 (2011 PPP $)	5,497
Population, 2014 (in Millions)	1267
Projected Population for 2030 (in Millions)	1,476.4
Urban Population, 2014 (in %)	31.3
Life expectancy at birth (in years), 2014	68
Healthy life expectancy at birth (in years), 2013	58
Percentage of Population below National Poverty Line, 2013	21.9
Health Expenditure as percentage to GDP, 2013	4.0
Gini coefficient (2003-2012)	33.9
Gender Inequality Index (GII) (Value) 2013	0.563
Labour force participation, 2012 (%)	
Male	80.9
Female	28.8

Source: Compiled from The World Bank[23], UNESCO[24], UNDP[25]

Table 4: Health Expenditure and Life Expectancy in India

Year	Per Capita Health Expenditure (current US$)	Public Health Exp. as % of Total Health expenditure	Out of Pocket Exp.as % of Private Heath expenditure
1995	16.09	27.00	91.36
2000	20.05	26.95	91.81
2005	32.00	23.11	90.27
2010	54.00	30.20	85.55
2013	61.41	32.22	85.88

Source: Compiled from WHO[26]

be considerably high and thus adversely affects poorer segments of society. The increasing burden of NCDs is further bound to escalate out-of-pocket expenses, leading to a worsening of the standard of living of poorer sections of society.

DISCUSSION

SDG3 and the targets related to health are a way of increasing public and academic awareness about how dietary choices, modern social constraints and pressures (working mothers with very little time and energy to ensure a healthy meal is prepared for their babies, and longer hours with reduced physical activity etc.) affect health. NCDs are not as emphasised as communicable diseases in SDG 3, but continue to spread with increases in the populations of developing countries, risking their health at the altars of consumerism and capitalism.

Realising the SDG target of a two-third reduction in premature mortality from NCDs by 2030 requires major interventions to deal with rapid unplanned urbanization and the globalization of markets that promotes inactivity and unhealthy diets. There is a need to focus on the development and implementation of strong national plans for prevention and treatment access for all, as nearly 50% of all countries had neither a national plan nor budget in 2013.[3] With the introduction of SDG 3b to Higher Education, particularly Pharmacy Practice and Public Health, the chances for the SDG 3 to be incorporated into local lives increase, while encouraging local government authorities to incorporate the remaining SDGs into the communities. Most developing countries, like India, encounter various health issues, including the increasing burden of NCDs and resource constraints, which are hurdles to sustainable development. Therefore, it is essential for these countries to prevent and control NCDs by focussing more on modifiable risk factors, aggressively implementing multi-sectoral strategies, which are also cost-effective.

CONCLUSION

Eradication of poverty, increased good health and development are interrelated. Any effort to attain sustainable development therefore needs to eradicate poverty and prevent and control diseases. The increasing epidemic of NCDs, especially in developing countries like India, isa blockade to sustainable development. Therefore, SDG 3.4 aims to reduce premature NCD related deaths by one third through their prevention and treatment, and seeks to promote mental health and well-being by 2030.To realise this target, it is essential to effectively implement a multi-sectoral strategy that focusses on modifiable risk factors for NCDs, the effective implementation of UHC, and on controlling pollution.

ACKNOWLEDGEMENT

The authors gratefully acknowledge Rhodes University for all of its support and Mr. Theodore Duxbury for his assistance.

CONFLICT OF INTEREST

No conflict of Interest.

ABBREVIATIONS

NCDs: Non-communicable Diseases; **SDGs:** Sustainable Development Goals; **UHC:** Universal Health Coverage; **MDGs:** Millennium Development Goals; **LMICs:** Low and Middle Income Countries; **CVD:** Cardiovascular Disease; **WHO:** World Health Organisation; **IHME:** Institute for Health Metrics and Evaluation; **GAHP:** Global Alliance on Health and Pollution; **DALYs:** Disability-Adjusted Life Years.

REFERENCES

1. UNDP. Transforming our world: the 2030 Agenda for Sustainable Development [Internet]. 2015 [cited 2016 Feb 28]. Available from: http://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E

2. WHO. Health in 2015: from Millennium Development Goals, Sustainable Development Goals [Internet]. 2015 [cited 2016 Mar 14]. Available from: http://apps.who.int/iris/bitstream/10665/200009/1/9789241565110_eng.pdf?ua=1
3. WHO. Towards a monitoring framework with targets and indicators for the health goals of the post-2015 Sustainable Development Goals. January 2015 Draft [Internet]. 2015 [cited 2016 Mar 14]. Available from: http://www.who.int/healthinfo/indicators/hsi_indicators_sdg_targetindicators_draft.pdf
4. United Nations. India and the MDGs: Towards a Sustainable Future for all. [Internet]. 2015. Available from: http://www.unic.org.in/items/India_and_the_MDGs_small_web.pdf
5. WHO. Noncommunicable diseases factsheet [Internet]. 2015. Available from: http://www.who.int/mediacentre/factsheets/fs355/en/
6. WHO. Global Status Report on Non-Communicable Diseases. 2014; Available from: http://apps.who.int/iris/bitstream/10665/148114/1/9789241564854_eng.pdf?ua=1
7. WHO. Noncommunicable diseases country profiles 2014 [Internet]. WHO. 2014 [cited 2016 Mar 24]. Available from: http://www.who.int/nmh/publications/ncd-profiles-2014/en/
8. Abegunde DO, Mathers CD, Adam T, Ortegon M, Strong K. The burden and costs of chronic diseases in low-income and middle-income countries. Lancet Lond Engl. 2007;370(9603):1929-38.
9. WHO. Diet, nutrition and the prevention of chronic diseases. Report of the joint WHO/FAO expert consultation [Internet]. WHO. 2003 [cited 2016 Mar 14]. Available from: http://www.who.int/dietphysicalactivity/publications/trs916/kit/en/
10. The World Bank. Universal Health Coverage Overview [Internet]. 2015 [cited 2016 May 27]. Available from: http://www.worldbank.org/en/topic/universalhealthcoverage/overview
11. WHO. Declaration of Alma-Ata [Internet]. 1978. Available from: http://www.who.int/publications/almaata_declaration_en.pdf
12. WHO. Health financing for universal coverage [Internet]. 2016 [cited 2016 May 27]. Available from: http://www.who.int/health_financing/universal_coverage_definition/en/
13. Bristol N. Global action toward universal health coverage- a A report of the CSIS Global Health Poicy Centre [Internet]. 2014 [cited 2016 Mar 14]. Available from: http://csis.org/files/publication/140109_Bristol_GlobalActionUniversalHealth_Web.pdf
14. WHO. Tracking universal health coverage: First global monitoring report [Internet]. WHO. 2015 [cited 2016 Mar 24]. Available from: http://www.who.int/healthinfo/universal_health_coverage/report/2015/en/
15. Global Alliance on Pollution. Pollution: The Silent Killer of Millions in Poor Countries - Global Alliance on Health and PollutionGlobal Alliance on Health and Pollution [Internet]. 2014 [cited 2016 May 27]. Available from: http://www.gahp.net/new/pollution-the-silent-killer-of-millions-in-poor-countries/
16. WHO. Estimated deaths & DALYs attributable to selected environmental risk factors, by WHO Member State, 2004 [Internet]. 2009. Available from: http://www.who.int/quantifying_ehimpacts/national/countryprofile/intro/en/
17. WHO. Burden of disease (in DALYs) attributable to water, sanitation and hygiene, by disease and WHO Member State [Internet]. 2010. Available from: http://www.who.int/quantifying_ehimpacts/national/countryprofile/intro/en/
18. WHO. Household air pollution and health [Internet]. 2014 [cited 2016 May 27]. Available from: http://www.who.int/mediacentre/factsheets/fs292/en/
19. WHO. New country-by-country data show in detail the impact of environmental factors on health [Internet]. 2007 [cited 2016 May 27]. Available from: http://www.who.int/mediacentre/news/releases/2007/pr30/en/
20. WHO. Frequently Asked Questions WHO guidelines for indoor air quality: household fuel combustion [Internet]. 2014. Available from: http://www.who.int/indoorair/guidelines/hhfc/FAQs_Nov2014.pdf
21. United Nations. Goal 9: Build resilient infrastructure, promote sustainable industrialization and foster innovation [Internet]. United Nations Sustainable Development. 2015 [cited 2016 May 27]. Available from: http://www.un.org/sustainabledevelopment/infrastructure-industrialization/
22. United Nations. United Nations Population Division | Department of Economic and Social Affairs [Internet]. 2015 [cited 2016 May 27]. Available from: http://www.un.org/en/development/desa/population/events/other/10/index.shtml
23. The World Bank. The World Bank [Internet]. [cited 2015 Oct 14]. Available from: http://www.worldbank.org/en/country
24. UNESCO. UNESCO eAtlas of Literacy [Internet]. 2015. Available from: http://tellmaps.com/uis/literacy/
25. UNDP. United Nations Development Programme Human Development Reports [Internet]. 2015 [cited 2016 May 27]. Available from: http://hdr.undp.org/en/content/human-development-index-hdi
26. WHO. Global Health Expenditure Database [Internet]. 2016 [cited 2016 Mar 24]. Available from: http://apps.who.int/nha/database