Commonwealth Youth Development Index

National and Regional Toolkit

The Commonwealth

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National and Regional Toolkit: A Guide for Developing Regional and National Youth Development Indices

The Commonwealth

Foreword

Nearly 90 per cent of young people live in developing countries where they are experiencing difficulties in gaining access to education, health services and employment. Despite a growing focus on youth development and empowerment policy, one of the great challenges in youth work has been the lack of an evidence-based framework that underpins the theory and practice.

Evidence-based policy in youth development processes requires, among other things, a robust framework for gathering data and tracking progress. The need for greater monitoring of youth development indicators has been repeatedly highlighted by governments, as well as young people and youth-led organisations, over many years. Monitoring youth development Indicators assists governments and stakeholders to gain a better understanding of the complex youth policy environment; track changes in the magnitudes of a host of attributes impacting and impacted by youth policy thereby permitting meaningful assessment of the situation of young people over time. Moreover, measuring the progress on indicators present tangible evidence on the implementation of youth policies and action plans at national, regional and international levels.

In response to calls from member countries for a meaningful assessment of the situation of youth and in order to monitor the progress made towards implementing youth policies, the Commonwealth Secretariat has invested in a Youth Development Index that monitors changes in youth development. This is done by monitoring 5 domains: Health and Well-being, Education, Employment and Opportunity, Civic Participation and Political Participation, across183 countries, including 49 of the 53 commonwealth countries. The Secretariat prepared the first Youth Development Index (YDI) in 2013 and will release the second report in 2016.

The 2013 YDI report exposed several issues and challenges with respect to the lack of quality data at national levels and has resulted in the Commonwealth entering into a partnership with UNDESA, UNDP, UN-HABITAT, UNESCO, CARICOM, the African Union and the SPC to conduct regional workshops on the importance of 'Evidence Based Youth Polices in Africa, the Caribbean and the Pacific.' The regional workshops were designed to raise awareness about the importance of evidence-based youth

polices and to strengthen the capacity of senior officials, youth leaders, national statisticians and civil society organisations in developing evidence-based policies. This toolkit was developed and used in the regional training workshops.

We hope this toolkit will be used by youth development stakeholders to guide the development of Regional and National YDIs and youth reports that will contribute to the growing pool of robust youth data on indicators and targets for the Sustainable Development Goals at the national level. Tracking progress on youth indicators will, overtime, ensure a more informed policy design process, encourage a greater focus on outcomes, strengthen efforts for a more transparent and accountable decision making process on youth policy.

The Commonwealth, working with its partners, stands ready to provide technical advice and support to member countries as they establish and review national policies and action plans on youth using the evidence-based approach to facilitate the formulation, monitoring and evaluation of such policies.

The Commonwealth would like to thank the Government of Australia, without whose generous financial support this toolkit and the National YDI pilots could not have been possible.

Contents

Acronyms and Abbreviations

ACE	ACE Electoral Knowledge Network
AHP	analytical hierarchy process
CIRCLE	Center for Information and Research on Civic Learning and Engagement
CYP	Commonwealth Youth Programme
IEP	Institute for Economics and Peace
IHME	Institute for Health Metrics and Evaluation
ITU	International Telecommunication Union
GBD	Global Burden of Disease
ILO	International Labour Organization
MYI	Malaysian Youth Index
NGO	non-governmental organisation
NEET	not in education, employment or training
NT	Northern Territory (Australia)
OECD	Organisation for Economic Co-operation and Development
PAYE	Plan of Action for Youth Empowerment (Commonwealth)
UNData	UN internet-based data service
UNDESA	UN Department of Economic and Social Affairs
UNDP	UN Development Programme
UNESCO	UN Educational, Scientific and Cultural Organization
UNICEF	UN Children's Fund
UNSD	UN Statistics Division
WDR	World Development Report
WHO	World Health Organization
WPAY	World Programme of Action for Youth
YDI	Youth Development Index
YLL	years of life lost

Chapter 1

Why Youth Development Is Important

Youth development continues to be a matter of global importance, with 1.8 billion people between the ages of 15 and 29 years old now living in the world. Of these, 86 per cent are living in less-developed countries and 600 million live within the Commonwealth. This age range is a critical time for young people to realise their capabilities through gainful and rewarding employment, education opportunities, health and well-being, and civic and political empowerment.

'Youth' is defined by the Commonwealth Youth Programme (CYP) as anyone between the ages of 15 and 29 years old. While there is no universally agreed conceptual definition of 'youth development', the Youth Development Index 2013 Report defines it as: 'enhancing the status of young people, empowering them to build on their competencies and capabilities for life. It will enable them to contribute and benefit from a politically stable, economically viable, and legally supportive environment, ensuring their full participation as active citizens in their countries'.

CYP works to engage and empower young people to enhance their contribution to development. Its work is carried out in partnership with young people, governments and other key stakeholders.

The CYP mission is grounded within a rights-based approach, guided by the realities facing young people in the Commonwealth, and anchored in the belief that young people are:

- a force for peace, democracy, equality and good governance
- a catalyst for global consensus building
- an essential resource for sustainable development and poverty eradication.

One of the best ways to achieve long-term impact on building the policy focus on youth development is by embedding data collection techniques and youth development index (YDI) projects at the national level.

The rationale for subnational data is also important because of the large spatial variations in development, and the differing policies and programmatic actions that occur within countries. This is seen in a range of development phenomenon and would be highly relevant for youth development. Subnational data on youth can help at least with the following:

- providing better evidence, leading to better-informed and better-designed policy, and improved targeting and allocation of resources

- identification of the drivers of youth development and positive youth perceptions at the national level

- building the evidence to show policy impact over time

- complementing other leading metrics.

Chapter 2

Who Could Benefit from Using This Toolkit?

This toolkit provides an opportunity for building local, national or regional level youth development indexes (YDIs), which can be enriched with additional relevant and available subnational data. It is a statistical and normative guide for national statistical offices, civil society and independent researchers to provide key conceptual and definitional guidelines based on a common framework.

It is important to make sure that the time people spend participating in engagement turns into actions and, as such, continued collaborations between stakeholders in youth engagement and development are encouraged to utilise this toolkit and use the outputted YDIs to inform and improve youth development.

By working through this toolkit, you will first gain knowledge of the Commonwealth YDI first developed in 2013 and its limitations. Then we will explore finer level indexes, how to utilise existing tools to create an index and finally provide some suggestions on how to visualise and convey your findings.

This toolkit links to other useful resources without officially recommending or taking responsibility for their content.

It should also be noted that, while evaluation is discussed towards the end of this toolkit, many of the ideas and questions which are asked as a part of an evaluation process should be thought about at the beginning of a process and can help in clearing a path to a simpler and more useful index. If 'evaluation' is not a familiar concept, it may be useful for you to start at the section on 'Evaluation tools you can use' (section 8.2).

A checklist follows to help you through the design and development of a YDI. It is recommended that this simplified checklist be used in conjunction with the full toolkit and that expert assistance be sought on any points where resources, whether human or technical, are lacking.

Chapter 3

Youth Development Index Checklist

1. Convene an expert panel, including representatives from youth, advocacy, academia, government and non-governmental organisations (NGOs).

2. Undertake broad consultation to gather information on regional youth development issues.

3. Carry out a literature review of YDIs and other youth development measures.

4. Pick a focus for your report.

5. Define what success would look like (i.e. what will change over time due to a positive impact) and how you would measure that success (specific, measurable, achievable, relevant and time-bound [SMART] objectives).

6. Allocate YDI tasks to individuals and teams (ensuring you have the right skill set on your team and adequate access to resources, including training for the team if required).

7. Explore what data is available.

8. Use a data quality framework to test its usefulness.

9. Design data collection tools if necessary and test them.

10. Collect data and collate the indicators you have chosen for your YDI.

11. Impute missing values.

12. Normalise data and weight the indicators.

13. Discuss weights with the expert panel and reweight if necessary.

14. Analyse output of your index.

15. Visualise your data.

16. Write your communications plan.

17. Write your report, including any qualitative commentary from experts.

18. Include expert opinion and peer review.

19. Disseminate your report widely utilising your expert panel, government, NGOs, media and social media through your communications plan and using accessible formats for people with different abilities and technological access.

20. Evaluate over time when more information becomes available to lead to better evidence-based policies and programmes positively impacting on youth development.

Chapter 4

Conceptual and Theoretical Framework

4.1 Who are youth?

Defining youth is one of the more complex issues faced when trying to measure or plan youth development. While the Commonwealth defines 'youth' as anyone between the ages of 15 and 29 years, different governments and inter-governmental organisations have varying definitions. Table 4.1 shows a list of some of the different youth definitions from various United Nations and regional organisations.

Adding to the definitional ambiguity of what constitutes youth is the fact that certain subcategories considered important to youth development also relate to smaller and different age cohorts. For example, teen pregnancy can be measured from 13 to 19 years old, while adolescent pregnancy can be defined as being from ten years old or younger.

In the production of a YDI, there are regular harmonisation problems between the 15–24 and 15–29 age definitions. Most administrative data sources from national statistical offices tend to use the 15–24 years age bracket. As a consequence, indicators included in the YDI unavoidably cover slightly different age cohorts.

Table 4.1 Various definitions of youth

Entity/instrument/organisation	Age definition of youth	Reference
Commonwealth	15–29 years	Commonwealth Plan of Action for Youth Empowerment
United Nations Educational, Scientific and Cultural Organisation (UNESCO) / International Labour Organization (ILO)	15–24yrs	UN Instruments, Statistics
UN Habitat (Youth Fund)	15–32yrs	Agenda 21
United Nations Population Fund	Adolescents and youth: 10–24yrs	State of the World Population 2014
World Health Organization (WHO)	10–29yrs	Youth Violence
World Bank	15–34yrs	Social protection and labour
United Nations Children's Fund (UNICEF)	Child: until 18yrs Adolescence: 10–19yrs	The Convention on the Rights of the Child (CRC)
African Union	15–35yrs	The African Youth Charter

4.2 What topics are important in youth development?

Much discussion has occurred regarding what is important to youth and what areas of development are essential in the youth space. The Commonwealth agreed on five domains necessary to progress youth development. They can be seen in Figure 4.1. Further to these, there are overarching development issues which we recommend acknowledging and analysing where possible – for example, gender equality, gender mainstreaming, aboriginality, cultural identity, language barriers, levels of ability and sexuality.

Domain 1: Education

The Education domain seeks to measure the access youth have to education, their attendance at education facilities and the quality of education within each country. The United Nations has highlighted education as a human right with the Universal Declaration of Human Rights, the United Nations Convention on the Rights of the Child and the Sustainable Developments Goals. This cements the acknowledgment that every young male and female should have access to quality education setting them up for more changes in life, including better health outcomes, better employment outcomes and better participation outcomes.

Some indicators that can measure education are literacy rates, enrolment in secondary school and digital natives – a measurement of whether youth have more than five years' experience with using

Figure 4.1 Five domains of the Youth Development Index
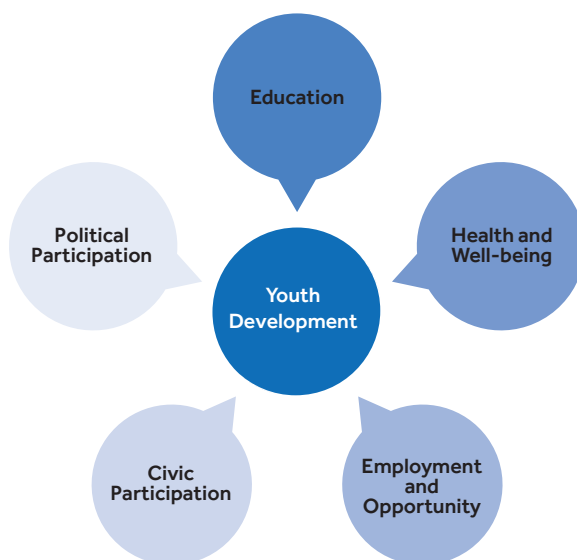
the internet. The combination of these indicators shows where in the world young people are not engaging or benefiting from education, highlighting these as places where second chance and adult education may need to be developed to create a participatory future adult cohort.

Despite significant improvements in educational participation among young people, there are still vast numbers who lack basic literacy skills. Currently, there are particular concerns about the limited educational opportunities available to girls and young women, street children, rural youth and young people with disabilities. The economic burden of funding education often falls on households, which in developing nations can struggle to cope, creating a serious barrier to youth participation in education. Furthermore, the quality of training, including for those in tertiary educational systems, vocational training systems (including non-formal training) and so on, is a salient feature in assessing youth development.

Domain 2: Health and Well-being

The World Health Organization (WHO) Constitution states '…the highest attainable standard of health as possible is a fundamental right of every human being'.[1] Health and well-being also play major roles in the Sustainable Development Goals, with a focus on access to appropriate care. The Health and Well-being domain therefore seeks to measure access to, and quality of, healthcare available in each country, as well as the level of youth well-being.

Although young people are often thought to be in the prime of their health, many die from injury, road accidents, suicide, violence, communicable diseases (including HIV) and non-communicable diseases. Moreover, a large number suffer from illnesses that hinder their ability to grow and develop to their full potential.

For youth aged between 15 and 29 years the biggest risk factors contributing to reduced life expectancy are alcohol, unsafe sex, lack of contraception, nutrient deficiency, illicit drugs, mental illness and physical injury.[2] These risk factors often not only affect a young person's current state of health, but also their health in years to come. An overwhelming portion of premature deaths and diseases experienced by adults are associated with conditions and behaviours that began in their youth. The promotion of healthier practices among youth not only helps them to guard against premature death and diseases, but also ensures they will be healthier in adult life and the burden of health-related costs will be reduced.

Domestic and sexual violence, along with safety requirements, have long-lasting effects on youth and may be explored as impacting well-being.

Mental illness, whether drug induced or not, is a health aspect sometimes overlooked. It can also be hard to measure, but more data and research is being done in this space leading to a wider and more comprehensive understanding.

Domain 3: Employment and Opportunity

Employment is also widely agreed to be a human right, with the Universal Declaration of Humans Rights stating 'Everyone has the right to work, to free choice of employment…'. The Employment and Opportunity domain seeks to measure whether or not youth are in employment, if it is easier or harder for them to receive opportunities than other cohorts and, if they are not employed, whether or not they engaged in education or training which could lead to employment.

Youth have specific vulnerabilities in the labour market due to age. Young people often do not have prior job experience or any professional networks and contacts. Some youth may possess skills and talents that are in limited demand. Furthermore, young people may have received poor or low-quality education that does not adequately equip them with the skills necessary to operate successfully in the workplace.

Additionally, in the present volatile economic context, if youth are able to find employment, it is often short-term contracts that offer minimal or no benefits, little job security and lack of opportunity to upskill. Youth also suffer from a lack of access to credit, which severely restricts any entrepreneurship opportunities. Given the ongoing impact of the global financial crisis, which still affects many economies, addressing youth unemployment remains a high priority.

Regionally, if there are aspects of youth employment programmes, such as entrepreneurship, micro-loans or internships, which are commonplace, these have the potential to be powerful indicators in your YDI.

Domain 4: Political Participation

The participation of young people in the political life of their communities reveals several interesting connections. First, participation in the political life of a community shows the extent to which citizens, including young people, are empowered and

engaged in the political process. Citizens who feel empowered are more likely to have an active political life. As such, the Political Participation domain seeks to measure both the environment provided to encourage a youth voice in politics, as well as the actual political engagement of youth.

Governments that have an active and informed citizenry are less likely to be corrupt and more likely to guarantee basic rights and public goods. Political participation and governance are key factors in determining the success of development programmes. Given the importance of governance in development and the large portion of young people in developing countries, youth participation and representation in political processes and policies becomes paramount. This point becomes especially relevant because the after-effects of the global financial crisis have created unemployment and job insecurity, with young people being severely affected.

Promotion of political participation among youth above and below the voting age is an important strategy to promote social integration and combat exclusion. If major identity groups feel marginalised and excluded from political, economic and social life, the likelihood of conflict and violence increases. Political participation is also an important ingredient in creating bonds between generations: older people can often view young people as untrustworthy or apathetic.

Data collection on youth participation in politics is improving, along with global acknowledgment of its importance.[3] As collection improves and becomes more regular in nature, a fuller picture of political participation will be possible.

Domain 5: Civic Participation

As young people transition from school completion through to the attainment of employment for support and into adulthood, they can become contributing members of society through active citizenship. This aspect of development, namely civic engagement, is now seen to be a key marker of human development and full incorporation into society. Civic engagement should be seen as complementary to political participation. The Civic Participation domain seeks to measure the extent to which youth interact positively with their communities.

Civic participation can be hard to measure and is also less likely than the other domains to have many ready-to-use, reliable indicators. Youth engagement programmes available across

different areas also vary in size, intensity and goals. Some examples are helping to prepare youth so they are 'job ready', skills building, volunteering opportunities, connections with the community and participation in team or group events. If it is possible to use indicators that are from programmes where youth participate intentionally and with motivation, these will better measure civic participation. Guidance on how to design questions can be found in the section on 'How to design a survey or focus group' (section 6.5).

Aspects of community that are important to youth vary regionally, but commonly youth groups, sports, music, art, TV, games and new technologies provide platforms for youth to engage with their community.

4.3 Overview of data limitations

There were many data limitations encountered in the development of the Global YDI, many of which are likely to be encountered in the production of national or regional YDIs – so it is good to be aware of these. If they are encountered, appropriate ways of dealing with such issues can be emulated from the YDI methodology. Below is a summary of issues to be aware of:

- Datasets may not be complete for all areas.

- There are regular harmonisation problems between the 15–24 and 15–29 age definitions. Most available sources tend to use 15–24. (Please note, many data sources have their own definitions of youth age brackets).

- Small states tend to be problematic. (Please note, it will continue to be difficult to calculate estimates for small areas, as most collections have a small sample size with large errors, and this become more problematic the finer the level of geography or population size you are measuring).

- Thematically, the Political Participation and Civic Participation domains are most problematic.

- National averages will hide regional variations; this is distinctly more problematic in very large population or land mass countries.

- With the current stock of data, it will only be possible to build a YDI approximately every five years. Regular, yearly time series are not possible.

- The available data may not be disaggregated by gender.

- Similarly, the available data may not be disaggregated by ethnic, religious, linguistic or cultural differences.

4.4 Data availability issues and imputations

The methodology developed has been designed to be in line with other prominent global indicators, and substantial effort has been made to populate the index with the best existing country information. However, the major challenge to developing a harmonised youth development index is in attempting to overcome the paucity of consistent and comprehensive data across the 183 diverse countries. They vary significantly in terms of land mass, population, level of economic development and regional location. Data difficulties are particularly acute with regard to civic and political indicators, where the best available attitudinal data has been selected. One of the major outputs of this process is a summary not only of the available data, but also of the data that cannot be currently sourced from the existing stock of data.

The issue of low availability for current or historical data has been a factor in a number of the methodological decisions made, from what indicators to include to how to calculate the final scores. There are many empirical and statistical techniques that can be employed to deal with these missing data issues when creating a composite index.[4] Table 4.2 lists these and how they were applied – or did not apply – to the YDI, and can be used as methods of imputation in the creation of your own YDI.

In using primarily hot- and cold-deck imputation methods, the YDI represents the use of the best possible data without an overly complex methodology.

In calculating domain and final scores, each indicator is weighted in terms of its relative importance to the other indicators. There are a number of methods available[5] to decision-makers including data envelopment analysis, the 'benefit of the doubt' approach and unobserved components. Two simple approaches were chosen for the YDI. The first was to use expert assessments in combination with an Analytical Hierarchy Process (AHP) from the technical advisory panel to determine the relative importance of each indicator.

Table 4.2 Data imputation methods

Imputation method	Description	Application in YDI
Hot-deck imputation	Assign missing data the value of a 'similar' data point	The YDI uses this approach when it assigns to certain missing indicators the value of the region in which the country is located.
Substitution	Replacing missing data with other unselected units in a sample	This is not applicable in the YDI, because all available data is used in some way.
Cold-deck imputation	Replacing the missing value with a value from another source	The YDI uses this either when it uses the most recent data point in a series as the current data point, or uses additional country statistics to fill in gaps.
Unconditional mean imputation	Replacing missing data with sample means	This has not been used in the YDI across indicators, because of the diverse nature of the 53 countries in the Commonwealth. It was also not used across domains, because averaging over different indicators implies assumptions about interrelatedness.
Regression imputation	Correlate combinations of indicators to imputed missing values	With 15 indicators and five domains, no simple way could be devised to impute data across the YDI in a reliable way.
Expected minimisation imputation	Uses a maximum likelihood iterative approach to impute data	This was not used, due to the diversity of countries and indicators (see unconditional mean substitution).
Matching quartiles	Used to impute data from observed historical trends	As development indicators are slow moving, in general regression was not seen to add value to the single imputation methods.
Multiple imputation	Use a Monte Carlo Simulation approach to determine final 'robust' results	This approach in its most basic form when lower and upper bounds of a country's YDI score can be determined

4.5 What national YDIs or youth indicators are out there?

When planning your own YDI, there may be ideas that can be used from pre-existing YDIs or youth reports around the globe, including the domains and indicators outlined above in the Commonwealth YDI. Below, brief findings are presented from recent work with youth indicators.

India Youth Development Index

The objective of the India YDI was 'to construct an index which can used across the country by the State, academia and other organizations/institutions in civil society, to ascertain the status of youth vis-à-vis the systemic dimensions which influence their growth and empowerment'.

Analysing the status of youth in-country against the objectives in the National Youth Policy is a priority of the Indian government. In particular, the YDI was to be 'youth centred', with the many different groups of youth across the country being acknowledged.

Following consultation with youth and relevant stakeholders across the country, five domains were selected as the most important to measure: Health, Education, Work, Amenities and Participation. Participation information was only available in some of the regions, so two indexes were created: one based on four domains and all areas and one on five domains with limited areas included. Separate indicators were also created based on gender, to highlight the often-large gap between the sexes in the different domains and states.

By highlighting the difference in performance of the states and the attributes of those states, it is hoped that policy-makers and programme planners can focus their attention and resources on the areas most in need.

Malaysian Youth Index

In putting together the Malaysian Youth Index (MYI), the Malaysian government took the lead with the objective 'to monitor and determine the status of youth well-being so as to be in tandem with the overall national development'. Experts in economics, psychology, sociology, media and communications, and human development assisted in identifying local relevant issues.

Data collection was done using sample surveys of 15–40 year olds across the country. The MYI included 36 indicators over eight domains, which were designed to monitor the implementation of the Commonwealth Plan of Action for Youth Empowerment (PAYE). Health, identity, self-potential, media penetration, leisure time, deviant behaviour, self-development and social relationships were the domains deemed most important to youth development in Malaysia.

The results of the MYI showed the different levels of performance across the domains, e.g. that the youth surveyed performed very well in the health domain, but had a lot of room for improvement in leisure time – allowing policy resources to be targeted at the lower-scoring domains.

Brazil Youth Index

UNESCO Brasilia Office has been studying youth in Brazil since 1997 and has had a focus on many youth development topics

including education, culture, health, violence, work, poverty, citizenship and identity.

The construction of its YDI was to show the differential situation of youths across the country and follow change over time. Three domains – Education, Income and Activities and Health – are the focus of the YDI.

The results of this YDI showed significant differences in the Education domain between races in Brazil. The rate of violent deaths among youth was significantly higher than for the wider population. The creation of the YDI provided a platform for youth issues in Brazil to be discussed publicly, and helped create a political atmosphere with a youth focus. In 2004, the federal government created the Inter-ministerial Group on Youth, integrated with 19 ministries and secretariats. In February of 2005, a presidential decree created the National Council of Youth, the National Secretariat of Youth and the National Programme of Inclusion of Young (ProJovem).

United States of America (USA)

While not technically a YDI, there are many other examples of youth indicators being developed and used which may lend weight to the voice of your YDI. For instance, in 2005 the National Center for Education Statistics (NCES) in the USA published *Youth Indicators 2005: Trends in the Well-Being of American Youth.*

It again highlights the importance of school-related characteristics, employment-related characteristics, activities outside of school and work, and health as topics of importance in measuring the well-being of youth, and groups a wide set of indicators under these topics.

Australian YDI

The Australian YDI is the first pilot of this toolkit that provides a 'how to' guide for index creation, index use and communicating a YDI.

Australia ranks highly in global assessments across all of the domains, so scored highly overall in the Global YDI (ranked third in the world). However, there are large disparities between areas and demographic cohorts within the country. For example, Australia ranks relatively highly in global assessments of education in terms of access, participation and quality, yet significant inequalities exist for these themes within the country.

Currently, some of the biggest discrepancies exist between Aboriginal and Torres Strait Islander youth and non-indigenous youth. The inaugural Australian YDI analyses the state of youth development across the country, as well as the improvements and deteriorations that have occurred since 2006. The key findings include:

- Large variations in the performance of states and territories in overall youth development, with the Australian Capital Territory (ACT) having the highest YDI score at 0.851 and the Northern Territory (NT) having the lowest YDI score at 0.254.

- Wide variations in performance between domains within each state and territory. For example, while Tasmania (TAS) scores well on the Political Participation domain, it performs poorly on the Employment and Opportunity and Health and Well-being domains.

- All states and territories have seen an improvement in their overall YDI scores since 2006, except TAS, which has seen a 7 per cent deterioration. The NT experienced the biggest improvement, with a 30 per cent increase in its overall score.

- Political Participation has seen the largest improvements nationwide since 2006.

- Health and Well-being has seen the most significant deterioration in score over ten years. All states and territories, except the NT, saw a decline on this domain score.

- Despite Australia being a data-rich country, many important youth issues are still not measured or do not have data published on them, so are therefore not included in the YDI.

The report goes beyond the findings of the YDI to further investigate youth development issues, including urban and regional differences and indigenous gaps in youth development across the country. For these thematic sections, literary studies and external datasets were used to enable finer analysis. The key findings include the following:

- Indicators that can be disaggregated to the rural/urban level reveal a large developmental gap for youth living in rural areas of Australia. For example, in all states and territories, the percentage of youth not engaged in education, employment or training is significantly higher for rural youth than for urban youth. The largest difference is found in the NT.

- Indicators that can be disaggregated based on Aboriginal and Torres Strait Islander (indigenous) status show there is a large developmental gap for youth that have indigenous heritage. For example, suicide rates are much higher for indigenous youth than non-indigenous youth at the national level.

The biggest challenges from the pilot of the Australian YDI were:

1. buy-in from jurisdictional government and policy areas

2. youth representation

3. youth age bracket used in different data sources

4. lack of consistent data disaggregation as regards

   – indigeneity

   – gender

   – geography

   – socio-economic status

   – disability

   – age

5. data available on local issues.

4.6 Commonwealth's global YDI methodology

The objective of the YDI is to monitor the progress on youth development indicators outlined in various global and regional frameworks (for example, the Sustainable Development Goals, the Commonwealth Plan of Action for Youth Empowerment (PAYE), The World Progamme of Action on Youth (WPAY), the Pacific Youth Development Framework, and the CARICOM Youth Development Action Plan) by providing a reliable and informative tool that aggregates key available data on youth development. A key challenge for this project is the availability of data for the youth cohort (15–29 or 15–24) on relevant indicators. In 2013, the Commonwealth launched the first iteration of the YDI following the methodology set out below. A second iteration is due to be released in 2016.

It is important to note that indicators and data at the global level are much broader and it is much harder to find comparable data on complex issues. When creating a national or regional YDI, much more detail and focus on local issues of importance should be sought.

The five domains and 18 indicators that make up the YDI were selected by the Commonwealth Secretariat Youth Development Index Technical Advisory Committee. The committee is composed of leading academics, practitioners and experts in youth development from various Commonwealth countries. The committee made its deliberations over a long period of consultation and with extensive reference to the scoping research on the Commonwealth PAYE and the WPAY from United Nations Division of Economic and Social Affairs (UNDESA).

The full report on the YDI and a methodology report is available online.[6] It details statistical methods used in the YDI, which can be replicated in a national or regional YDI. Appendix A provides a detailed Indicator description including rationales, sources and years available, and it can be used as a template to keep detailed and accurate information on the data you plan to use.

Notes

1   WHO (the World Health Organization) (2015), 'Health and human rights', *Factsheets* No.323, December 2015. Available at: http://www.who.int/mediacentre/factsheets/fs323/en/ [Last accessed: 27 August 2016].

2   The World Bank (2007), *World Development Report 2007*. World Bank, Washington DC. Available at: http://live. worldbank.org/world-development-report-2007 [Last accessed: 27 August 2016].

3   IPU (Inter-Parliamentary Union) (2014), *Youth participation in national parliaments.* IPU, Geneva. available at: http:// www.ipu.org/pdf/publications/youth_en.pdf [Last accessed: 27 August 2016].

4   OECD (Organisation for Economic Co-operation and Development) (2008), *Handbook on Constructing Composite Indicators,* 1–162. OECD, Paris. Available at: https://www. oecd.org/std/42495745.pdf.

5   Ibid.

6   http://youthdevelopmentindex.org/views/report.php.

Chapter 5

Known Issues to Consider

There has been a lot of expert work done in this field and familiarising yourself with mistakes, advice and prior thinking will save time and lead to a YDI of higher quality. Having an expert panel – including people with youth policy, statistics, youth issues and local knowledge – can be very helpful in identifying solutions to issues.

5.1 Allow enough time

Conservatively, allow for at least six months for your first YDI. All of the steps in developing a YDI are time consuming and many months are likely to be needed to create a quality YDI. If you have a deadline to work to, the best way to ensure it is achievable is to start work well in advance.

If you already have contacts you can leverage, then the time to set up the expert panel can be shortened – but you will still need to meet and discuss what contributions can be made from members and when they can provide their information. An expert panel can provide advice to questions such as:

1. What are the main issues, challenges and opportunities for youth development in your country?

2. What is the best way to split the population for development of the index (geography, gender, urban/rural)?

3. What reliable data do you know of for measuring youth development at a fine level of disaggregation? And can you provide such data?

4. What would successful youth development look like?

5. Who is this YDI and report aimed at, and what do you want it to change?

6. Are there youth days or activities coming up which can be used to launch the report/YDI?

Another consideration when developing your timeline is when data is released. For instance, if census information is released in June, releasing the YDI in May could be deemed as outdated very quickly.

Data collection and collation both take time as well, particularly if you are not expert in doing these. Quality design of surveys and the collection of data in hard-to-reach or complex regions can take years to perfect. This is, in part, why we recommend using readily available data where possible.

Imputation, normalising and weighting the data to create an index can be done relatively quickly (in weeks) if definitions and alternative sources have been agreed in advance; if not, this task can also take up a great deal of time.

Analysis of the index can be done quickly for high-level information, but the more time you have to spend with the data the more likely you are to find hidden interesting movements in it. You can always go back to the data after publishing your report and find further information for inclusion in programme and policy development.

5.2 Instituting broad-based consultation

Engaging the right stakeholders from as early a point as possible will help in design, data collection, publicity and use of the final product. Potentially, the kinds of people you should be engaging with include:

- youth development experts (teachers, academics, researchers, youth workers, etc.)
- government officials
- young people themselves
- parents, family and community members
- organisations working in the community
- international youth agencies
- monitoring and evaluation experts (statisticians and data experts)
- public relations and communications experts
- youth advocates.

These groups may be helpful in picking a theme or presenting the major issues for concern for youth in the area, as well as providing data collection assistance and review of analyses and results. A selected few from this group can be invited to sit on the expert panel to provide ongoing support and advice throughout the process.

Once you have your panel of experts, it is of the utmost importance to keep them informed and engaged, as their support is needed past the design of the YDI right through to leveraging policy and programme ideas from your results.

Providing results and explaining how these may be used to report back to all stakeholders, and particularly the youth community, is critical to the broadest use of the YDI in future development. Not only does it show that you respect the people who have provided input, but also that their input was not a waste of time. Should re-collection occur for future YDIs, your reputation for transparency, honesty and practical value will assist in eliciting quality responses.

5.3 Regional issues

There are many issues with comparing data across different regions. How the data is collected, stored and analysed can change drastically between different areas. To this end, it is important to ensure that definitions, aims and data are understood by both the institutions supplying the data and the team co-ordinating the YDI construction.

Cultural and linguistic challenges may present themselves when trying to compare across different locations. Elders and leaders within communities may be able to assist in ensuring that questions will be understood and are appropriate.

Gaining access to some areas in a region can be more difficult than others due to topography, civil unrest, natural disasters or distance. Using methods of communication already being used in those areas can cut costs and make engagement and collection of data possible. If areas cannot be included in your YDI due to lack of information, this caveat should be included in any reporting of results. It may also be possible to highlight problems in those regions, so acting as an advocacy tool for youth in such areas to be given a voice in the future.

5.4 Some domains are harder than others

When looking at options for indicators and domains, it is important to acknowledge that some will be easier to measure than others. For example, educational enrolment is measured well and regularly by most governments and schools, so up-to-date figures for young people in education should be ascertained easily.

Volunteering statistics, however, are collected far less regularly and usually only through sample surveys, if at all, and so are less likely to have the same coverage of area or time, or to be as available. Looking at data sources others have used in the above examples of national YDIs (see section 4.5) may lead you to proxy indicators sufficient for your YDI or ideas of data collections you may need to carry out.

Subjective information or opinion data can be seen as less reliable than counts of fact, again making participation – particularly civil participation – difficult to measure, as what counts as participation will not always be something people agree on. Being very clear on your definitions and why you are using them should alleviate distrust in your data or confusion around what is being counted.

Chapter 6

What Should Go into Your Index?

While data may be available at smaller geographical levels, such as jurisdictions or local government areas, on the indicators used in the Commonwealth YDI, there may also be area-specific data more appropriate for measuring local issues under the domains of youth development. Deciding on these indicators is an important step, so you should try to involve as many people and as much research as possible to get different perspectives.

Administrative datasets can be a great source of local information, and having local stakeholders engaged throughout the design and building of a YDI can help facilitate access to valuable information.

A group of experts can be helpful in identifying both common issues and potential data sources. Typically, the members of this group could include representatives from various levels of government, youth advocacy organisations, civil society members, academics and researchers.

Ensuring that there is a common understanding of definitions and available data is essential to avoid mistakes being made or time wasted. The data quality frameworks and evaluation tools discussed in section 6.4 can help in developing a clear picture of data and definitions.

6.1 Consider the following when planning your YDI

Some questions that may sharpen the focus and help keep the YDI creation realistic and beneficial are presented below.

What are you trying to achieve?

- Are you trying to assess the impacts and achievements of current or potential projects and/or to determine ways of improving those projects? Or are you exploring potential priority areas for youth development?

What will change if you are successful?

- Ensure the project is designed with specified performance objectives, targets and milestones against which future monitoring and evaluation can be conducted. Consult stakeholders. If you are an advocacy group, success may mean that you have tangible proof of issues which you can use for lobbying or funding proposals.

What do you need to measure attainment (or not) of success?

- Allow for the resources and information needed. Qualitative and quantitative information may need to be collected, stored and analysed, in addition to report writing and presentation.

- Take a holistic view of the project. Aspects such as administration, implementation, marketing, training, etc. should all be resourced.

How do you report on success, whether achieved or not?

- Disseminate findings widely, allocate responsibility for implementing agreed recommendations and, most importantly, follow up to ensure that changes are made.

6.2 Composite index principles

There is much detailed and expert advice on composite indexes. This section aims to briefly outline the essentials, while linking to already formulated and tested resources that may be utilised in the development of specific YDIs.

Overarching principles of composite indexes include that they be:

- based on conceptually sound foundations

- policy relevant (with clear domain priority areas)

- data measurable (comprehensive, consistent, harmonised)

- methodology transparent, easy to understand

- based on principle not conclusions.

For a detailed expert methodology of index creation we recommend the OECD's *Handbook on Constructing Composite Indicators* (OECD 2008).[1]

6.3 How to choose country/region-specific indicators

Country or regional youth development indicators need to be relevant both locally and globally, as well as comparable across areas.

For example, if it is known that many of an area's youth participate in drama activities through their youth centre, but do not play a sport, then measuring football as an indicator for Civic Participation will result in the area's youth being reported as not engaged in the community; yet they are – but through drama not football.

This local context often leads more to reasons for excluding indicators, and it is important to acknowledge that imperfect

indicators can still be used and used well: but should have the appropriate caveats associated with them. For example, it is important to measure youth unemployment everywhere; however, if it is compulsory to attend school until the age of 18 in one area and 16 in another, differences between those regions would be expected and should be acknowledged in the results.

Key considerations for choosing data for inclusion in an indicator include the following:

- What is the source and is it trustworthy? Is the Administrative data from trusted government sources, Expert assessments? Was the survey conducted by a reputable researcher?

- Is there an adequate time series?

- Is there adequate coverage (does it cover enough areas)?

- Is there a body of literature that supports the link between 'x' indicator and the defined purpose of the domain and the overall YDI?

- Are youth development indicators featured by the PAYE the WPAY, the Youth Development Indicators or other regional youth development frameworks?

Looking at prior research by youth organisations can lead to inspired and relatively simple indicator ideas. For instance, the WPAY priority areas shown below may help arrive at what is truly important to your country or region. Asking for input from local youth advocacy groups, development agencies and governments can be overwhelming, as your list of issues is likely to increase well before it becomes a manageable list of indicators; however, it will help in surveying topics and prioritising them accordingly.

The WPAY: 15 priority areas:

A. Education	J. Full and effective participation of youth in the life of society and in decision-making
B. Employment	
C. Hunger and poverty	
D. Health	K. Globalisation
E. Environment	L. Information and communications technologies
F. Substance abuse	
G. Juvenile justice	M. HIV/AIDS
H. Leisure-time activities	N. Armed conflict
I. Girls and young women	O. Intergenerational issues

The more likely an indicator is to help make changes or decisions, the better it is to include. For example, if you are looking to access funding for environmental sustainability, then indicators which link directly to the environment and the effect it has on the domains of youth development will help your case more than indicators that have no environmental aspects.

A helpful resource on indicator methodology is Eurostat's manual *Towards a harmonised methodology for statistical indicators* (Eurostat 2014).[2]

6.4 Quality framework

Many national and international statistical agencies have their own data quality frameworks and associated tools to test the veracity and appropriateness of datasets. If you are in a country that has such toolkits it may be best to use them, as they are likely to have been tested on local datasets and be accepted by local stakeholders. National quality assurance frameworks can be found using the United Nations Statistics Division search tool.[3]

To be considered fit for purpose, most quality frameworks look for similar attributes of data. These include:

- Trustworthy sources

- Relevance to the topic

- Timely

- Accurate

- Interpretable

- Accessible

- Coherence

Such information can then be compiled in a data quality statement or used to ensure that adequate caveats are used when analysing, reporting or relying on the data.

A sound example of a data quality framework and accompanying tools can be seen in the Australian Bureau of Statistics framework[4] and the National Statistical Service[5] tools.

Using the 'Evaluation tools you can use' section (8.2) may also help to ensure that all aspects of an indicator's reliability and usefulness are considered.

6.5 How to design a survey or focus group

When data we want has not been collected, there is the option of creating a new dataset – in which case a collection method needs to be designed. Two common methods are surveys and focus groups. Both have been successfully used to collect information from youth in a wide variety of situations. Please note that data collection, when done properly, is quite resource intensive, so if you do not have the budget then making do with other datasets as proxy indicators is better than collecting bad data and relying on that in your index.

There are some questions that need to be considered prior to designing a survey:

- How will you reach the right people to ensure good representation across various target groups?

- Are data collection methods relevant and culturally, linguistically and gender sensitive to the population being evaluated?

- How does your target sample prefer to share information (e.g. orally, in writing, in person, online)?

- How can you be sure that the sample understands the questions being asked of them?

- Do multiple methods need to be used and if so will the data be comparable?

- Do the proposed respondents trust the collectors enough to be honest and participate?

- How can you ensure a large enough sample and response rate to give valid data?

- Are there tested questions from trusted surveys that you can use?

If you can find a survey that has already been tested in the field, it will save you a lot of time and resources, as well as lending more reliability to the data you collect.

It is often tempting to ask long complex questions that allow freedom in people's responses. Unfortunately these types of questions do not easily translate into the kind of information that can be used in an indicator. Closed questions, meanwhile, those with limited responses, are easier to analyse on a large scale, but can miss detail.

For example, 'Are you over 18 years old?' is a 'yes/no' question, and as long as your analysis doesn't need any finer level detail then it is fine. If, however, you are looking to find differences between teenagers and the rest of the population, this question is useless.

On the other hand asking 'How old are you?' leaves room for people to answer in different ways, e.g. 10 and a half, 25/6/79, 34. This in turn leads to more time being required to clean your data before you can analyse it.

Asking for a date of birth and providing the format you want it answered in, i.e. dd/mm/yyyy, means responses can be easily compared and split into a range of cohorts.

For these reasons, it is important to be clear about what you want to analyse using the data and to make sure that the responses you will get to questions will allow that.

If you are collecting information from a wide variety of people, it can be necessary to use different methods of collection. For example, literate students who are often online are likely to be comfortable filling out an online survey, which can make getting their input cheap and quick. People in more remote areas without access to the internet are not going to be able to participate in the same way. Often these types of situations need interviewers to collect information.

Trusting those who are collecting the information is very important to ensure honest responses. This can be more of an issue in group situations or with interviewed surveys, as embarrassing or shameful information is less likely to be shared. If there is already a trusted organisation or individual in the lives of the youth you are wanting to sample, enlisting their help in collection can lead to much better quality data. This needs to be carried out with cultural sensitivity.

It is also important that whoever you intend to use the YDI trusts the collection agency, so having someone independent collect the data is advisable if there is likely to be criticism or claims of bias.

There are many online survey tools that help in design, as well as collection and analysis. Some are free or provide support for a fee. IdealWare carried out a study of such tools aimed at not-for-profits, and this gives links to some of the tools available.[6]

There is a range of survey design tools on national and international statistical organisational websites, including sample size calculators like that provided by the National Statistical Service.[7] Additionally, survey examples may be given on civil

society websites – for example, the Center for Information and Research on Civic Learning and Engagement (CIRCLE).[8]

Once you have your questions, it is important to make sure that the people you want to survey have access to answering them. A common method for this is to run focus groups through local youth centres. It is important to note that if you use pre-existing meetings, then you may run the risk of having bias in your responses. For example, if you use a pre-existing youth network meeting to measure civic participation around meeting attendance, then you will have everyone there answering yes, skewing the results. You may also miss out on the voices of rural youth, who may not be able to attend such focus groups.

Depending on the resources you have for data collection, it may be possible to send survey interviews out in the field to cover some of the less-accessible youth.

Notes

1   Organisation for Economic Co-operation and Development (OECD) (2008), *Handbook on Constructing Composite Indicators: Methodology and User Guide*, available at: http://www.oecd.org/std/42495745.pdf (Last accessed 18 August 2016).

2   Eurostat (2014), *Towards a harmonised methodology for statistical indicators*, European Union, available at: http://ec.europa.eu/eurostat/documents/3859598/5937481/KS-GQ-14-011-EN.PDF/82855e3b-bb6e-498a-a177-07e7884e9bcb?version=1.0 (Last accessed 18 August 2016).

3   UN Statistical Division, National Quality Assistance Frameworks, available at: http://unstats.un.org/unsd/dnss/QualityNQAF/nqaf.aspx (Last accessed 18 August 2016).

4   Australian Bureau of Statistics (2009), 'Applying the ABS Data Quality Framework'. Available at: http://www.abs.gov.au/AUSSTATS/abs@.nsf/Latestproducts/1520.0Main Features10May 2009?opendocument&tabname=Summary&pro dno=1520.0&issue=May2009&num=&view= (Last accessed: 18 August 2016).

5   National Statistical Service, Data Quality Resources, available at: http://www.nss.gov.au/nss/home.nsf/pages/NSS+Data+Quality+resources+landing+page (Last accessed 18 August 2016).

6   Idealware (2011), 'A Few Good Online Survey Tools', available at: http://idealware.org/articles/fgt_online_surveys.php (Last accessed 18 August 2016).

7   National Statistical Service (undated), Sample Size Calculator, available at: http://www.nss.gov.au/nss/home.nsf/NSS/0A4A 642C712719DCCA2571AB00243DC6?opendocument (Last accessed 18 August 2016).

8   CIRCLE (2010), Survey Measures of Civic Engagement, available at: http://www.civicyouth.org/tools-for-practice/survey-measures-of-civic-engagement/ (Last accessed 18 August 2016).

Chapter 7

How to Create a Youth Development Index

Once you have the data you need and understand the quality, indicators should be aligned under the domains that have been agreed. It is usually better to have a small number of indicators in each domain to keep index creation manageable. This also decreases the potential for effects that indicators can have on each other to distort the overall index.

7.1 Filling the gaps in your data

This is the point where you should decide on imputation methods to fill in missing observations in the datasets, so that comparisons across areas can be made on all indicators. By aggregating the available stock of data in one comprehensive and harmonised measure we are able to gain a better understanding of youth development in a single snapshot.

As described in the 'Data availability issues and imputations' section (4.4), there are many methods of imputation which can be used. Table 4.2 can be used to help select appropriate imputation methods. Simple imputation methods, such as hot and cold decking, can be quick and defendable, so are often explored first.

7.2 Normalising

Now that you have full datasets for all your chosen indicators, it is time to normalise them so that they can be added together in a statistically valid way and weight them so that they attribute the correct amount to the overall index score.

There are many methods of normalising or standardising data. The simple methods of banding or ranking are often effective and require less statistical know-how.

Banding data in the case of the YDI is a way of comparing otherwise incongruous information. It takes each indicator and scales it to a score between 0 and 1 relative to the whole dataset. To do this, appropriate minimum and maximum values for the dataset are decided, such that anything below the minimum is

assigned zero, and anything above the maximum is assigned 1, and everything else is scaled evenly between the two.

For example, mean years of schooling have ranged globally from 0.9 in Mozambique in 2000, to 12.7 in Norway between 2005 and 2008. In discussions around this indicator, it was decided that a suitable minimum cut-off value would be 0 and the maximum could be appropriately set to Norway's value of 12.7. Therefore, in year *y*, after data imputation, the banded score is calculated for indicator *i* by Equation 1.

Equation 1: Banding equation

$$Banded_i = \frac{Country\,indicator\,value\,in\,year\,y_i - minimum\,cutoff_i}{maximum\,cutoff_i - minimum\,cutoff_i}$$

The fact that mean years of schooling is banded this way indicates the implicit assumption that more years of schooling is inherently better for youth development. However, higher levels of some indicators, such as mortality rates, represent a less-desirable case for youth. In such cases, the banded score is reversed and is calculated by Equation 2.

Equation 2: Reverse banding equation

$$Reverse\,banded_i =$$
$$1 - \frac{Country\,indicator\,value\,in\,year\,y_i - minimum\,cutoff_i}{maximum\,cutoff_i - minimum\,cutoff_i}$$

Once a banded score has been calculated for each country, the domain score is calculated in a similar fashion as shown in Equation 3 for domain 1.

Equation 3: Domain score calculation

$$D1\,Score = \frac{\sum_{j=D1.1}^{D1.4} Weight_j \times Country\,indicator\,banded\,score_j}{\sum_{j=D1.1}^{D1.4} Weight_j}$$

7.3 Weights

It is important to have agreement from your expert panel on the weights that domains and indicators should have in the YDI. It is likely that they will want to be involved in creating the weights, using their insight into the levels of importance of the domains in the context of the region.

Weighting methods include:

- Weights based on principal components analysis or factor analysis

- Data envelopment analysis (DEA)

- Benefit of the doubt approach (BOD)

- Unobserved components model (UCM)

- Budget allocation process (BAP)

- Public opinion

- Analytic hierarchy process (AHP)

- Conjoint analysis (CA)

Step-by-step guides to using these methods can be found in OECD's *Handbook on Constructing Composite Indicators*.[1]

The weights used in the Commonwealth YDI may be useful as a guide. They were calculated using expert assessments in combination with the AHP from the technical advisory panel

Table 7.1 Commonwealth 2016 global YDI indicator weightings

The following weights are used in the YDI Domain	Indicator	Weight (%)
Education	Enrolment in secondary education (gross)	7.50
	Literacy rate 15–24	10.00
	Digital natives	7.50
Health and Well-being	Youth mortality	10.00
	Mental disorder years of life lost (YLL) (15–29)	3.00
	Alcohol abuse YLL (15–29)	3.00
	Drug abuse YLL (15–29)	3.00
	HIV rate 15–24	3.00
	Global well-being index (15–29)	3.00
Employment and Opportunity	Youth not in education, employment or training (NEET)	10.00
	Ratio of youth unemployment rate to adult unemployment rate, both sexes	5.00
	Adolescent fertility rate (births per 1,000 women ages 15–19)	5.00
	Account at a financial institution, young adults (% ages 15–24)	5.00
Political Participation	Existence of a Youth Policy	5.00
	Voter education	5.00
	Voiced opinion to official (15–24) (Yes) (%)	5.00
Civic Participation	Volunteered time (15–24) (Yes) (%)	5.00
	Helped a stranger (15–24) (Yes) (%)	5.00

to determine the relative importance of each indicator. The final weightings from 2016 are shown in Table 7.1. If similar indicators are included in your YDI, these weights could be applied as a logical and accepted method.

Note

1   Organisation for Economic Co-operation and Development (OECD) (2008), *Handbook on Constructing Composite Indicators: Methodology and User Guide*, available at: http://www.oecd.org/std/42495745.pdf (Last accessed 18 August 2016).

Chapter 8

How to Monitor and Update Over Time

Once you have created an index it will be easier to update it over time. It will be important to go through the steps again making sure that datasets are still available, indicators are still relevant and whether new and better information is available.

Having a time series can help toward highlighting areas of improvement and regression which, in turn, can point policy development in critical directions. They can also be used as part of an evaluation of different policies and programmes. A quality evaluation can lead to heightened stakeholder engagement, funding opportunities and public acknowledgment.

8.1 Comparable data

Having comparable data is important and is a large part of the reason for looking for datasets which will be repeated over time. Sometimes, even with great planning, the data available in the future changes, with some collections ceasing and others beginning. If new datasets are needed to replace old then it is important to note the break in series and explain what differences it may have. For instance if an age bracket of 15 to 29 was used initially but the only data available in the second iteration is 18 to 25, then it would need to be explained that a drop in total people is not necessarily a drop over time but more likely due to the exclusion of 15 to 17 and 26 to 29 year olds.

If it is possible to use the new dataset from the year of your previous index and then compare over time, then you will capture real change; this will only be possible if the new dataset can be back cast, i.e. it has been captured in the past or has estimates created based on sound statistical modelling.

When talking about youth indicators for your YDI it is important to remember that you do not need to have the same age definitions between them all, only with in them. If the aspect of interest is post-school qualifications, then including school-aged respondents will skew the results incorrectly. The fact that youth issues are diverse within any definition of youth provides justification for the use of different age brackets.

8.2 Evaluation tools you can use

There are many data and evaluation tools available, some without cost. If you are planning on using your YDI in an evaluation it will be important to plan what other data needs you may have so that baseline data – data collected to show the current situation – can be collected prior to the implementation of the policy or programme of interest.

An internet search of 'evaluation tools' will lead to many helpful sites. Below are links to those that have simple and useful tools.

Evaluation Toolbox, available at: http://www.evaluationtoolbox.net.au/

Innovation Center for Community and Youth Development (2005), *Reflect and Improve: A Tool Kit for Engaging Youth and Adults as Partners in Program Evaluation,* available at: http://www.theinnovationcenter.org/files/Reflect-and-Improve_Toolkit.pdf

Tools4dev: Practical tools for international development, 'Monitoring and evaluation (M&E) plan template', available at: http://www.tools4dev.org/resources/monitoring-evaluation-plan-template/

Chapter 9

What Conclusions Can You Draw from Your Index?

9.1 Comparisons

Once you have created a YDI, it can be used to make many different comparisons and highlight potential areas for improvement. If you have created multiple YDIs across time, they can show improvement or regression, as can each of the indicators used. This information could form a part of an evaluation of a government or community project. For example, if a new programme to target literacy was introduced in 2014, then one would expect the literacy rates to be better in 2015 than in 2013 if the programme is having the desired impact.

Different progress made by sex, age, race, language and many other cohort splits can also be made across the area studies. Some examples of these were discussed earlier in the 'What national YDIs or youth indicators are out there?' section (4.5).

9.2 Conclusions and recommendations

Based on all the evidence, develop appropriate report conclusions that lead to clear, concrete and practical recommendations. If there is a notable difference in performance, point it out. If there is a known reason for this difference, it should also be pointed out – along with a solution for improving performance if at all possible.

Sections with reasons and recommendations are better placed to contain expert and best practice information from wider research than that of the indicators in the YDI. If you are going to include ideas or writings of experts, be sure to source them properly in your document to avoid breaking any copyright laws.

The recommendations made should have a logical link back to the topic of your report, the goals of your programme or the theme of your advocacy, and they should be supported by the results of your YDI. Having the expert panel sign off on recommendations

can mean they are more respected and trusted, and therefore more powerful and likely to be implemented.

9.3 How to use visualisation tools

Conveying your message in a report in simple and useable ways can help it become more engaging for citizens, and therefore more widely used. Media and spokespeople often need to get people's attention without much time for detail, so ready messages for them to use should be developed. Often statements like 'the three key findings were' or 'we are performing the best in x but have much room for improvement in y' can quickly convey important messages.

Following on from statements of key findings, visual aids can often contain a lot more information than a statement and be quickly and coherently portrayed. Three great visual tools are graphs, maps and infographics.

Broadly speaking, there are four different reasons why you might want to display data in a chart: to show a *comparison* (for example, between different indicators or geographical areas); to highlight a *relationship* (for example, does one indicator increase when another increases?); to show the *distribution* (for example, does every region in a country get a high or low score?); or to show the *composition* (for example, what percentage of regions have a high score, low score etc.?). Different types of charts in each category are shown in Figure 9.1.

There are many different ways that data can be displayed in chart form across these four categories. Some examples of the most commonly used charts are *line chart, bar chart, column chart, pie chart, scatterplot.*

Line charts are most useful for showing trends and comparing series over time. From Figure 9.2, you can quickly see that Series 2 has been trending downwards since 2006 with a recovery over the last three years, and that Series 2 has improved significantly since 2006.

Bar charts allow for quick comparisons between series, areas or indicators. From Figure 9.3, you can quickly see that only two of the domains have scores higher than 3, and that the score of Domain E is at least three times as high as Domains A, B and C.

Figure 9.1 Four ways of showing data in chart form

Chart Suggestions—A Thought-Starter
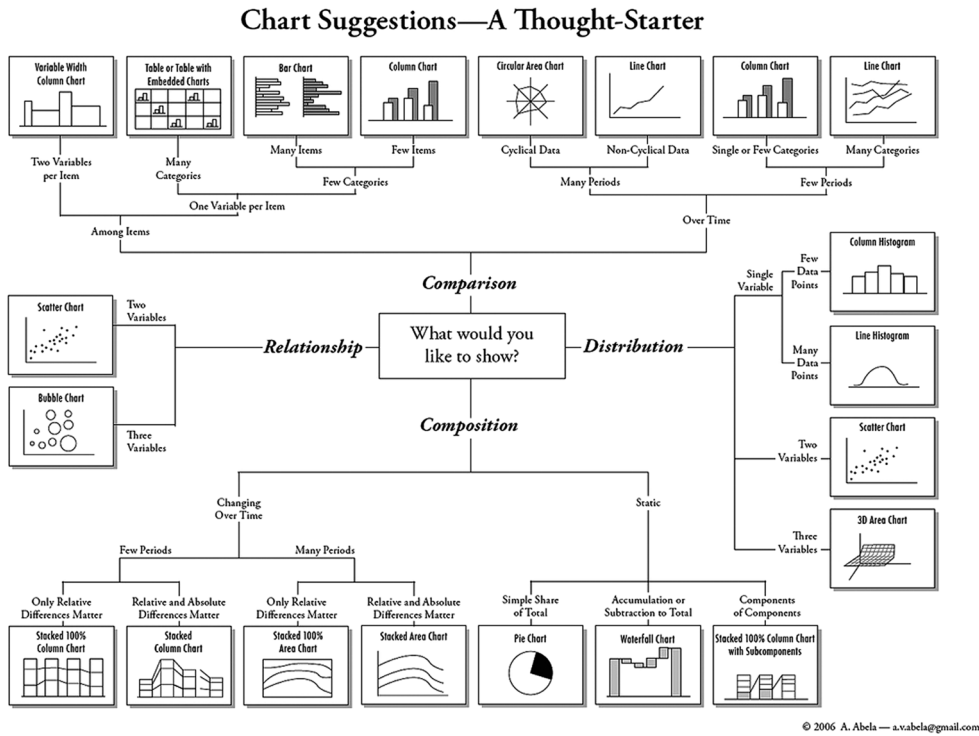
Source: ©Andrew Abela, 2006

Figure 9.2 Example of a line chart
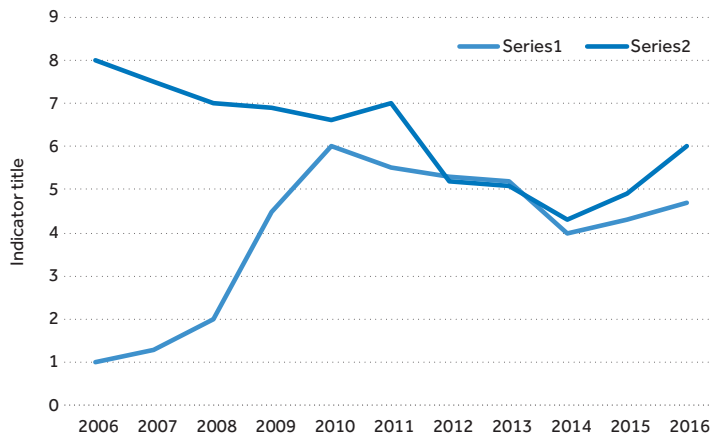
Figure 9.3 Example of a bar chart
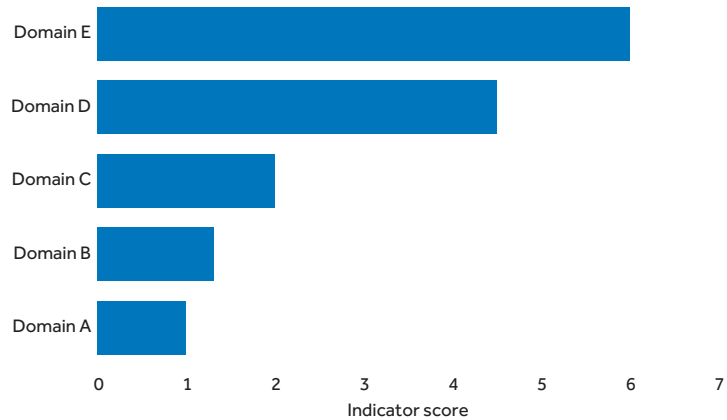
Both column and bar charts can show multiple series, allowing for comparisons over two or more variables. From Figure 9.4, you can quickly see that all domains had higher scores in 2010 than in 2011, and that Domain A had the highest score in 2010, and the lowest score in 2011.

Figure 9.4 Example of a column chart
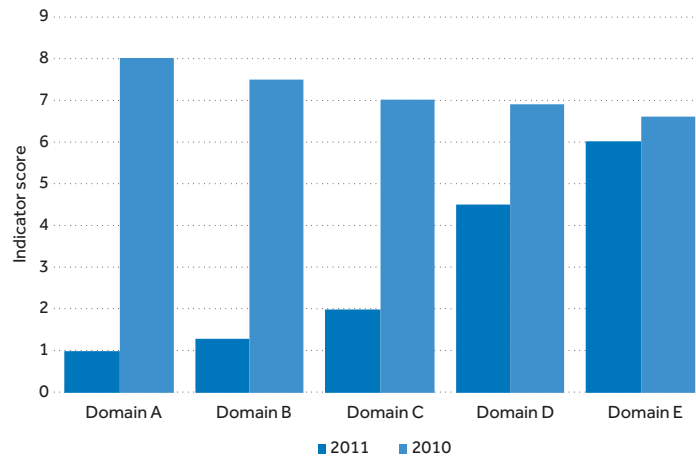
Pie charts are useful for showing the composition of a single indicator, area or series. From Figure 9.5 we can see that Domain A accounts for most of the total, and that Domains D and E account for the least.

Figure 9.5   Example of a pie chart
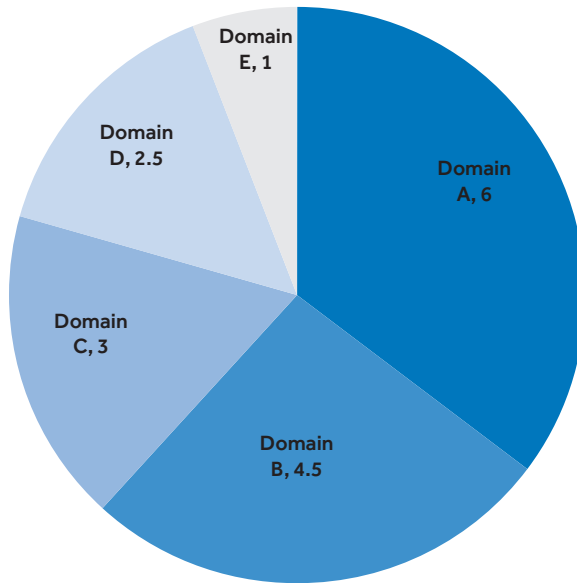
Figure 9.6   Example of a scatter plot
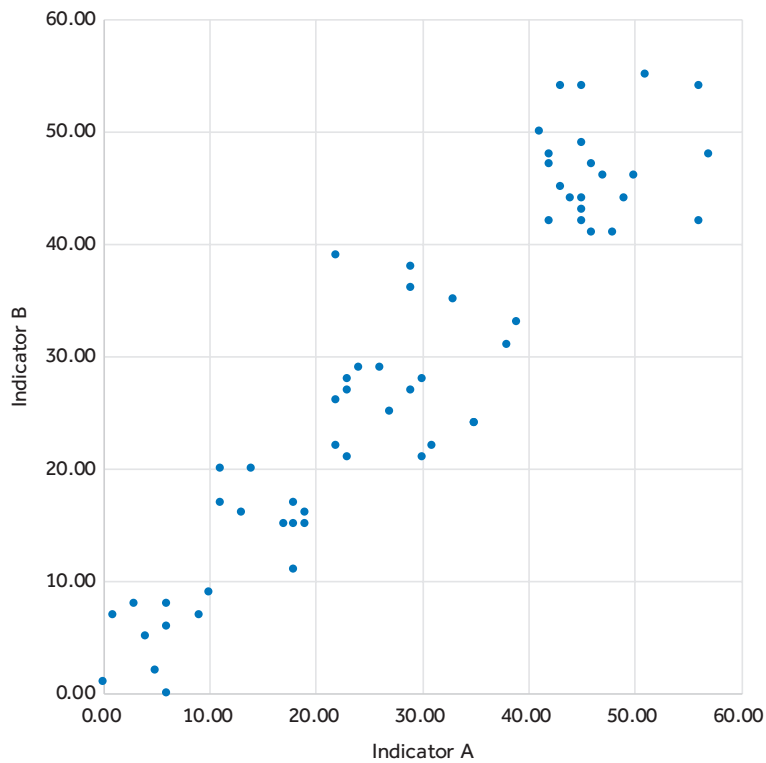
Scatterplots are an excellent way of showing the relationship between two variables. From Figure 9.6, we can see that high levels of indicator A are generally associated with high levels of indicator B, and vice versa. It is important to note that a strong correlation does not necessarily imply that one variable causes the change in the other variable.

Chapter 10

Publishing Your Youth Development Index in a Report

The report you publish will need to follow a logical progression to engage the reader and take them on the YDI journey with you. It is also important to have an 'Executive summary' or 'Key findings' section, so that those who wish to use your research but do not have time to explore the whole document can do so easily.

A great resource looking at how best to report on a development index is the UN Development Programme (UNDP) 'National and Regional Human Development Reports' website,[1] which includes advice on selecting relevant policy themes, research and creating an impact. The website may also provide inspiration on which experts and stakeholders you should invite into the process, both to streamline the process and create a robust YDI.

Below are some suggested sections for inclusion in a national YDI report:

- Contents
- Acknowledgments
- Executive summary
- YDI at a glance
- Introduction
- Methodology
- Results
- Policy Recommendations

Note

1 UNDP, 'National and Regional Human Development Reports', available at: http://hdr.undp.org/en/country-reports (accessed 18 August 2016).

Chapter 11

Communications Plan

It is good to have a communications plan or strategy in place for the launch of your report. If it can leverage a youth event, such as a policy launch or a major youth festival, you may be able to widen relevant people's exposure to the report.

Producing a media release and delivering it to local and national media, with targeted results highlighted, may also broaden publicity.

Social media tools such as Twitter and Facebook are a promising method for reaching youth in many parts of the world. This will not be the case if communities cannot access the internet or mobile phone networks, so methods of delivery of your results need to be tailored to your intended audience. Your information must be accessible to be used.

Stakeholders who have been a part of this process, and who have a vested interest in the uptake and use of your index, are likely to have networks which can be used to help promote your research. Some basic techniques for communicating your research follow, along with an example of some materials you might like to develop.

11.1 Develop a stakeholder map

Identify the key organisations and people who you would like to influence and inform with this research. Think of broad themes, and then identify the most relevant organisations within them. An example of stakeholder map is shown in Table 11.1.

11.2 Ensure information is engaging for your stakeholders

In developing a communication strategy for your index, you should always consider who your key audience is and how to best engage with them. If created successfully, communication materials can engage a wide spectrum of stakeholders, from those who are curious to those who are experts.

Always ensure that your material is understandable by your most removed stakeholder group (i.e. those who would generally know the least about youth development in your country), yet engaging

Table 11.1 Youth development index stakeholders (example)

Stakeholder	Type	Specific groups and organisations
Government departments	Federal	Dept of Social Service, Dept of Human Services, Department of Education and Training, Department of Health
	State	State ministers for youth (varies according to state), youth services by state
Theme-related experts	Education	Teachers unions, Board of Education
	Health and well-being	Youth health service providers, youth mental health specialists, suicide prevention organisations, sexual health and behavioural advice offices, youth refuges
	Civil and political participation	Issue-based campaigning NGOs, volunteer supporter groups, young/youth-led political party support groups, university student unions
	Employment	Job seeker networks, transition from work
Media	Local, national and global	Journalists who cover issues related to relevant policies, bloggers focused on youth well-being
General public	National and local	Focus on youth, those working in youth supporter groups

for those who are familiar with your field. Try not to overuse acronyms or use jargon or terms that are specific to your research.

In order to make the information relevant and engaging, tell your audience *why* the research is important and *how* it relates to them.

11.3 Results and impact-focused

When you are communicating your research, try to ensure you speak about the key findings and their potential impact, rather than how you conducted the research itself. While methodology is important and should always be accessible for those who want to know, the most important information you have to engage with your stakeholders is what the research actually shows.

For example: 'Despite high unemployment levels, youth in Australia remain optimistic, according to the latest research'. Compare this to: 'New research analyses youth development in Australia and reveals high unemployment rates and high levels of optimism'.

11.4 Humanise the data

One technique that allows you to make your research more meaningful and relevant is to 'humanise' your data through storytelling and case studies. This allows you to show how your research is relevant and to give an example of how your index might be used to create change.

11.5 Infographics

Infographics (information + graphics) are an excellent way of communicating data. Not all infographics need to be complicated or expensive to produce – there are a number of free web tools that can help you design your own infographic. The most important things to remember with an infographic are: keep it simple and use the data to tell a story.

For an index that shows change over time, a good example of an infographic is: a timeline of change, why this change has occurred (focus on which indicators have moved the most), which areas are most impacted (negatively and positively), and which areas need to be supported to ensure continued youth well-being and development.

Figures 11.1 is an example of an infographics.

11.6 Website

A website enables you to share information easily and break your research up into smaller and more digestible pieces of information. Websites can range from interactive large-scale data visualisations to simple Tumblr blogs. Your resources and stakeholders will guide the type of website you build.

11.7 Results video

A short results video allows you to convey key messages about the findings of your index. It also allows you to, quickly and concisely, inform people that this information exists, and to show the use and validity of the research. A video is ideally 90 seconds in length and should convey a selection of key findings, what the research is and who has produced it. If you have a website or a report with further information, ensure you guide your viewers on where to access further information.

Figure 11.1

Global Youth Population

Where do young people live?

1.8
BILLION
YOUTH
POPULATION

90%
LIVE IN LESS
DEVELOPED
COUNTRIES

1 IN **3**
LIVE IN
COMMONWEALTH
COUNTRIES
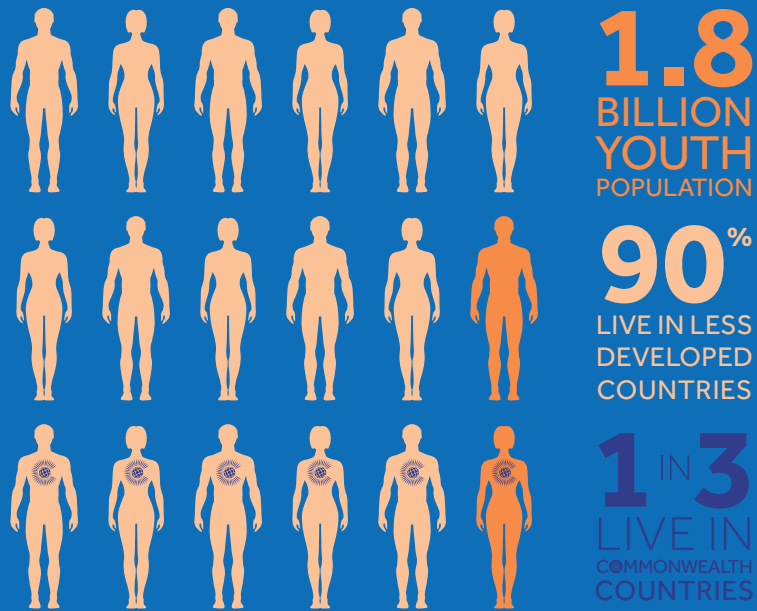
Global youth population by region:

6% EUROPE

3% RUSSIA &
EURASIA

4% NORTH
AMERICA

3% CENTRAL AMERICA
& THE CARIBBEAN

7% MENA

29% ASIA-
PACIFIC

26% SOUTH
ASIA

3% SOUTH
AMERICA

15% SUB-SAHARAN
AFRICA

Source: **UN Data**
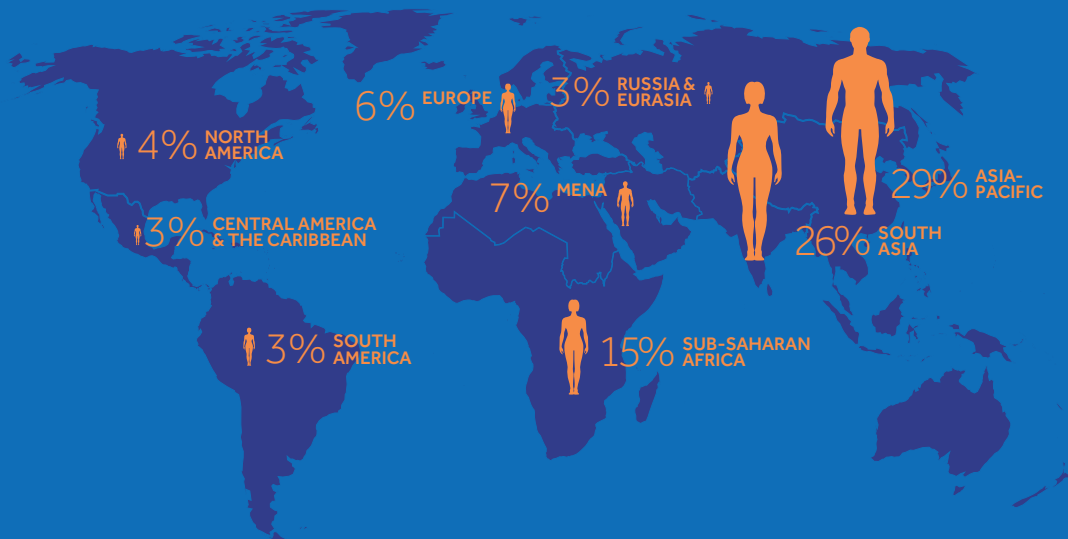
Chapter 12

What the YDI is Not

The YDI attempts to give a number which can be utilised in evidence-based policy and monitoring and evaluation. However, it is important to acknowledge what it does not do:

- The YDI does not cover all aspects of youth development in their fullness; it is limited by the number and quality of indicators that can be included in it.

- The YDI is dynamic and changes over time; however, progress within youth development is slow moving and certain policy impacts can take generations to measure. As such, slow or lagged movement can be expected from policy change, as opposed to immediate, large-score changes.

- Composite indicators are a way to measure complex ideas simply, which can lead to important fluctuations, inequalities and localised issues being hidden in the overall scores.

- Disaggregation of the YDI into cohorts of interest – whether cultural, geographical, gender or ethnic – could lead to better-informed policy than using the YDI as a whole.

- Many datasets used to compare countries and regions are calculated differently, making direct comparisons impossible. An understanding of the differences in the data will help in avoiding incorrect comparisons and in harmonising the data for inclusion in an index.

Chapter 13

Frequently Asked Questions

13.1 What is the Youth Development Index?

The Youth Development Index is a composite index of 18 key indicators that collectively measure youth development in 185 countries, including 49 of the 53 Commonwealth countries. The YDI has five domains measuring levels of education, health and well-being, employment and opportunity, political participation and civic participation for young people. The YDI provides researchers, policy-makers, young people and civil society with a resource to compare countries on their relative levels of youth development, allowing them to see where countries are doing well and where they need to improve levels of youth development.

13.2 How is the YDI calculated?

The YDI measures five distinct domains or key aspects of youth development: Education, Health and Well-being, Employment and Opportunity, Political Participation and Civic Participation. In total, the YDI uses 18 indicators and groups between two and six indicators in each domain, as shown in Table 13.1.

13.3 Where is the data sourced and why?

The YDI sources the latest available data from a wide range of international sources, including the World Bank, UNDP, Gallup World Poll and others.

The five domains and 18 indicators that make up the YDI were selected by the Commonwealth Secretariat Youth Development Index Technical Advisory Committee. The committee is composed of leading academics, practitioners, young people and experts in youth development from various institutions. The committee made its deliberations over a long period of consultation, with extensive reference to the scoping research carried out by the Commonwealth and UNDESA on youth development indicators to monitor progress on the Commonwealth's PAYE and the WPAY. In 2015 the WPAY celebrated its twentieth anniversary.[1] [2]

Table 13.1 YDI indicators

Domain	Indicator	Description	Source
Education	Enrolment in secondary education	Total (gross) enrolment in secondary education, regardless of age, expressed as a percentage of the population of official secondary education age.	UNESCO
	Literacy rate	Percentage of people 15–24 years old	UNESCO
	Digital natives	Percentage of people 15–24 years old	ITU
Health and Well-being	Youth mortality	Rate per 100,000 of 15–29 year olds	IHME
	Mental disorder (YLL)	Years life lost per 100,000 of 15–29 year olds	GBD
	Alcohol abuse (YLL)	Years life lost per 100,000 of 15–29 year olds	GBD
	Drug abuse (YLL)	Years life lost per 100,000 of 15–29 year olds	GBD
	HIV rate	Percentage of youth infected with HIV, 15–24 year olds	World Bank
	Global well-being index	Gallup weighted score of well-being of five domains: purpose, social, financial, community and physical for 15–29 year olds	Gallup World Poll
Employment and Opportunity	NEET	Percentage of youth not in education, employment or training (NEET), 15–29 year olds	ILO, WDR, OECD
	Youth unemployment ratio	Ratio of youth unemployment to adult unemployment, both sexes, 15–24 year olds	UNData
	Adolescent fertility rate	Births per 1,000 females in ages 15–19 years old	World Bank
	Account at a financial institution	Percentage of people 15–24 with an account at a formal financial institution	World Bank Findex
Political Participation	Existence of a Youth Policy	All Ages, 1 = Existing Youth Policy, 0.5 = In Development/Draft, 0 = No Youth Policy	Youth Policy Labs
	Voter education	At the national level, how often are voter education programmes conducted? All ages, 1 = Continuously, 0.5 = Election time only, 0.25 = Other, 0 = No information/not applicable	ACE Electoral Knowledge Network
Civic Participation	Voiced opinion to official	Percentage answering 'Yes', 15–29 year olds	Gallup World Poll
	Volunteered time	Percentage answering 'Yes', 15–29 year olds	Gallup World Poll
	Helped a stranger	Percentage answering 'Yes', 15–29 year olds	Gallup World Poll

The final list of indicators consists of datasets that include comparable, timely and trusted information on a large number of countries to minimise the need for imputations. The indicators are split into domain categories to ensure that the different aspects of youth development are adequately included. The Technical Advisory Committee will continue to investigate improved data and concepts for future iterations of the YDI. A particular focus will be on better understanding and measuring participation, and further disaggregating data by vulnerabilities such as sex.

13.4 How is the YDI used?

The YDI informs the work and goals of a range of stakeholders. Governments can use this tool to structure policy considerations and for evidence-based policy in youth development. Academics use the datasets for further research, to enhance existing work and to integrate into university coursework. NGOs examine the YDI to inform their campaigns, help them select areas of focus for their programmes and evaluate risk.

13.5 Why are certain indicators given greater weight in the YDI?

The Commonwealth, through an international panel of independent experts and practitioners, agreed that indicators should be weighted differently, because each factor provides subtly variant contributions to youth development. For example, the level of education is given a greater weight than the level of volunteering.

13.6 Are the countries at the bottom of the YDI to blame for their score?

The YDI does not place a moral or value judgement on where countries are ranked in the index. There can be many reasons why a country is ranked lower than another, and sometimes these are not dependent on the country itself but on the actions of its neighbours. The YDI measures the levels of youth development in order to be able to understand what leads to cohesive societies with participatory youth.

Notes

1   The Commonwealth Secretariat, 'The Commonwealth Plan of Action for Youth Empowerment 2007–2015', available at:

http://www.youthdevelopmentindex.org/cms/cms-youth/_images/7150051245204522383408.pdf (Last accessed 18 August 2016).

2   The United Nations Department of Economic and Social Affairs (2010), 'World Programme of Action for Youth', available at: http://www.un.org/esa/socdev/unyin/documents/wpay2010.pdf (Last accessed 18 August 2016).

Chapter 14

Useful Data Resources

Statistical agencies and data sources:

Africa:

- Botswana: http://www.cso.gov.bw/
- Cameroon: http://www.statistics-cameroon.org/
- Ghana: http://www.statsghana.gov.gh/
- Kenya: http://www.knbs.or.ke/
- Lesotho: http://www.bos.gov.ls/
- Malawi: http://www.nsomalawi.mw/
- Mauritius: http://www.mauritiusdelight.com/central-statistical-office.htm
- Mozambique: http://www.ine.gov.mz/
- Namibia: http://www.nsa.org.na/
- Nigeria: http://nigerianstat.gov.ng/
- Rwanda: http://www.statistics.gov.rw/
- Seychelles: http://www.nsb.gov.sc/
- Sierra Leone: http://www.statistics-sierra-leone.org/
- South Africa: http://www.statssa.gov.za/
- Swaziland: http://www.swazistats.org.sz/
- Uganda: http://www.ubos.org/
- United Republic of Tanzania: http://www.nbs.go.tz/
- Zambia: http://www.zamstats.gov.zm/

Asia:

- Bangladesh: http://www.bbsgov.org/
- Brunei Darussalam: http://www.depd.gov.bn/dept_dos.html
- India: http://mospi.nic.in/
- Malaysia: http://www.statistics.gov.my/main/main.php

- Maldives: http://www.planning.gov.mv/en/
- Pakistan: http://www.pbs.gov.pk/
- Singapore: http://www.singstat.gov.sg/
- Sri Lanka: http://www.statistics.gov.lk/home.asp

Caribbean and Americas:

- Antigua and Barbuda: http://www.ab.gov.ag/
- Bahamas, The: http://www.bahamas.gov.bs
- Barbados: http://www.gov.bb/
- Belize: http://www.sib.org.bz/
- Canada: http://www.statcan.gc.ca/
- Dominica: http://dominica.gov.dm/
- Grenada: http://www.gov.gd/index.html
- Guyana: http://www.statisticsguyana.gov.gy/
- Jamaica: http://statinja.gov.jm/
- St Lucia: http://204.188.173.139:9090/stats/
- St Kitts and Nevis: http://www.nia.gov.kn/index.php/ministries/ministry-of-finance/statistics-a-economic-planning
- St Vincent and the Grenadines: http://stats.gov.vc/
- Trinidad and Tobago: http://cso.planning.gov.tt/

Europe:

- Cyprus: http://www.mof.gov.cy/mof/cystat/statistics.nsf/
- Malta: http://nso.gov.mt/
- United Kingdom: http://www.ons.gov.uk/ons/index.html

Pacific:

- Australia: http://www.abs.gov.au/
- Fiji Islands: http://www.statsfiji.gov.fj/
- Kiribati: http://www.spc.int/prism/Country/KI/Stats/
- Nauru: http://www.spc.int/prism/country/nr/stats/
- New Zealand: http://www.stats.govt.nz/

- Papua New Guinea: http://www.spc.int/prism/country/pg/stats/

- Samoa: http://www.sbs.gov.ws/

- Solomon Islands: http://www.spc.int/prism/solomons/

- Tonga: http://www.spc.int/prism/Country/TO/stats/

- Tuvalu: http://www.spc.int/prism/tuvalu/

- Vanuatu: http://www.vnso.gov.vu/

International:

- Central Intelligence Agency World Factbook: https://www.cia.gov/library/publications/the-world-factbook/

- Eurostat: http://ec.europa.eu/eurostat

- International Monetary Fund: http://dsbb.imf.org/

- International Statistical Institute: http://www.isi-web.org/

- The Organisation for Economic Co-operation and Development: http://www.oecd.org/

- United Nations Statistics Division: http://unstats.un.org/

- World Bank: http://data.worldbank.org/indicator

- World Health Organization: http://www.who.int/

Appendix A

Methodology of the 2016 Global YDI

Any composite index is constructed from an initial set of raw data. These datasets measure different aspects of the index that are incommensurate by themselves. To take raw country data and combine them into a composite index requires a number of procedural steps.

The general process for creating a composite index follows the following steps:

1. Source and collect raw data

2. Fill or impute data gaps

3. Banding

4. Weighting

5. Aggregation

This annex explains, step-by-step, the process of constructing the YDI.

A.1 Sourcing and collecting raw data

The Commonwealth YDI is designed to measure youth development based on the following five domains:

- Domain 1: Education

- Domain 2: Health and Well-being

- Domain 3: Employment and Opportunity

- Domain 4: Political Participation

- Domain 5: Civic Participation

To be able to gauge youth development within each country within these domains, 18 indicators have been sourced that measure an aspect of one of the five domains, as shown in Tables A.1 to A.5.

Improvements to 2016 YDI indicators
As data has improved in both quality and accessibility since the first YDI, the indicators included in this 2016 YDI have been

Table A.1 Domain 1 – Education

Code	Indicator	Source	Earliest year	Latest year	Global coverage of countries	Number of countries with only one single data point
D1.1	Enrolment in secondary education (gross)	UNESCO	1999	2015	177	15
D1.2	Literacy rate (15–24)	UNESCO	1999	2015	151	34
D1.3	Digital natives	ITU	2010	2013	178	178

Table A.2 Domain 2 – Health and Well-being

Code	Indicator	Source	Earliest year	Latest year	Global coverage of countries	Number of countries with only one single data point
D2.1	Youth mortality	IHME	2010	2013	184	0
D2.2	Drug abuse YLL (15–29)	GBD	2010	2013	184	0
D2.3	HIV rate (15–24)	World Bank	2010	2013	108	1
D2.4	Alcohol abuse YLL (15–29)	GBD	2010	2013	184	0
D2.5	Mental disorder YLL (15–29)	GBD	2010	2013	184	0
D2.6	Global Well-Being Index (Age 15–29)	Gallup World Poll	2010	2014	144	23

Table A.3 Domain 3 – Employment and Opportunity

Code	Indicator	Source	Earliest year	Latest year	Global coverage of countries	Number of countries with only one single data point
D3.1	Youth not in education, employment or training (NEET)	ILO, WDR, OECD	1995	2014	141	34
D3.2	Ratio of youth unemployment rate to adult unemployment rate, both sexes	UNData	1991	2014	151	33
D3.3	Adolescent fertility rate (births per 1000 women ages 15–19)	World Bank	2010	2014	184	0
D3.4	Account at a financial institution, young adults (% ages 15–24)	World Bank Findex	2010	2014	131	0

Table A.4 Domain 4 – Political Participation

Code	Indicator	Source	Earliest year	Latest year	Global coverage of countries	Number of countries with only one single data point
D4.1	Existence of a Youth Policy	Youth Policy Labs	2010	2015	182	0
D4.2	Voter education	ACE Electoral Knowledge Network	2010	2014	183	183
D4.3	Express political views: *Have you done any of the following in the past month? How about voiced your opinion to a public official? (15–29)*	Gallup World Poll (15-29 responses only)	2006	2014	154	17

Table A.5 Domain 5 – Civic Participation

Code	Indicator	Source	Earliest year	Latest year	Global coverage of countries	Number of countries with only one single data point
D5.1	Volunteering: *Have you done any of the following in the past month? How about volunteered your time to an organisation? (15–29)*	Gallup World Poll (15–29 responses only)	2006	2014	161	12
D5.2	Helped a stranger: *Have you done any of the following in the past month? How about helped a stranger or someone you didn't know who needed help? (15–29)*	Gallup World Poll (15-29 responses only)	2006	2014	161	13

updated accordingly. Changes to the indicators and the reasoning behind them are summarised below.

Education
Public spending on education as a percentage of gross domestic product (GDP) has been dropped from the Education domain, as it fluctuates from year-to-year based on national budget priorities. It is also not necessarily an indicator of the quality of education.

Mean years of schooling has been replaced with enrolment in secondary school (gross), as the latter better captures access to minimum goals in education. It is important to note that it is possible to score above 100 per cent in this indicator, as all people enrolled in secondary schools are counted and then divided by the population officially of secondary school age. Where second-chance opportunities are taken by older youth, this can inflate the figures above 100 per cent. 'Digital natives' has been added to the Education domain. With the use of technology becoming more important in both social and professional realms, both access to and knowledge of how to use technology is of growing importance in educating youth for their future.

Health and Well-being

Teenage pregnancy rates have been removed from this domain and adolescent fertility has been added to the Employment and Opportunity domain, as early pregnancy substantially diminishes young females' opportunities to study, gain employment and participate in their community.

Alcohol abuse, drug abuse and mental disorder years of life lost (YLL) have been added to the Health and Well-being domain, as they give a more nuanced picture of the state of health for youth. Years of life lost is a summary measure of premature mortality (early death). It represents the total number of years not lived by youth per 100,000 youth.

The Global Well-being Index produced from the Gallup World Poll has also been included in the 2016 YDI. The index looks at purpose, social, financial, community and physical domains within the youth cohort.

Employment and Opportunity

One of the major inclusions on the YDI 2016 was the expanded availability of data on youth not in education, employment or training (NEET). At the time of the YDI development, this data had three main sources (1) World Development Jobs 2013, 120 countries;[1] (2) OECD, 36 countries;[2] and (3) International Labour Organization (ILO), 48 countries.[3] To include NEET in the YDI, a global dataset has been compiled from the three main sources. Whenever merging data from different sources, care needs to be taken to ensure that the sources are comparable. Although the definition of NEET was consistent across the sources, it was noted that NEET data varied substantially from source to source at the country level.

To minimise issues with compiling a global dataset from three different sources, preference was given to the World Development Report (WDR) 2013 as the source with the most countries. For countries not in the WDR, OECD data was used. These included Iceland, Switzerland, Luxembourg, Japan, Canada and New Zealand. The ILO had no countries that were additional to these two sources. It is expected that these data sources will expand and converge in the near future, making inclusion easier in subsequent YDI releases.

This measure is now widely accepted as being stronger, as it reflects the positive impact that study can have on future opportunities making education a viable option in addition to employment. There are, however, known issues with this measure, including some cases where countries can score very well in NEET due to many young people dropping out of school early to find employment. However, this lowers their ability to upskill and gain improved or more highly paid employment, and so there are limitations to this indicator.

As discussed above, the adolescent fertility rate has been included in this domain, as it has a significant impact on young mothers' opportunities to participate in learning and earning.

Civic and Political Participation
Indicators in these two remain unchanged, but have been improved with better quality and wider data collection.

Overview of data limitations
There were many data limitations encountered in the development of the YDI, many of which are likely to be encountered in the production of national or regional YDIs. Below is a summary of issues to be aware of:

- Datasets not being complete for all areas.

- There are regular harmonisation problems, particularly between the 15–24 and 15–29 age definition.

- Small states tend to be problematic: small areas will continue to be difficult to calculate estimates for, as most collections have small sample sizes with large errors. This becomes more challenging the finer the level of geography or population size you are measuring.

- Thematically, it is most difficult to source data for the Political Participation and Civic Participation Domains.

- National averages will hide regional variations; this is distinctly more problematic in very large population or land mass countries.

- Only some data can be disaggregated by gender, hence the YDI may elide some gender differences.

- Similarly, much data cannot be disaggregated by ethnic, religious, linguistic or cultural differences.

A.2   Data availability issues and imputations

The methodology developed has been designed to be in line with other prominent global indicators, and substantial effort has been made to populate the index with the best existing country information. However, the major challenge to developing a harmonised youth development index is in attempting to overcome the paucity of consistent and comprehensive data coverage across countries that vary significantly in terms of land mass, population, level of economic development and regional location. Data difficulties are particularly acute with regard to civic and political indicators, where the best available attitudinal data has been selected. One of the major outputs of this process is a summary not only of the available data, but also of the data that cannot be currently sourced from the existing stock.

The issue of low availability for current or historical data has been a factor in a number of the methodological decisions made, from what indicators to include to how calculate the final scores. There are many statistical techniques that can be employed to deal with these missing data issues when creating a composite index.[4] Table A.6 lists these methods and how these were applied, or did not apply, to the YDI.

In using hot- and cold-deck imputation methods, the YDI represents the use of the best possible data without an overly complex methodology.

Countries with more than 50 per cent of data missing are not included in the YDI. The remaining countries on average have 87 per cent of their YDI score based on existing country data imputed by either time series or cold-deck techniques. Figure A.1 shows the change in YDI composition for the five years calculated.

The construction of the YDI represents the best use of all data available to estimate of youth development. However, the fact

Table A.6 Data Imputation methods in order of application

Imputation method	Description	Application in YDI
Time series imputation	Replace missing values using linear interpolation	When at least two data points exist in time for an indicator-country pair, linear interpolation is used to estimate data for unreported years.
Cold deck imputation	Replacing the missing value with a value from another source	When only one data point exists for an indicator-country pair, this data is extrapolated for all years.
Hot deck imputation	Assign missing data the value of a 'similar' data point	Where time series and cold deck imputations fail, indicator-country pairs are assigned averages of other countries in the same year in the following order of preference: – the average of the country's region – the average of other countries in the same income bracket as the country as defined by the World Bank – the average of all other countries with the same government type as the country as defined by the Economist Intelligence Unit – assign the global average Only the most preferable of the four hot deck imputation techniques listed is used for any single missing data instance.

Figure A.1 Data availability and imputation summary of the YDI
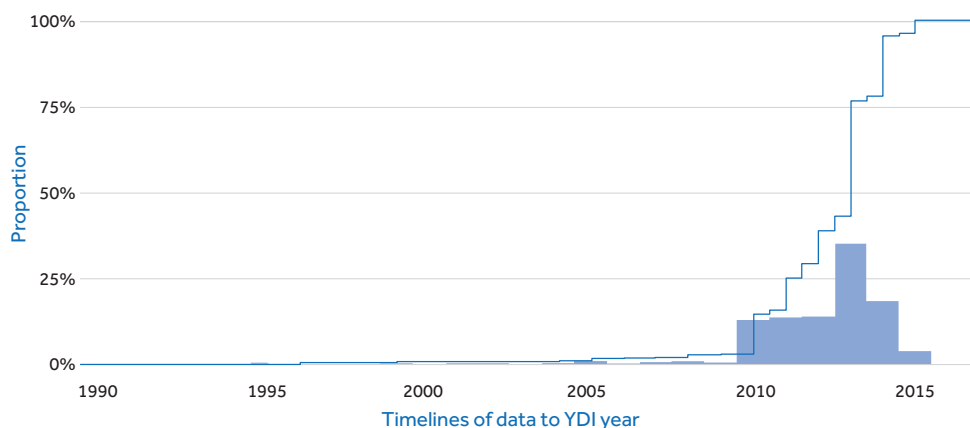
88 per cent of the 2016 YDI is either original data or interpolated/extrapolated from original data. The remaining 12 per cent is based on hot deck imputation techniques.
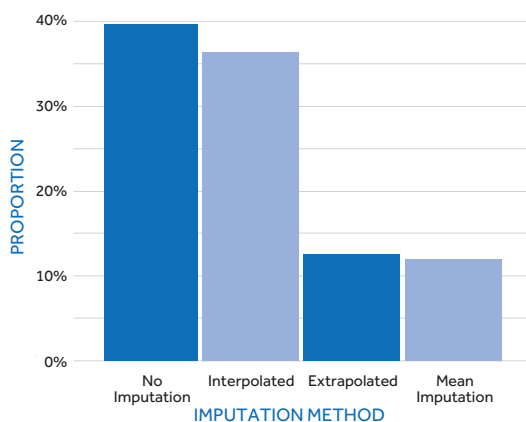
Source: Commonwealth Secretariat

Figure A.2 Data availability and imputation summary of the YDI

96 per cent of all original data used is later than 2010 and no data prior to 1990 is included.

Source: Commonwealth Secretariat

that the YDI in subsequent years uses increasingly less original data requires caution to be used when analysing the YDI over time. The large drop in original data between the first time period and the second shows that many countries for many indicators only have one single year of data recorded.

One of the findings in this report is that youth development has improved since 2011. In full, this should be interpreted as 'given the availability of new information for each year, the evidence suggests that youth development has improved since 2011'. The paucity of data prohibits any stronger result to be claimed and highlights that collecting data that is able to be disaggregated by youth needs to be made a priority to further understand country and global trends.

A.3 The banding process

In order to allow aggregation of non-commensurate indicators, a process of normalisation, or banding, is conducted. Under this process, each indicator is scaled on a score between 0 and 1 relative to a global dataset. To do this, appropriate minimum and maximum values for the dataset are decided, such that anything below the minimum is assigned zero, anything above the maximum is assigned 100, and everything else is scaled evenly between 0 and 1. Depending on the nature of the data, the banding process can take different forms.

For example, in the 'expected years of schooling' indicator, a higher score reflects a more desirable situation. Therefore, in this case the banding process requires the largest data point in the low levels of corruption indicator to be assigned a value of 1. Conversely, the lowest data point in the indicator is assigned 0, while all other data is scaled relative to these two points. This process is referred to as 'forward banding'. On the other hand, in the indicator 'youth mortality', a lower score reflects a more desirable situation. In this case, the data is reverse banded, meaning that the lowest value is assigned 1 in the banding process, while the highest is assigned 0.

Therefore, in year *y*, a forward banded score is calculated for indicator *i* by Equation 1, while a reverse banded score is calculated by Equation 2.

Equation 1: Banding equation

$$Banded_i = \frac{Country\ indicator\ value\ in\ year\ y_i - minimum\ cutoff_i}{maximum\ cutoff_i - minimum\ cutoff_i}$$

Equation 2: Reverse banding equation

$$Reverse\ Banded_i =$$
$$1 - \frac{Country\ indicator\ value\ in\ year\ y_i - minimum\ cutoff_i}{maximum\ cutoff_i - minimum\ cutoff_i}$$

An integral part of this process is to set appropriate minimum and maximum cut-off values for the banded scores. There are empirical and normative methods available for doing this. While some data may be distributed normally and therefore lend itself well to standard and well-defined mathematical techniques – such as defining outliers as those greater than three standard deviations from the mean – other datasets do not follow well-behaved trends. The final choice of which technique is used must depend on a number of considerations: the nature of the data, the underlying distribution, the purpose of the index, what information is being conveyed, etc. Upon investigation of the global datasets used in the YDI, very few of the distributions can be classified as normal. The presence of outliers affects not only the average, but also the variance, skewing both the minimums and maximums.

To account for this, in some instances sets artificial minimums and maximums to ensure results are not too heavily influenced by outliers. In the cases where outliers are present, the lower bound set for the banding process is set as the lowest data point that is within 1.5 times the interquartile range below the first quartile

(where the interquartile range is defined as the distance between the first and third quartiles). Similarly, the upper bound set for the banding process is set as the largest data point that is within 1.5 times the interquartile range above the third quartile. The following section details where this process has been used and illustrates the application of this to the distributions of the indicators. The bands obtained by this process are shown in Table A.7.

A.4   Weighting indicators and domains

In calculating domain and final scores, each indicator is weighted in terms of its relative importance to the other indicators. There are a number of methods available[5] to decision-makers, including data envelopment analysis, benefit of the doubt approach and unobserved components. Two simple approaches were trialled for the YDI. The first has been to use expert assessments in combination with the analytical hierarchy process (AHP) from the technical advisory panel to determine the relative importance of each indicator. This was conducted at the individual level with six experts, and weights were averaged across participants.

Analysing the results produced by this process yielded unsatisfactory global rankings. This was attributed to the conceptual issue arising when aggregating individual preferences: such a process in theory can produce results that do not satisfy any of the preferences of the participating individuals. Due to this, an alternative approach was pursued. The YDI uses a set of three primary indicators to align overall scores with broader human development priorities: expected years of schooling; youth mortality; and youth not in education, employment or training (NEET). Primary indicators are weighted more heavily in the index. It is important to note that these primary indicators majorly impact domain scores, in some cases giving countries a more pronounced domain score regardless of overall performance in the YDI.

A realignment of weightings to better represent the current development issues has resulted in rank changes for many countries in this iteration of the YDI. Using this iteration across the years provided is the only time series comparison recommended by IEP.

A.5   YDI aggregation and calculation

Once data has been banded and weights assigned, then the final stage is to multiply each banded indicator with its corresponding

Table A.7 Banding limits used in the YDI

Trimming outliers results in the following banding limits used in the YDI.

Variables		Summary statistics of indicators				Banding information			
Domain	Indicator	Minimum	Maximum	Average	Standard deviation	Is more better?	1st Quartile	3rd Quartile	Outliers trimmed
Education	Enrolment in secondary education (gross)	13.5	163.1	80.9	27.3	Yes	7.4	132.5	No
Education	Literacy rate 15–24	23.5	100.0	91.2	14.6	Yes	71.5	100.0	Yes
Education	Digital natives	0.6	99.6	38.7	32.4	Yes	0.6	99.6	No
Health and Well-being	Youth mortality	21.4	887.0	158.7	134.9	No	23.5	393.5	Yes
Health and Well-being	Mental disorder YLL (15–29)	7.1	3013.1	687.8	531.8	No	8.4	1502.0	Yes
Health and Well-being	Alcohol abuse YLL (15–29)	1.0	711.1	53.7	83.5	No	1.0	138.0	Yes
Health and Well-being	Drug abuse YLL (15–29)	3.8	1231.5	164.2	170.8	No	3.8	484.7	Yes
Health and Well-being	HIV rate 15 – 24	0.1	10.6	0.9	1.8	No	0.1	0.7	Yes
Health and Well-being	Global well-being index (age 15–29)	0.0	0.6	0.2	0.1	Yes	0.0	0.6	Yes
Employment and Opportunity	Youth not in education, employment or training (NEET)	0.5	52.5	16.3	9.0	No	0.9	49.8	Yes
Employment and Opportunity	Ratio of youth unemployment rate to adult unemployment rate, both sexes	0.5	10.4	3.2	1.4	No	0.9	4.9	Yes
Employment and Opportunity	Adolescent fertility rate (births per 1000 women aged 15–19)	0.6	210.4	50.8	41.9	No	0.6	153.8	Yes
Employment and Opportunity	Account at a financial institution, young adults (% ages 15–24)	0.0	100.0	41.3	31.9	Yes	0.0	100.0	No
Political Participation	Existence of a Youth Policy	0.0	1.0	0.7	0.4	Yes	0.0	1.0	No
Political Participation	Voter education	0.0	1.0	0.5	0.4	Yes	0.0	1.0	No
Political Participation	Voiced opinion to official (15–24) (Yes) (%)	2.0	47.0	16.6	7.9	Yes	3.0	32.5	Yes
Civic Participation	Helped a stranger (15–24) (Yes) (%)	15.0	85.0	48.5	13.3	Yes	22.5	74.5	Yes
Civic Participation	Volunteered time (15–24) (Yes) (%)	2.0	60.0	19.8	10.6	Yes	2.0	43.6	Yes

Table A.8 Weights used in the YDI

Domain	Indicator	Weight (%)
Education	Enrolment in secondary education (gross)	7.50
	Literacy rate (15–24)	10.00
	Digital natives	7.50
Health and Well-being	Youth mortality	10.00
	Mental disorder YLL (15–29)	3.00
	Alcohol abuse YLL (15–29)	3.00
	Drug abuse YLL (15–29)	3.00
	HIV rate (15 – 24)	3.00
	Global well-being index (ages 15–29)	3.00
Employment and Opportunity	Youth not in education, employment or training (NEET)	10.00
	Ratio of youth unemployment rate to adult unemployment rate, both sexes	5.00
	Adolescent fertility rate (births per 1000 women aged 15–19)	5.00
	Account at a financial institution, young adults (% ages 15–24)	5.00
Political Participation	Existence of a Youth Policy	5.00
	Voter education	5.00
	Voiced opinion to official (15–24) (Yes) (%)	5.00
Civic Participation	Volunteered time (15–24) (Yes) (%)	5.00
	Helped a stranger (15–24) (Yes) (%)	5.00

weight and sum each country's performance to arrive and an overall score. Figure A.3 illustrates this process.

#### *Future recommendations from the expert panel*

While many improvements have been made to this iteration of the YDI, more will be made as new and better data becomes available. To keep abreast of both data and sector priorities, the expert panel has a wide spectrum of members tasked with keeping the YDI focused on policy-relevant issues made from the best data with a sound methodology.

Some of the priorities in the design of the next YDI, highlighted at the expert panel meeting in London 2016, are summarised below.

- Indicators:
  - Use primary data sources to ensure reliability and consistency of data.

  - Ensure that the number of indicators is as equal as possible between domains to avoid indicators having too different an impact on overall scores, unless purposely weighted as primary indicators.

Figure A.3 Calculating a final score from raw indicators

Final scores are calculated by combining scores for individual domains into the overall Youth Development Index.
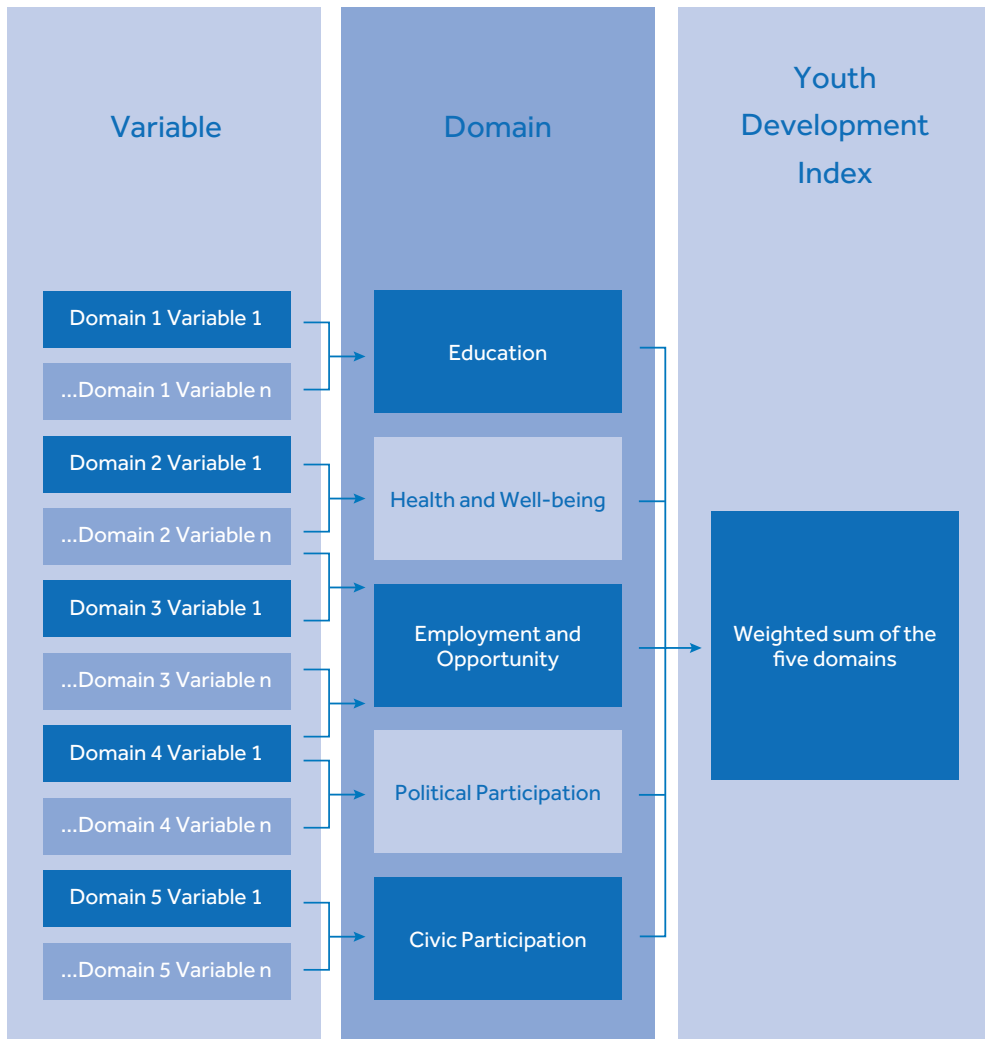
Source: Commonwealth Secretariat

- Consider categorising indicators by inputs and outputs indicators.

- Data used in the index should be able to be disaggregated by both sex and age where possible.

- Health YLL could be replaced by disability adjusted life years (DALYs) in the future to show the wider impact to youth above mortality.

- Domains:
  - Aim for equal weighting between the domains.
  - Future domains could include housing (including sanitation), human rights (including trafficking) and climate.
  - If possible, in the future, education should try to capture informal education.
  - Employment and Opportunity has an economic focus.
  - Participation domains could be collapsed into one. They should have 25 per cent of the weighting between them.
  - It remains difficult to find quality indicators for participation domains, and this should continue to be a priority area into the future.
- Imputations and weighting schemes:
  - It is vital that best-practice methodology be used for imputations and weightings, with improvements made as they become possible.
  - Imputations should be transparent.
  - Testing of different weighting schemes will continue to be carried out throughout the design process of future YDIs.
  - More complex measurements of uncertainty may be able to be included in future YDIs.

Notes

1 World Bank (2013), 'World Development Report 2013 on Jobs Statistical Tables', available at: http://data.worldbank.org/data-catalog/wdr-2013-jobs (Last accessed 19 August 2016).
2 OECD (2016), Youth not in employment, education or training (NEET) (indicator), doi: 10.1787/72d1033a-en, available at: https://data.oecd.org/youthinac/youth-not-in-employment-education-or-training-neet.htm (Last accessed 19 August 2016).
3 ILO, available at: http://www.ilo.org/ilostat/faces/oracle/webcenter/portalapp/pagehierarchy/Page67.jspx?_adf.ctrl-state=15c6wobysi_337.
4 Organisation for Economic Co-Operation and Development. (2008). *Handbook on Constructing Composite Indicators* (pp. 1–162).
5 Ibid.

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