

The Importance of Statistics

The increasing demand for more and better statistics has brought to the front position the importance of statistics as a strategic resource for national and international development. Statistics are now recognized internationally as part of the enabling environment for the development.

They constitute an essential element in improving the ability of the government to develop appropriate policies, manage the economy and social development reform policies, monitor improvements in the living standards of the people and report back this progress to the public using solid evidences. Statistics are needed by organizations other than governments (both international and local). According to the World Bank, good quality statistical data are needed to manage results, to set targets and monitor outcomes, to design development policies and strategies, to make evidence-based decisions about allocation and management of scarce resource.

The coming quotation was said by minister of finance and economic development Tanzania, honorable Mustafa H Mkulo (MP) during a press conference on official launching of new GDP estimates, 2001. **“You can’t measure the government’s performance without having good statistics from a reliable source which is authorized to provide official statistics in the country”**

Uses of statistics:

In general, statistics can be defined as a branch of applied research which is concerned with the development and application methods for collecting, organizing, presenting, analyzing and interpreting quantitative data in such a way that the reliability of conclusions based on data may be evaluated in terms of probability statements. The statistical methods and procedures are use full for socio-economic development. Statistical methods are applied to enormous numerical facts with an objective that **“behind every figure there’s a story”**. Thus, it can be used in a diversified field of study; some of the functions of statistics can be as follows:

- i. To present facts in a definite form.
- ii. Statistics facilitates comparisons.
- iii. Statistics gives guidance in the formulation of suitable policies.
- iv. Statistics can be formulated well in advance for predictions.
- v. Statistical methods are helpful in formulating, testing hypothesis and develop new theories.

The Role of Statistics in Management and Administration

A nation’s government runs on statistics. They use statistical data to make their decisions regarding any number of things. Most federal and provincial budgets are designed upon statistical data because it’s the most accurate data available when estimating expected expenditures and revenue.

Role of Statistics for the Economic and Social Development of a Country

The topic I will address today is ‘Role of Statistics for the Economic and Social Development of a Country’ and I will divide my speech into four parts: first, the ‘importance of statistics for evidence-based policy making’; second, ‘role of statistics in planning, progress monitoring and evaluation of development activities’; third, ‘role of statistics for global monitoring’; and fourth, ‘importance of developing and maintaining a reliable, up to date and easily accessible database’.

Importance of statistics for evidence-based policy making

The following quote from the World Bank provides a good starting point to the sub-topic: “Why do statistics matter? In simple terms, they are the evidence on which policies are built. They help identify needs, set goals, and monitor progress. Without good statistics, the development progress is blind: policy makers cannot learn from their mistakes, the public cannot hold them accountable”.

Statistics is a mathematical science involving the collection, analysis, and interpretation of data, as well as the effective communication and presentation of results relying on data. Through application of various tools and techniques in statistics, the raw data becomes meaningful and generates the information for decision making purpose. Statistics is very important when it comes to the conclusion of research. Statistical methods and analyses are often used to communicate research findings and give credibility to research findings and conclusions. It is important for the users of research to understand statistics so that they can be informed, evaluate the credibility and usefulness of information, and make appropriate decisions.

Today, statistical methods are applied in most of the fields that involve decision making, for making accurate inferences from arranged data. Evidence-based policy has been defined as an approach which “helps people make well informed decisions about policies, programs and projects by putting the best available evidence at the heart of policy development and implementation” (Davies, 1999). Different evidence based policies of the government are based on statistics. For instance, statistics holds a central position in fields like industry, commerce, trade, economics, biology, astronomy, etc., hence application of statistics is very wide.

Specialties have evolved to apply statistical theory and methods to various disciplines. For example, Econometrics is a branch of economics that applies statistical methods to the empirical study of economic theories and relationships; Business analytics is a rapidly developing business process that applies statistical methods to data sets to develop new insights and understanding of business performance and opportunities; Actuarial science is the discipline that applies mathematical and statistical methods to assess risk in the insurance and finance industries, etc. Further, the use of modern computers has expedited large-scale statistical computations, and has also made possible new methods that are impractical to perform manually. Statistics continues to be an area of active research, for example on the problem of how to analyze big data.

Role of statistics in planning, progress monitoring and evaluation of development activities

Reliable statistics describe the reality of people's everyday lives. The role of statistics in national development is very critical. The importance and availability of timely and reliable statistics on socio-economic life of a sovereign nation cannot be over-stressed. For instance, a number of goals have become generally accepted as the objective of economic policy and development. Movement towards their attainment is deemed to lead to macroeconomic stability and increased national welfare.

Timely, complete, accurate and reliable statistics is critical for creating and sustaining an environment which fosters strong, equitable development. Also, this is an essential ingredient for formulation of sound economic development policies, by which the decision making and development plans of the government becomes concentric. From the United Nations view point, statistics is a pathfinder for solution as well as a veritable tool in assessing the extent or level of national development of a country in a given period.

The national economic policies and complex interactions among various sectors of the economy make it imperative for building up macroeconomic planning models. This kind of model build-up is only possible with availability of timely and reliable statistical information. Thus, statistics plays a vital role to attain national development goals based on the availability of timely and reliable statistical indices such as GDP, inflation rate, poverty headcount, income per capita, labor force, housing, schooling, health outcomes, etc.

Further, timely, accurate and reliable statistics are widely used for the design and implementation stages of country policy frameworks. It is increasingly important to have high quality statistics on the population and projections of the population, for policy development and for planning and providing public services. This information is used for: central and local finance allocation; housing and land use planning; health care planning; providing education facilities; benchmarking other projections and as a control for smaller area projections; looking at the implications of an ageing population and making national and international comparisons, etc.

For instance, preparation of central and provincial government budgets mainly depends upon statistics because it helps in estimating the expected expenditures and revenue from different sources. And good statistics are essential to manage the effective delivery of basic services. Good statistics also improve the transparency and accountability of policy making, both of which are essential for good governance, by enabling people to judge the success of government policies and to hold their government to account for those policies. For example, if government plans to introduce a universal pension plan, statistical methods will be used to determine the forecasted cost for planned pension scheme with using population projections and inflation data. Hence, statistics are the eyes of administration of the state. Also, good statistics help donors by informing aid allocation decisions and by monitoring the use of aid and development outcomes. The Paris Declaration on Aid Effectiveness recognizes the need for better statistics for more effective aid.

Monitoring is a continuous process that requires data which is generated to assist in establishing whether planned targets are likely to be achieved or not. This is another area where statistics

plays an important role. In monitoring and evaluation of ongoing economic reform programmes, statistical data is vital, as it will provide the necessary information on performance indicators which serve to measure the impact of policy and programmes on the quality of life of target populations. Thus, statistics on these issues serves as monitoring indicators which are vital for development plans.

Most low-income countries are developing national policy frameworks such as poverty reduction strategies as part of their policy processes to reduce poverty. These policy frameworks highlight the need for statistics to provide a strong foundation for the diagnosis of poverty – where the poor are, why they are poor and what their lives are like – as well as to monitor the effectiveness of policy implementation. This information provides the evidence required to develop and monitor effective development policies. It highlights where resources are most needed, and provides the means to track progress and assess the impact of different policies. Hence, statistics are needed to help drive the outcomes that the policies are aiming at.

For instance, as part of a long-term commitment to reduce poverty in Sri Lanka, in 2005, the World Bank collaborated with the Department of Census and Statistics (DCS) to conduct the country's first official poverty mapping exercise to measure poverty incidence at the Divisional Secretariat level. Using data from the 2001 Census of Population and Housing and the Household Income and Expenditure Survey (HIES) 2002, this exercise revealed considerable spatial heterogeneity in poverty and identified areas where poverty remained more prevalent. The poverty headcount ratio in Colombo, the country's capital and the least poor district, was estimated to be 6%, while the corresponding ratio in both Badulla and Moneragala, the two poorer districts, was 37% each. Many pockets of high poverty existed even in affluent districts, including Colombo.

The poverty map for 2002 has proved to be a powerful tool in measuring and comparing poverty at disaggregated administrative levels. One of the most important applications of this map was to inform policy makers during the reform of the Samurdhi transfer programme in 2005, when the Ministry of Samurdhi used the map to identify the poorest 119 DS divisions in the country. The widespread acceptance and use of the map, which gave poverty-related estimates at the Divisional Secretariat (DS) division level, is a testament to DCS's success in disseminating the results of the poverty mapping exercise throughout the government agencies as well as to the general public. The DCS has created a new poverty map using Census of Population and Housing-2012 and the Household Income and Expenditure Survey-2012/13. This new poverty map, can inform policy makers whether previous pockets of poverty have persisted and whether new pockets have emerged, which could be used to strengthen the poverty alleviation exercise in the country.

Role of statistics for global monitoring

Economic development is the development of economic wealth of countries, regions or communities for the well-being of their citizens. There are a variety of indicators that economists use to measure the level of economic development in a country – declining poverty rates, increasing literacy rates, declining infant morbidity, increasing life expectancy, and so on.

Economic development has to be supported by the whole nation, from economists, politicians, and also civilians. There are various types of macroeconomic and socio-cultural indicators or “metrics” used by economists to assess the relative economic advancement of a given region or nation.

The World Bank’s “World Development Indicators” are compiled annually from officially-recognized international sources and include national, regional and global estimates. In year 2000, heads of states agreed upon the Millennium Development Goals (MDGs) and global targets for international development, with the aim of economic well-being and social development of the nations. A set of indicators has been developed to measure progress towards the MDGs and targets and, in turn, the indicators rely on information from robust and reliable national statistical systems. Statistics are also deployed to monitor progress towards the internationally agreed MDGs.

The MDGs have proved to be a powerful tool for building the political will needed, and the Goals provide a focus for both government and civil society. But to meet the Goals, comprehensive information is needed to monitor progress towards national and international targets, to inform policies and development strategies, and to spur the international community into action. The MDG framework strengthened the use of robust and reliable data for evidence-based decision-making, as many countries integrated the MDGs into their own national priorities and development strategies. Using reliable data to monitor progress towards the MDGs also allowed governments at national and sub-national levels to effectively focus their development policies, programs and interventions. MDG Country Reports document the progress in individual countries and assess each country’s statistical capacity as a fundamental part of weighing whether the country is likely to meet its own MDG targets.

Following the progress made under the MDGs, now the world’s governments are negotiating a new set of Sustainable Development Goals (SDGs) for the period 2016 to 2030. The SDGs will continue the fight against extreme poverty but will add the challenges of ensuring more equitable development and environmental sustainability. Crucial to their success will be good governance, informed by strong statistical systems that can measure and incentivize progress across all the goals. Furthermore, disaggregated data will be needed to ensure that no one is left behind.

As the world embarks on an ambitious project to meet new SDGs, there is an urgent need to mobilize the data revolution for all people and the whole planet in order to monitor progress, hold governments accountable and foster sustainable development. More diverse, integrated, timely and trustworthy information can lead to better decision-making and real-time citizen feedback. This in turn enables individuals, public and private institutions, and companies to make choices that are good for them and for the world they live in.

The unprecedented rate of innovation in data collection techniques and technologies, as well as the capacity to distribute data widely and freely, has expanded the horizon. With the right tools, policies, and investments, we can move towards better quality, high-frequency data on sustainable development in all countries. The adoption of the SDGs presents a strategic opportunity to build on the momentum of the data revolution, expanding the data-input

categories with new technology innovations, and demonstrating the central role of data in eradicating poverty and promoting sustainable development.

As highlighted by the Expert Advisory Group on the Data Revolution for Sustainable Development, new data collection and monitoring technologies are becoming rapidly available. These innovations will dramatically advance national statistical offices' and the international community's ability to monitor the impacts of development programs, in addition to informing the way they are designed and implemented. High-resolution satellite imagery, mobile devices, biometric data, and crowd-sourced citizen reporting will change official data collection processes and the design of the programs they monitor. For example, Satellite imagery is increasingly available for free at a moderate resolution, and at a cost for high-resolution sources. Satellite products have the potential to be utilized in monitoring more than 23 potential SDG indicators, ranging from measuring global air quality to crop and forest cover, to disaster impacts, and water resources.

Many surveys are now being conducted on digital mobile platforms. This practice reduces the time and cost of data collection. It also improves accuracy, simplifies collection of GIS and image data, streamlines integration with other information streams, and opens up the possibility of incorporating micro-chip based sensors into survey processes. Innovation is not just about adopting new technologies, it is also about improving existing ones.

Many countries are innovating by expanding the use and impact of data through open data platforms, encouraging citizens to use data to track the quality of their services and to monitor private and public performance. Others are innovating by setting up partnerships for different skill set groups to work together towards a common goal, from research design to data production and analysis. These and other innovations will drive new approaches for achieving the SDGs, from pinpointing specific communities and households for health initiatives to integrating real-time monitoring of natural resources into allocation schemes, and tracking government and donor investments. In spite of the upfront costs of software, hardware, and training, such innovations have huge potential to lower SDG monitoring costs over time.

Importance of developing and maintaining a reliable, up to date and easily accessible database

“Data are the lifeblood of decision-making and the raw material for accountability. Without high-quality data providing the right information on the right things at the right time; designing, monitoring and evaluating effective policies becomes almost impossible.”

Statistics must be both reliable and relevant. Poor quality data can mislead. They need to be compiled correctly, following standard practices and methodology. They must also meet the needs of the users and answer the questions posed by policymakers. The entire process of data design, collection, analysis and dissemination needs to be demonstrably of high quality and integrity. Clear standards need to be developed to safeguard quality. A robust framework for quality assurance is required, particularly for official data. This includes internal systems as well

as periodic audits by professional and independent third parties. Existing tools for improving the quality of statistical data should be used and strengthened, and data should be classified using commonly agreed criteria and quality benchmarks.

Also, if data is to be useful and support good decision-making, they have to be ready at the time when decisions are being made or where the opportunity for influencing the outcomes is there. Trade-offs between timeliness and other quality dimensions depend on the purpose to which data is being put. Today, new data collection and monitoring technologies are rapidly becoming available. Statistical systems are empowered, resourced and independent today, to quickly adapt to the new world of data to collect, process, disseminate and use high-quality, open, disaggregated and geo-coded data, both quantitative and qualitative. High-resolution satellite imagery, mobile devices, biometric data, and crowd-sourced citizen reporting will influence both official data collection processes and the operation of programs -- strengthen policy planning, crisis early warning, program operations, service delivery, impact evaluation etc. These new innovations will dramatically advance the ability to monitor the impact of development programs.

Cost savings that might also result from the use of new technologies or from complementarities between statistical programs. For example, improved civil registration and vital statistics systems may reduce the costs of producing vital statistics from surveys. The development of geospatial and remote sensing capabilities should improve the quality of agricultural statistics produced from surveys and increase the efficiency of census and household survey programs. As these potential savings emerge and the quality of statistics improves, priorities for investment in statistics may change. New methods of data collection and analysis based on new technologies may replace or reduce the cost of traditional methods, but they will require additional investments. In the long run, new technologies for data collection and analysis may yield lower costs, but in the near term they are likely to require new investments.

Collecting data, processing data and turning them into information, using data and making them open for others to use and re-use all have costs. Deciding how much money to spend on data, as opposed to other priorities, is an economic and a political decision. Although research in this area is still limited, there is some evidence that more open data and new methods of data collection and use, can save money and create economic, social and environmental value.

Statistics are public goods. The use of them by one person or agency does not detract from their use by another. While they are often costly to produce, they are readily disseminated and once they are publicly available, it is difficult to exclude other users. But the value of statistics depends upon their quality. Because it is not easy to ascertain the quality of statistics directly, users must have confidence in the producer and in the methods and standards employed in the production of statistics.

Official statistics help decision makers develop informed policies that impact millions of people. Statistics produced and financed by governments have a dual role. They must serve the need of government for efficient administration and management as well as for longer-term policy making. They must also serve the need of the public to monitor the activities of government and the changes in public well-being. To be effective, statistical systems must have legitimacy

backed up by legislation that provides both the safeguards of confidentiality for the providers of raw data and assurances of integrity and accessibility for users. Finally, improved data sources, sound statistical methods, new technologies and strengthened statistical systems enable better decisions that eventually result in better lives for all of us. As the saying goes: Better Data, Better Lives!