FROM ASPIRATIONS TO DECISIONS: BIG DATA FOR SUSTAINABLE DEVELOPMENT

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Distinguished participants,

I feel deeply honoured for having been invited to prepare a keynote speech at the 5th International Forum on Big Data for Sustainable Development Goals (SDGs). This is a very timely event, bringing together many among the most important scholars and researchers to discuss the future of the world.

Our event is timely – in particular because of the depth and urgency of the problems to be discussed. Ten years since the adoption of the SDGs, progress remains alarmingly off track. According to a recent Sustainable Development Report published by the United Nations' Sustainable Development Solutions Network, only 17 per cent of sustainable development goals targets are on track for the end point in 2030. Something is going very wrong.

It is easy to realise that the international situation is not favourable. Rising geopolitical tensions, proliferation of armed conflicts, the widening of global inequalities and escalating climate crisis have created global circumstances that make straightforward implementation of SDGs extremely difficult. Nevertheless, most governments and international institutions - as well as a plethora of research and scientific organisations - strive to find a way forward.

In these circumstances it is necessary to re-think the general, global approach to the problem of economic and social development and to devise sophisticated methods of measuring progress – not only with respect to individual development goals, but also with respect to the national and global development as a whole. This is necessary in order to understand the actual dynamics of development and to identify obstacles – as well as conditions needed for progress.

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In addition, there are some basic conceptual problems to be resolved. Is global development something that readily lends itself to a global strategy and method? Or does it continue to vitally depend on a wide variety of different national policies and on the interests of the powerful private sector? And what should the international community do to move beyond the traditional, power-based economics towards a more coherent, development-driven global approach?

The **aspiration towards a coherent global development** is relatively new - it is, historically speaking, systematically pursued only since the adoption of the Charter of the United Nations, i.e. from the second half of the twentieth Century onwards.

It is important to understand that even in this latest period, the efforts for global development were characterised by different leading ideas. These ideas were expressed at the level of the United Nations as well as in the national policy making and in the conceptual thinking about development. It is important to keep these different ideas in mind as we approach the issues of development today. Let me therefore briefly refer to some of the main leading ideas of the past decades – in the sequence in which they emerged and influenced development discourse and policy-making.

In the 1960s one of the most influential was expressed in the concept of "trickle down". It was suggested that economic development in the developed world of will sooner or later "trickle down" to the developing world. A necessary corollary of this idea was that international trade is central to development and the slogan "trade not aid" got wide support. The countries with centrally planned economies of that period were somewhat exempt from, although not inimical to this thought.

With the growing number of independent states resulting from the process of decolonization the international discourse changed. In the 1970s the newly independent countries put national sovereignty and national economy into the centre. This new approach produced the Charter of Economic Rights and Duties of States (1974) and the Declaration and Program of Action for the New international Economic Order (1975). This change of emphasis from the automaticity of "trickle down" economy to sovereignty - based economies was natural. However, it lacked sufficient economic and political power. The approach of a New International Economic Order did not succeed. Instead, international development became even more market based and globalised and it strengthened the leading role of the developed market economies.

The most visible sign of this change was the convening and successful conclusion of the Uruguay Round of Trade Negotiations conducted in the

framework of the General Agreement on Tariffs and Trade in the years 1986 to 1994. The launching of the Uruguay Round was marked by the ambitious idea of including trade in services, the trade related investment measures and intellectual property into the generalised trading system. The conclusion of Uruguay Round broadly coincided with the ending of Cold War, collapse of state-centred economies in Soviet Union and in Eastern Europe and, importantly, with the process of historic change in the economic and social development in China.

The implications of these historic changes for international development were enormous. Centrally planned economies of East Europe ended in the dustbin of history. The concept of market-based economics prevailed.

For its part, the UN changed its development agenda. The new emphasis was "sustainability". This change was expressed at the Conference on Environment and Development held in Rio de Janeiro in 1992. A number of other UN conferences followed, including the Summit on Social Development in 1995. In the 190s, change was the order of the day and sustainability – both environmental and socio-economic - was put at the centre of discussion.

The question that thus arose for the UN was how to provide a necessary level of coherence to the vision of global development and what kind of initiative should the UN offer.

This was the situation in which Kofi Annan, the UN Secretary General at that time, offered an initiative. As he said many times, he decided to use the "coincidence of the calendar" and propose a coherent set of "Millennium Development Goals" in the year 2000. The beginning of the new century and the new millennium looked appropriate to offer a vision for the future global development.

Let me add a personal perspective at this point. I was at that time involved in the "in-house discussions" in the UN Secretariat (in my then capacity as UN Assistant Secretary-General for Political Affairs) on the approach that the UN Secretary General should propose.

Two requirements appeared central: **First,** the Millennium Development Goals had to be formulated succinctly, as brief definitions of the main goals, something that political leaders will be prepared to read and think about. **Second,** the goals had to be formulated by the UN Secretariat on the basis of the entire experience of the UN at the time and not negotiated by the UN member states. It was felt, correctly, that negotiations would only produce a complicated and watered - down vision, or, even worse - a stalemate. Therefore, the

Secretariat under the leadership of Nittin Desai, the Under-Secretary-General for Economic and Social Affairs drafted the Millennium Development Goals and the Secretary-General's report on the subject. The Secretary – General sent the document to heads of State and Government of the UN member states in April 2000 inviting them to come to the UN General Assembly in September and provide guidance for global development in the new millennium.

Admittedly, there was a degree of voluntarism in this approach. But on the other hand, there was also a need for leadership. The political circumstances of the year 2000 allowed the UN Secretary-General to exercise leadership. The Millennium Development Goals were a useful instrument of mobilisation of public opinion and, to a limited extent, for policy making.

Millennium Development Goals also had the advantage of authorship. The UN Secretary-General could define them in a way that indicated the **priorities** – something essential for all policy making. Therefore, the Goal no. 1 was to "eradicate extreme poverty and hunger". It was recognised that the achievement of all other goals was possible when extreme poverty is eradicated. "Global partnership for development" was the concluding, eighth goal, again a logical conclusion because a process of implementation of the goals required global cooperation and partnership.

The Millennium Development Goals were considered a success: According to UN Development Program, more than 1 billion people were lifted out of extreme poverty between 1990 and 2012. In retrospect, defining development around the key goal of eradication of extreme poverty made a lot of sense.

The question that arose a decade after the adoption of MDGs was how to build a coherent development strategy based on the legacy of achievement and experience of Millennium Development Goals. The mood in the international development community was hopeful and gave rise to the idea "to finish what was started and to tackle some of the more pressing challenges of the time". In other words, the idea was to produce an agenda for development.

This approach deserves further reflection. A development agenda without a clear guiding idea risks to become incoherent and consequently inefficient. On the other hand, one has to admit that a guiding idea, a paradigm of global development in the twenty – first century was not available and that it could not be simply invented. Therefore, global development has to be conceived through a number of distinct, clearly defined and measurable goals. Instead of earlier 8 Millennium Development Goals the UN negotiating process produced 17 sustainable development goals. The main emphasis moved from poverty eradication to sustainability. The terminology of sustainability sounds good and

is supported by many. However, it that lacks clear content. Sustainability must be defined through a number of specific priority tasks. Whether sustainability is achieved or not or to what extent it is achieved depends on the definition of these priority tasks. In addition, the results, i.e. the answers to the question of whether a particular country has been successful in pursuing sustainable development have to be assessed. And such assessments are never purely technical.

The approach of Sustainable Development Goals yielded a fair amount of optimism. As the UN Development Program maintained, “all 17 Sustainable Development Goals were expected to interconnect, meaning success in one would affect success in others”. In the context of this optimistic expectation, “dealing with the threat of climate change impacts how we manage our fragile natural resources; achieving gender equality or better health helps achieving gender equality. Better health helps eradicating poverty, and fostering peace and inclusive societies will reduce inequalities and help economies to prosper”.

However, these optimistic expectations opened the door to several dangers.

First, they provided a broad front of policy objectives but they lack a sense of priority and prioritisation, a fundamental condition of successful policy making. In addition, there is the question of coherence of policy mix that is needed to foster global development. It is true that these problems existed within the earlier Millennium Development Goals but they became much more pronounced in the more ambitious Sustainable Development Goals.

The second problem, the problem of coherence has also become more serious as a result of the larger number of the Sustainable Development Goals Compared with the earlier, Millennium Development Goals.

And then there is a question of trade-offs. Some of them are positive. For example, it is historically proven that investing in education of women and girls requires financial resources that might be used elsewhere, but bringing women fully into the educational systems and into productive processes eventually yields better results for everybody and for development in general.

On the other side, there are negative trade-offs. Heavy industrialization is at a certain stage of development necessary to provide the necessary resources for the eradication of poverty, decent work and economic growth (sustainable development goals 1 and 8) and for development more generally. However, at the same time, it creates a burden on the natural environment and obstacles to the efforts to ensure clean water and effective climate action (goals 6 and 13). Negative trade offs are necessarily a major challenge at the level of national

policy making. International assessments may not be able to judge what kind of trade-offs are truly necessary for effective national policy making. This is the task for national policy makers who will often face international criticism for not following the requirements of a particular sustainable development goal or a set of goals.

In all these situations the question of **quantitative aspects** of implementation of sustainable development goals becomes essential. Only quantitative aspects of development can be measured. What we cannot measure we cannot manage. Digital intelligence becomes an essential tool that policy makers need. Policy makers sometimes have to struggle with problems of availability of data and more often with questions of reliability and completeness of data. Data services and quality of their work become **essential** for policy makers, in the efforts to achieve sustainable development goals.

Let me briefly illustrate this with a brief reflection on the data aspects relating to two of the seventeen Sustainable Development Goals: Goal 6 To "Ensure availability and sustainable management of water and sanitation" and goal 13 on "Climate action".

Water has its own fundamental importance for development – and, indeed, for life in general. At the same time, it represents the most fundamental factor in climate action. It is therefore important to understand water, to value water, to manage water adequately and to predict water phenomena for the future. In all these aspects: understanding of water, valuing of water and management of water **data** are of critical importance.

At the first glance it might seem that humankind is in a good position to solve the tasks relating to water. Hydrology and hydrogeology are among the more developed natural sciences. Water phenomena have been studied for millennia. Water management is of fundamental importance to economy and security and has therefore become one of the most studied aspects of economics. Yet, in all these aspects water policies in most parts of the world leave much to be desired. New areas of research are becoming necessary and are being explored. Big data are becoming more and more important.

I am aware of the important research conducted by CBAS on the dynamics of melting glaciers in the era of global warming, on melting of ice in the polar areas and the resulting water phenomena including water disasters. I understand that your research covers water issues in 105 countries and that the data are openly available. This research is of great value. However, data collected so far have inherent limits. They represent the first and fundamental phase of research that requires analysis and interpretation. In short, improved knowledge and

interpretation of phenomena that are massively important to policy making are needed.

Policy makers will face several problems in this context.

The first task is to ensure that the available data and their long - term implications are understood. Policy makers are traditionally focused on the immediate and have the need to prioritise. Therefore, the immediate crises will have priority over deeper understanding, over long-term vision and over long - term planning. Big data should be presented and interpreted to them so as to offer **the fullest possible picture** of the problems that are likely to arise in the future and of policy options that will have to be considered.

Let us think about the magnitude of the problem.

Policy options in the future development will in large measure relate to the growing global water crisis. Today 2 billion people around the world lack access to safe drinking water and 40 per cent of global population is affected by water scarcity. Climate change is hitting the hardest through water disasters – both floods and droughts. More than 90 per cent of the of natural disasters are water related. And the demand for water is growing. It is estimated that the pressure on freshwater will increase by more than 40 per cent by 2050. Water crisis is becoming more and more prevalent and is adding its share to forced migration and violent conflicts.

The ongoing water crisis is likely to deteriorate further in the years to come. This puts decision makers in an unenviable position to design adequate responses. The needed responses will have to reach beyond a narrow, technical meaning of water management. They will have to address a wide variety of issues such as the issues of urban and rural sustainability, land management, improvement of transboundary water cooperation and prevention of violent conflicts over water resources. All these aspects involve political sensitivity and all of them relate to the **availability and reliability** of data. In short, the better and more complete data the more likely it will be for policy makers to choose and to agree on an adequate policy approach.

Digital intelligence will be needed for all aspects of policy making for sustainable development and focusing on water is an important test for the entirety of sustainable development. Let me indicate two areas of general importance that need to be developed much beyond the current levels.

The first relates to the problem of excessive consumption of water. At present, around seventy percent of water usage is demanded by agriculture, while progress in precise irrigation and drought resilient farming is too slow. Under-

pricing of water and lack of targeted support for the poor make the agricultural use of water vulnerable. Recycling of industrial and urban wastewater remains inadequate in most of the world.

These issues are not new. They are explained and well defined by experts. However, policy making and international cooperation are lagging behind. In order to remedy this situation, it is necessary to expand the existing knowledge and understanding of problems through stronger data basis made openly available to national and international policy makers. This would be a meaningful contribution to improve sustainability of development, provided that the relevant international institutions, such as WMO and UNDP help designing policy approaches based on the improved system of data.

The second area relates to the changes in the global water cycle. Water cycle is the succession of stages through which water passes from the atmosphere to the earth and returns to atmosphere – from evaporation to precipitation, through all the intermediate stages. Thus, the water cycle is an essential component of the climate system, a complex balance of the planet's water in its various forms and proportions. It is liable to natural variation as well as to change caused by humans.

According to the World Meteorological Organization the water cycle is currently dangerously off balance. The rising global temperatures have already altered the global water cycle and caused severe water disasters – both droughts and floods. This diagnosis is generally accepted. What is less developed are the details and, above all, international cooperation. Again, the availability and reliability of data is essential. Moreover, data have to be shared on the basis of an improved and internationally organised monitoring and more effective cross border collaboration. All this will contribute to mitigating the effects of global warming. The World Meteorological Organization and other relevant international institutions need assistance – both in expertise and in financial resources - to coordinate the implementation of these tasks.

Distinguished participants,

In my remarks I referred only to a few aspects of the demanding concept of sustainable development – some conceptual, others more technical. Before concluding I wish to raise one more fundamental question and try to relate it to the potential of big data services. I believe that it is necessary to reflect critically on the very notion of sustainability of development. The use of the words "sustainable" development and "sustainability" carries with it an optimistic

meaning. However, words like “sustainable” and “sustainability” must be given adequate and sufficiently specific content. Can development be made sustainable without questioning one of its most fundamental ingredients – growth? Is growth, or more specifically, constant increase of gross domestic product essential for development and a necessary element of sustainability? Could growth be redefined in a way that would separate it from the idea of constant increase of the gross domestic product?

These questions are both **conceptual and practical**. And they are not new. On the **practical side** China is familiar with occasional criticism about its alleged “overcapacity”. The existing mechanisms of market and planning make it possible to adjust the production capacities to the market needs – and to the absorption capacity of society more broadly. But the balance between market and planning must be constantly improved.

On the **conceptual side** the problem is deeper. Is it possible to visualise the most efficient modern production technologies to produce more things that people need and fewer of those they don’t need? That would mean restructuring industrial systems to keep the labour- saving aspects but discard the ecologically destructive aspects and distributing the products more fairly. Are such ideas feasible in the near future? And how can artificial intelligence help?

Questions like these reach beyond the immediate framework of sustainable development as defined in the UN’s sustainable development goals. But ultimately, they will have to get an answer. In the past we have learned that limiting growth by political decisions is neither possible nor promising. There has to be another approach – or a set of approaches. And they will be effective only if the quantitative aspects of development and interrelationship between its different ingredients are properly understood. I hope that the current and future meetings of FBAS will make a strong contribution to finding workable solutions.

I thank you for your attention.