

## KEY POINTS

- The Sustainable Development Goals (SDGs) and the Paris Agreement on climate change shifted development priorities from a higher rate or quantity to quality of economic growth that is inclusive and green.
- This note presents a new measure of the quality of growth through the Inclusive Green Growth Index (IGGI), which has three pillars: economic growth, social equity, and environmental sustainability.
- The People's Republic of China (PRC) displays a high quantity–low quality pattern of growth. Environmental sustainability is its main area for improvement. This note highlights the gaps where the PRC could promote quality growth.

## Measuring, Monitoring, and Operationalizing Quality of Growth—Implications for the People's Republic of China

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## BACKGROUND

The People's Republic of China (PRC) has experienced strong and robust economic performance over the past few decades (Asian Development Bank [ADB] 2016). Between 1980 and 2016, its annual growth averaged 9.7% for gross domestic product (GDP) and 8.6% for per capita income. However, this rapid growth has not always translated into expansion in social welfare, and has created challenges in the environmental dimension as well. Inequality remains a significant challenge as some social groups, and people in rural areas and lagging provinces, have not benefitted as much from the growth process. Moreover, being the world's largest energy consumer with a coal-dominant energy mix, and as the world's largest greenhouse gas emitter, the PRC is estimated to suffer pollution damage of around 6%–9% of GDP. In addition, climate change poses a serious threat to the ecological environment.

To address socioeconomic disparities, the government set the goal of the Eleventh Five-Year Plan, 2006–2010 as building a harmonious and moderately prosperous (*xiao kang*) society (ADB 2008). The Twelfth Five-Year Plan, 2011–2015 supported this long-term strategy through livelihood improvements and regionally balanced and environmentally sustainable growth (ADB 2012). The emphasis on the new normal continues through the Thirteenth Five-Year Plan, 2016–2020, which also aims to realize an “ecological civilization” to (i) promote sustainable development and curtail resource depletion and environmental damage; (ii) promote energy conservation, emissions reduction, and low-carbon development to address climate change; and (iii) establish a national carbon emission trading system. The government has also intensified efforts to reduce local air pollution and smog under its “blue skies” initiative (Phillips 2017).

Central to this agenda of bringing together the aspects of material wealth, harmonious society, and environmental civilization is the issue of how to define and measure inclusive green growth, and how to identify the parameters that best capture the quality of growth. Efforts to improve the quality, rather than quantity, of growth are continuing.

## HOW SHOULD WE DEFINE QUALITY OF GROWTH OR A NATION’S WELL-BEING?

The increasing recognition that development goes beyond economic growth was highlighted by an overwhelming global response in 2015 to the Sustainable Development Goals and the Paris Agreement on climate change. Consequently, rather than relying on GDP alone to measure development, other indicators are needed to capture the interactions of the economic, with the social and environmental pillars of development to monitor the “quality of growth.”

### Existing Approaches

Over the past decade, various attempts have been made to produce a measure of the “quality of growth” or a nation’s “well-being” to capture the multidimensional concept, which is represented by many separate indicators. Variants of such measures have taken three different approaches, namely (i) dashboards, (ii) frameworks, and (iii) composite indices.<sup>1</sup> Since the United Nations Development Programme’s (UNDP) seminal work on its Human Development Index in 1990, composite indices have been widely used. This multidimensionality approach is suitable “to shift the focus of development economics from national income accounting to people-centered policies”; including intergenerational aspects of development by giving weight on dimensions other than GDP growth. It is an approach that is focused on “capabilities” of people in terms of their opportunities and choices, such as having the freedom to do something that is valued, regardless of whether it is done or not.

### Challenges in Constructing Composite Indices

A composite index for quality of growth typically reflects the inclusiveness and environmental sustainability of development progress, together with economic growth. Composite indices are increasingly being recognized as a useful tool in country performance assessment, policy analysis, and public communication. These indices provide simple yet comprehensive comparisons or benchmarking of country performance that can be used to illustrate complex issues in wide-ranging fields (e.g., environment, economy, society, or technological development). Policymakers often find it easier and convenient to interpret composite indices than to identify common trends across a battery of many separate indicators. In addition, composite indices can facilitate communication with the general public, promote accountability, and enable users to compare complex dimensions effectively.

It is challenging, however, to develop and interpret a composite index. Its construction involves subjective judgments about the selection of its subindicators, treatment of missing values, choice of aggregation model, and corresponding weights of the subindicators. However, the value-added of a composite index lies in its measurability in capturing reality. Table 1 summarizes the pros and cons of composite indices.

Various composite indices exist that attempt to measure quality of growth beyond GDP growth. However, the available measures either overlook some or have less comprehensive indicators in each pillar. For example, the environmental pillar is ignored in both the Framework for Inclusive Growth Index (of ADB) and the Quality of Growth Index (of the International Monetary Fund) as these measures were developed

**Table 1: Pros and Cons of Composite Indices**

Pros	Cons
<ul style="list-style-type: none"> <li>• Can summarize complex, multidimensional realities to support decision makers</li> <li>• Easier to interpret than many separate indicators</li> <li>• Can assess progress of countries over time</li> <li>• Can reduce the size of a set of indicators without reducing the information base</li> <li>• Can make it possible to include more information within size limits</li> <li>• Can place issues of country performance and progress at the center of the policy arena</li> <li>• Can facilitate communication with the public (citizens, media, and local community), and promote accountability</li> <li>• Can help to construct and underpin narratives for practitioners and nonpractitioners</li> <li>• Can enable users to compare complex dimensions</li> <li>• Can provide a signal on which indicators underlying a composite index need to be closely examined by governments</li> </ul>	<ul style="list-style-type: none"> <li>• May send misleading policy messages if poorly constructed or misinterpreted</li> <li>• May invite simplistic policy conclusions</li> <li>• May be misused; e.g., to support a desired policy if the construction process is not transparent or lacks sound statistical or conceptual principles</li> <li>• Selection of indicators and weights could be a source of potential debate</li> <li>• May disguise serious failings in some dimensions, and increase the difficulty of identifying remedial action if the process is not transparent</li> <li>• May lead to inappropriate policies if dimensions of performance that are difficult to measure are ignored</li> <li>• Because aggregation methods are fixed, there is little room for priorities to change, and the interpretation of the indices becomes less clear</li> </ul>

Source: Jha, Sandhu, and Wachirapunyaonont. 2018.

<sup>1</sup> A composite index is a measure that aggregates specific individual indicators into a single number based on an underlying model, with corresponding individual weights that represent the relative importance of each indicator. Such indices are commonly designed to assess and measure complex, multidimensional concepts that cannot be captured by a single indicator alone.

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only with a socioeconomic focus. In contrast, the indicators of the Green Growth Index developed separately by the United Nations, the Economic and Social Commission for Asia and the Pacific, and the Organisation for Economic Co-operation and Development focus on environmental sustainability and its relationship with economic growth, or green growth. While the Inclusive Development Index (of the World Economic Forum) seems to be the first index to cover three pillars of growth, the environmental pillar includes mainly the carbon intensity of GDP, and leaves out other important dimensions such as energy intensity and water use. The next subsection proposes a new measure that covers all the three dimensions more comprehensively and thus better reflects the quality of growth than the existing ones.

### Inclusive Green Growth Index—A New Benchmark for Quality of Growth

ADB has developed its own benchmark of quality of growth, called the Inclusive Green Growth Index (IGGI). It is a composite index designed to present an integrated picture of the state of a country’s development. IGGI has three broad pillars: economic growth, social equity, and environmental sustainability. Each of these pillars is made up

of many indicators (Figure 1). The IGGI aims to be an easy-to-use tool for evidence-based policy making. The cross-pillar balance across the three pillars is also calculated. Balanced-IGGI is the adjusted index that balances lagging and leading pillars.

### WHAT SHOULD THE PEOPLE’S REPUBLIC OF CHINA DO TO MONITOR AND PROMOTE QUALITY GROWTH?

#### Identifying Gaps

Figure 2 plots per capita GDP against IGGI for Asian economies. Although better economic performance is an important dimension of inclusive green growth, once GDP per capita crosses a threshold, an additional dollar of GDP does not yield much gains in IGGI, which tends to stagnate. As Figure 2 shows, the PRC has already moved beyond this threshold with its shift toward a harmonious society and blue skies policy.

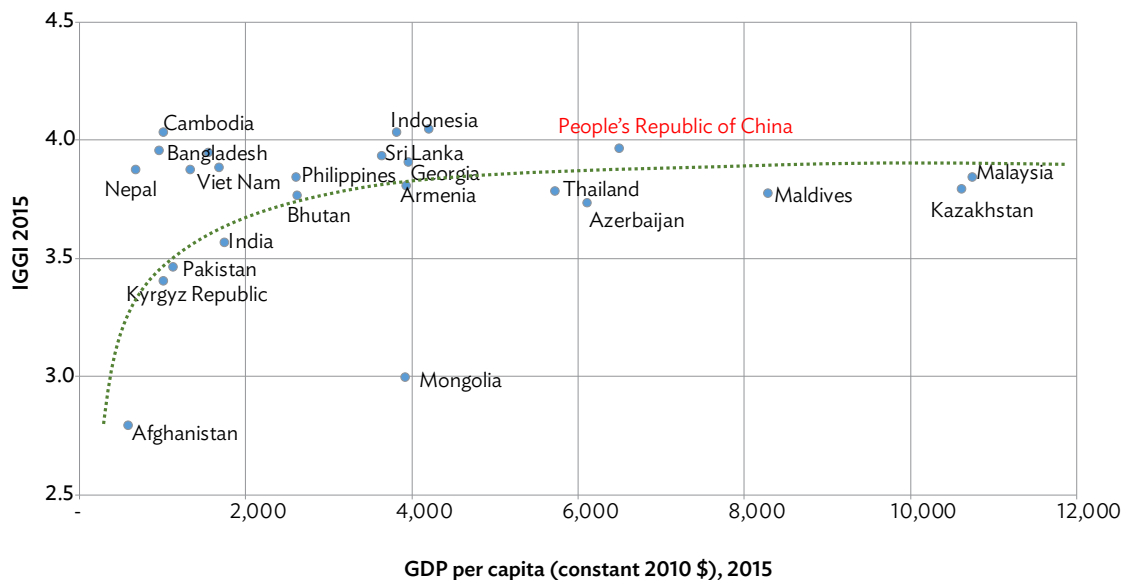
**Figure 1: Inclusive Green Growth Index—Pillars and Indicators**

Economic Growth	Social Equity	Environmental Sustainability
GDP per capita growth rate	Employment–population ratio	Natural resource rent
Inverse CV of GDP per capita growth	Life expectancy gender gap	Renewable fresh water
Trade openness	Primary enrolment gender gap	Water productivity
HH market concentration index	Labor force participation gender gap	Air pollution
Age dependency ratio	Life expectancy at birth	Carbon dioxide per GDP
Adjusted net savings	Infant mortality rate	Energy intensity of primary energy
Gross general government debt	Access to improved sanitation	Use of renewable energy
	Access to improved water	
	Access to electricity	
	Gini coefficient on inequality	
	Poverty gap	
	Mean years of schooling	
	Primary completion rate	
	Political participation gap	

CV = coefficient of variation, GDP = gross domestic product, HH = Hirschman-Herfindahl.

Source: Jha, Sandhu, and Wachirapunyaonont. 2018.

**Figure 2: Relation between Gross Domestic Product per Capita and Inclusive Green Growth Index, 2015**



GDP = gross domestic product, IGGI = Inclusive Green Growth Index.

Source: Author's estimates.

The precursor to this shift in the PRC's strategy can be seen by observing the movement of the country's IGGI over the past decade. In 2005, with an IGGI score of 4.27, the PRC ranked second among 24 developing member countries (Table 2). The score for the PRC is based on its performance in the economic (5.20), social (4.59), and environmental (3.03) pillars. Its low score in the environmental pillar led to a high gap across the pillars (total absolute gap of 4.33). The large differential translated into a lower Balanced-IGGI score of 3.60.

The same trend can be observed over the next 10 years, as seen from the data for 2010 and 2015—again mainly due to the PRC's falling score in the environmental pillar (Table 2). A breakdown of the environmental pillar reveals that carbon dioxide emissions, energy intensity, and renewable fresh water resources drove the PRC to the lower ranking over time. Renewable energy and air pollution indicators also rank low.

The areas to monitor are not limited to the environmental pillar, however. On the economic growth and sustainability pillar, the age dependency ratio has been steadily increasing while household savings rate has seen falling partly driven by the PRC's rapid population aging. This trend is projected to continue over the next decades. Lastly, and most importantly, on the social pillar, the elevated Gini coefficient and poverty gap is worrisome, which highlights the need to measure and monitor beyond what GDP growth can tell.

### Promoting Quality Growth

The PRC's emphasis on a harmonious society and better environment should help in attaining higher scores on Balanced-IGGI. This would require identifying the gaps across the three pillars and prioritizing resources and policies for the lagging factors. These scores support the underlying basis for the country's shifting development focus, and the need for policy actions that are aligned with what a higher quality of growth would require, as the index suggests.

In fact, on the environmental front, we are beginning to see changes as the PRC promotes manufacturing and service industries related to higher-quality consumption, as well as energy-efficient buildings, smart transportation, new energy, and many other green and low-carbon industries in new cities. The efforts need to continue as the transition has just started.

The IGGI can be used as a core tool by the government to inform its policy and decision making. Closely monitoring its performance in the index can help steer the PRC to attain its goals in alignment with the global development agenda.

**Table 2: Inclusive Green Growth Index—Performance over Time of the People’s Republic of China**

Score	Economic Growth	Social Equity	Environmental Sustainability	IGGI	Rank <sup>a</sup>	Total Gap across Pillars <sup>b</sup>	IGGI Adjusted for Cross-Pillar Balance	Adjusted Rank
2005	5.20	4.59	3.03	4.27	2	4.33	3.61	22
2010	4.98	4.64	2.69	4.10	3	4.59	3.43	21
2015	4.80	4.57	2.51	3.96	5	4.59	3.42	21

IGGI = Inclusive Green Growth Index.

<sup>a</sup> The data for 2010 covers 26 Asian economies. Afghanistan and Myanmar were not part of the sample in 2005 (with a total of 24 countries), and Tajikistan in 2015 (sample of 25 countries).

<sup>b</sup> The higher the total gap across pillars, the lower is the adjusted score.

Source: Jha, Sandhu, and Wachirapunyanont. 2018.

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