

## I. INTRODUCTION

1. This selected issues paper provides further background information on four issues emerging from the Article IV consultation, namely: an assessment of the attainability of the authorities' target for real GDP growth under a scenario which includes significantly higher external aid flows for achieving the Millennium Development Goals (MDGs), an assessment of the potential impact of higher external aid flows within the context of pursuing the MDGs on Ethiopia's tradable goods sector, an overview of the experience with the decentralization of fiscal powers to regions and districts (*woredas*), and an overview of the development of the financial sector.

2. Real GDP growth averaged 4.0 percent during 1991/92-2003/04, which was significantly higher than that experienced under the military dictatorship (the Derg regime). Most of this growth originated from the accumulation of factors of production (capital and labor), with total factor productivity contributing only 0.7 percentage points. Potential GDP growth during this period is estimated to be about 4½ percent. Raising the level of growth to 7 percent annually, as targeted under the authorities' medium-term scenario for achieving the MDGs, would therefore represent a substantial improvement over the experience of the past 13 years. Achieving the targeted growth rate in the context of a significant scaling-up of external aid flows would be possible, provided that the increase in resource availability is accompanied by a marked acceleration in the implementation of reforms aimed at supporting agricultural production, private sector development, and exports.

3. According to the "Dutch disease" hypothesis, foreign aid represents a real transfer of tradable goods, which could increase the demand for, and the relative prices of, nontradable goods (a real exchange rate appreciation), causing a relative reduction in the size of the tradable goods sector. There is, however, no evidence that aid flows in the post-1991 period (i.e. following the overthrow of the Derg regime) caused a real appreciation, nor adversely impacted noncoffee exports. However, given that the resource flows required to achieve the MDGs would be significantly higher than in the past, upward pressure on wage and price levels would be expected to cause a real exchange rate appreciation, and it would thus be prudent to implement policies to counter such pressure. There are two main routes through which the demand-driven pressures on the exchange rate can be moderated: channeling part of the increased domestic demand abroad via further opening-up of the economy to foreign trade; and meeting part of the increased demand by increasing the supply of domestically produced goods and services by boosting productivity and cost efficiency.

4. The possibility of significantly higher aid flows to support achievement of the Millennium Development Goals (MDGs), underscores the need to develop the capacity of fiscal institutions in order to improve poverty-reduction outcomes. Advancing structural reforms in the areas of fiscal decentralization, public expenditure management (PEM) and revenue administration will represent key aspects of the broader reform agenda. In addition, pursuing these reforms will support decentralized democratic governance, strengthen budgeting capacity, and build institutions that foster private sector development.

## II. ASSESSING THE IMPLICATIONS FOR GROWTH OF ACHIEVING THE MDGs<sup>1</sup>

### A. Introduction

5. **Recent assessments indicate that based on current trends, most MDGs will not be met by most countries, and that while the income poverty goal is likely to be achieved on a global level, African countries will fall well short of this goal.**<sup>2</sup> Preliminary and partial analysis by the World Bank shows that on current trends, Ethiopia will only achieve the MDG goal for the primary school enrollment ratio.

6. **Ethiopia's PRSP (the Sustainable Development and Poverty Reduction Program – SDPRP) presents sectoral targets and spending programs, that are considered to be consistent with achieving the income poverty MDG, while also making progress towards achieving the other MDGs.**<sup>3</sup> These programs, however, reveal a significant gap between available resources and those required for achieving these objectives. For instance, the estimated costs of fully implementing the SDPRP during 2002/03-2004/05 (including the cost of the Food Security Program), are 138 percent of 2002/03 GDP, while the government's proposed medium-term expenditure framework allocates 65 percent of 2002/03 GDP to poverty-related expenditure.

7. **According to projections by the Ethiopian authorities, real GDP growth should average 5.7 percent per year to 2015 in order to achieve the income poverty goal of halving the number of people living in poverty.** However, based on an assumption of significantly higher external aid flows and implementation of the reforms identified in the SDPRP, the authorities are targeting average annual real GDP growth of about 7 percent. Under this scenario, the authorities assume that external financing and grants would gradually rise from about 11 percent of GDP in 2003/04 to 22 percent by 2015/16. Such higher resource flows would allow per capita poverty spending (in U.S. dollars) to rise from about \$20 in 2003/04 to about \$78 by 2015/16, while the ratio of public expenditure to GDP would rise from 31 percent in 2003/04 to 42 percent by 2015/16.

8. **The purpose of this analysis is to assess the implications for real GDP growth of a significant increase in the flow of external financing and grants.** Section B of this paper presents an analysis of the sources of growth during 1991/92-2003/04, as well as an assessment of potential GDP growth, while Section C assesses the implications for achieving average annual real GDP growth of 7 percent.

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<sup>1</sup> Prepared by Lodewyk J. F. Erasmus (AFR).

<sup>2</sup> See Draft Global Monitoring Report 2004 – Policies and Actions for Achieving the MDGs and Related Outcomes.

<sup>3</sup> See Ethiopia – Sustainable Development and Poverty Reduction Program.

## B. Sources of Growth

9. **Reforms aimed at transforming the Ethiopian economy from a centrally planned economy under the Derg regime (1974-1991) to a market-oriented economy were launched by the current government in 1991.** Real GDP growth (at factor cost) during 1991/92-2003/04 averaged 4.0 percent per year, while real GDP per capita growth averaged 1.1 percent per year.

10. **While this represents a significant improvement on real GDP growth of 2.8 percent per year, compared with the period of the Derg regime, growth remained volatile.** For example, the standard deviation of real GDP growth in Ethiopia during 1981–2002 was 6.5 relative to a mean growth rate of 2.8 percent, which was significantly higher than in neighboring countries such as Kenya (2.2), Tanzania (2.4), Uganda (3.6), and Zambia (4.6). Econometric analysis suggests that the volatility of real GDP growth in Ethiopia is largely due to the continued dependence of agricultural production (which accounted for about half of real GDP during 1981-2002) on rainfall.

11. **A simple regression framework is used to explore the relationship between the level of real GDP, average annual rainfall, and the terms of trade for the period 1974–2002.** The results suggest that rainfall and a trend explain about 94 percent of the variance in the level of real GDP. Fluctuations in average annual rainfall in particular appear to have a substantial impact on real GDP, with a change of 1 percent in average annual rainfall leading to a change in real GDP of 0.3 percent in the next year. While the terms of trade had the correct sign, it was not statistically significant.

Table II.1. Ethiopia: Estimating the Impact of Exogenous Variables on Real GDP

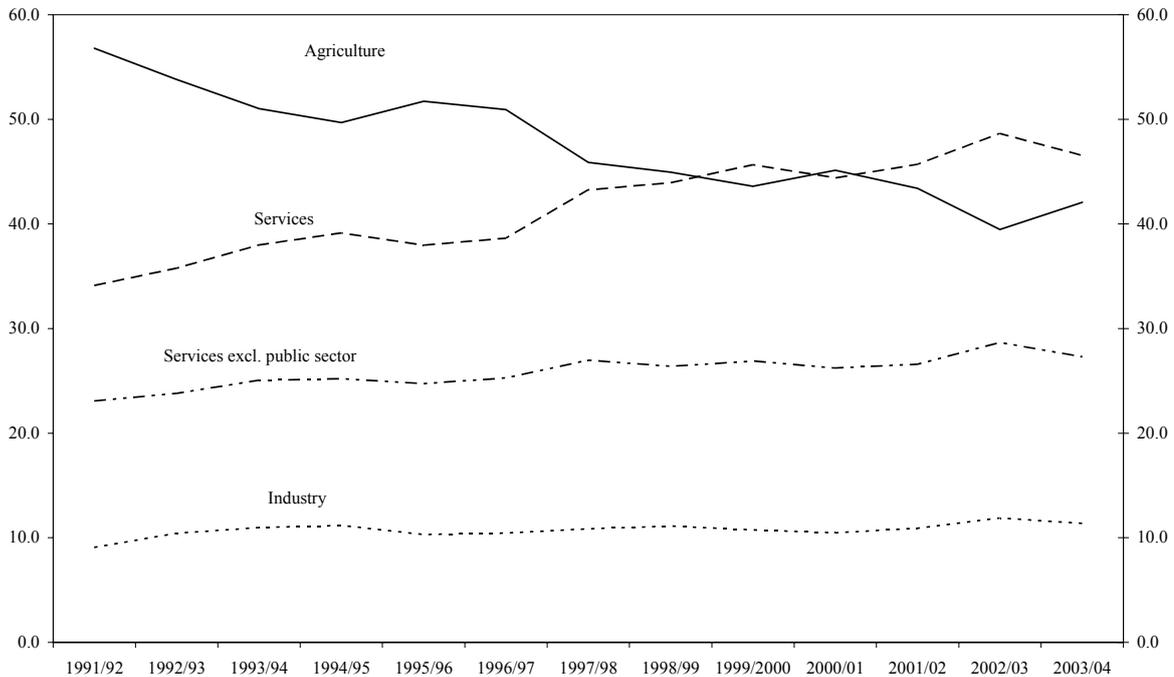
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.713605	0.605934	11.07976	0
TOT(-1)	0.02484	0.039268	0.632572	0.5333
RAIN(-1)	0.317317	0.086526	3.667315	0.0013
T	0.022484	0.002357	9.538986	0
ADT	-0.001742	0.002197	-0.792908	0.4359
R-squared	0.942486	Mean dependent var		9.3372
Adjusted R-squared	0.932484	S.D. dependent var		0.181176
S.E. of regression	0.047077	Akaike info criterion		-3.1137
Sum squared residual	0.050973	Schwarz criterion		-2.8758
Log likelihood	48.59109	F-statistic		94.22635
Durbin-Watson statistic	1.615758	Prob(F-statistic)		0

Source: Staff calculations.

12. **With the achievement of higher growth during 1991/92-2003/04, the structure of the Ethiopian economy changed noticeably (Figure II.1).** The contribution of agriculture

to real GDP declined from 57 percent in 1991/92 to 42 percent in 2003/04, and that of services rose from 34 percent to 47 percent. However, the contributions to real GDP by industry and private services (i.e. excluding the public sector) remained essentially unchanged.

Figure II.1. Ethiopia: Sectoral Contribution to Real GDP  
(In percent of GDP)



13. **Furthermore, growth in agricultural production and the services sectors continued to be important for real GDP growth**, while growth in the valued-added of industry did not make an important contribution to overall output growth (Table II.2).

14. **On the demand side of the economy**, growth in consumption expenditure, and particularly private consumption, was the most important source of real GDP growth, while the external sector contributed only marginally to real growth (Table II.2).

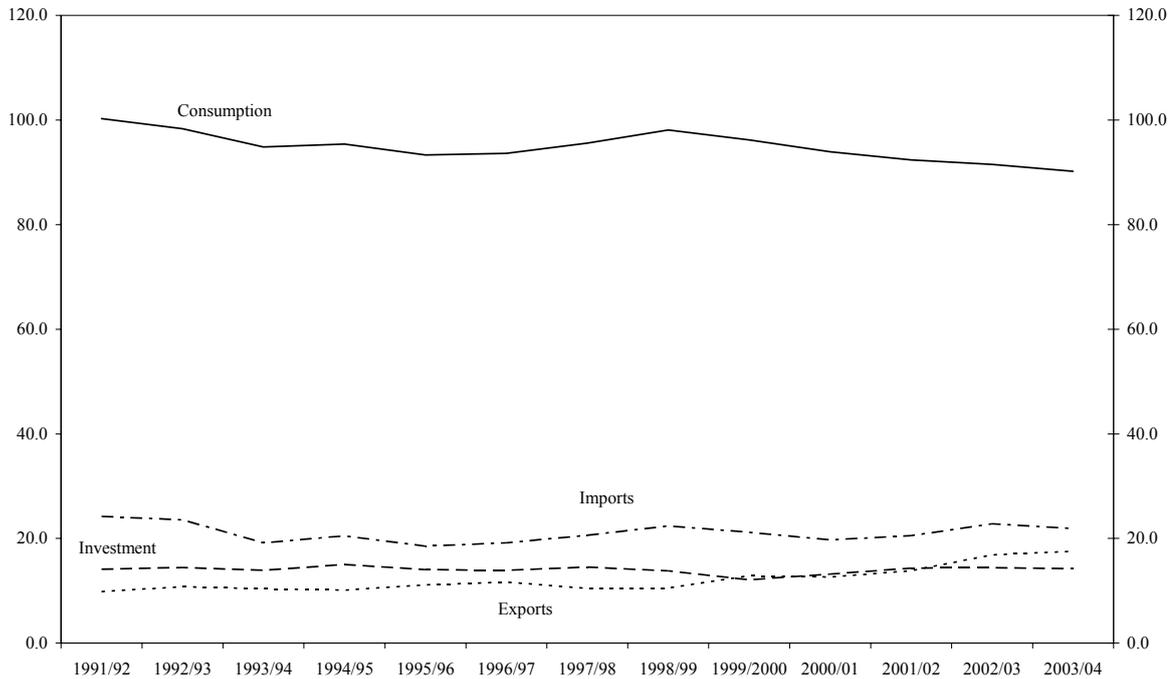
15. Reflecting the above, consumption expenditure continued to account for a significant proportion of real GDP (Figure II.2).

Table II.2. Ethiopia: Contribution to real GDP Growth

	1991/92-2003/04
Agriculture	1.0
Industry	0.5
Services	2.5
Services excluding public sector	1.3
Real GDP at factor cost	4.0
Consumption	5.2
Private	4.4
Public	0.9
Investment	0.9
Private	0.4
Public	0.5
Resource gap	0.2
Exports	1.3
Imports	-1.1
Real GDP at market prices	6.3

Source: Staff calculations.

**Figure II.2. Ethiopia: Contribution to GDP  
(In percent of GDP)**



16. **A growth accounting framework was also applied in order to decompose the growth rate of real GDP into contributions from the accumulation of factor inputs (capital and labor), and improvements in total factor productivity (TFP).** The shares of capital and labor are generally derived, either from national accounts, or through econometric estimation. Given data limitations, the shares of capital and labor in real GDP are assumed to be 0.35 and 0.65 respectively,

which is consistent with the estimates reported for many developing countries. Of the average annual growth rate of 4.0 percent in real GDP during 1991/92-2003/04, growth in physical capital contributed 1.4 percentage points, labor growth contributed 2.0 percentage points, and the remaining 0.7 percentage points was contributed by TFP (Table II.3).

Table II.3. Ethiopia: Sources of Growth and Potential Real GDP Growth (In percent)

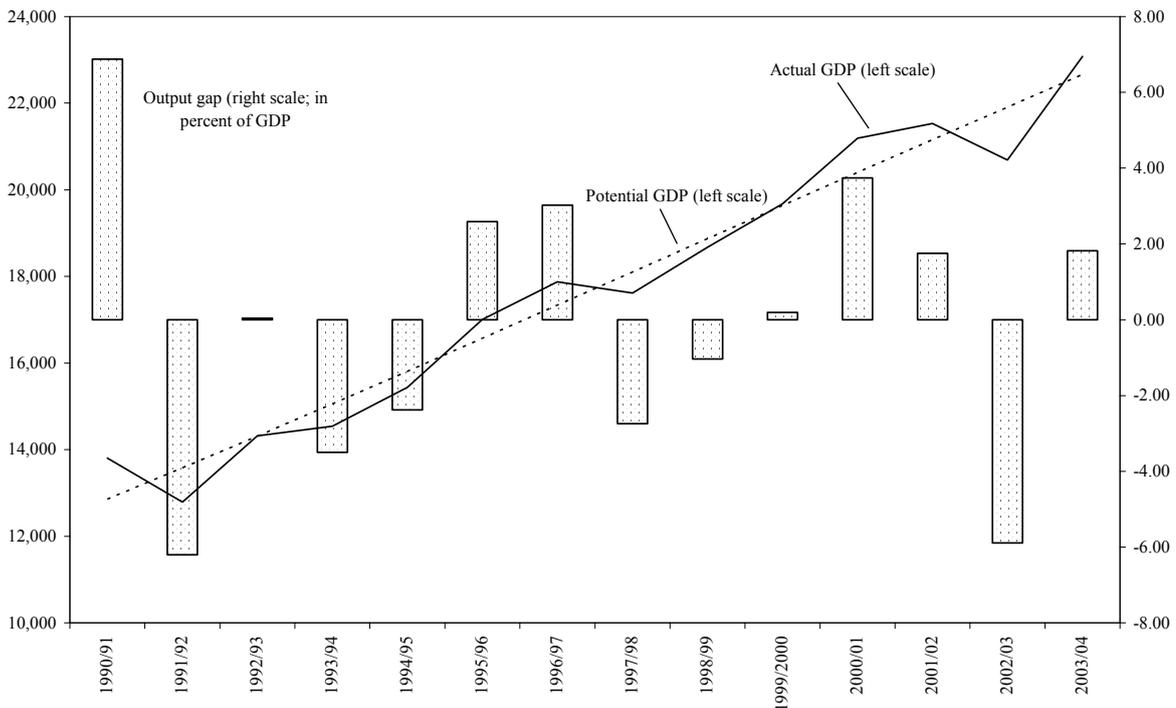
	1991/92-2003/04
<b>Growth accounting</b>	
Real GDP at factor cost	4.0
Capital stock	1.4
Labor	2.0
Total factor productivity	0.7
<b>Potential GDP growth</b>	
HP filter	4.5
Production function	4.4
Capital-output ratio	4.4

Sources: Ethiopian authorities; and staff estimates and projections.

17. **Potential GDP growth during 1991/92-2003/04 is assessed through the application of three methodologies, namely an HP filter, the production function**

**approach, and the capital-output ratio approach.** In the context of the real GDP series, the HP filter derives a trend output rate such that it minimizes a weighted average of the gap between actual output and trend output (Figure II.3). While the principal advantage of this technique is its simplicity, the major shortcoming is that it does not have an economic basis in the sense that the estimated productive limits of the economy are not based on the available factors of production.

**Figure II.3. Ethiopia: Actual and Potential Output**  
(In millions of birr)



18. The production function models output as a function of capital, labor and total factor productivity – the functional form is a Cobb-Douglas production function.

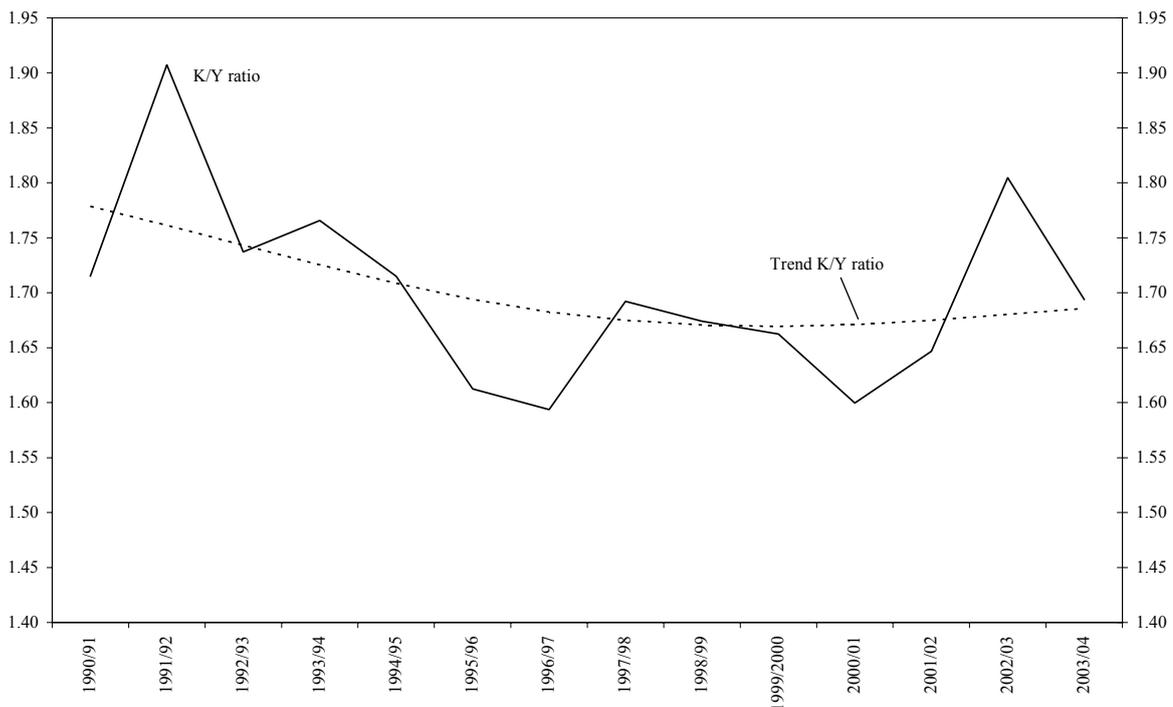
- $GDP = AK^\alpha L^{(1-\alpha)}$ , and thus
- $\Delta Y / Y = \Delta A / A + \alpha \Delta K / K + (1-\alpha) \Delta L / L$

19. Empirically, the practice is to estimate potential output as the level of output associated with a normal rate of capacity utilization, labor input at the level of the natural rate of unemployment, and total factor productivity (TFP) at its trend level. In practice, this involves the following steps: (i) TFP growth is derived as the difference between the observed real GDP growth and the weighted sum of capital and labor growth; (ii) trend growth rates are computed for labor and TFP; and (iii) potential GDP growth is

estimated as the sum of potential TFP growth and the weighted sum of the growth in capital and potential labor.

20. **The underlying assumption of the capital-output ratio approach is that developing countries are characterized by excess labor (although there may be shortages in categories of skilled labor), and a lack of infrastructure and capital.** The normal capacity of the economy is thus determined by dividing the capital stock by trend productivity, as measured by the trend capital-output ratio. The trend capital-output ratio reflects technology, the composition of capital, and the quality of capital and labor. Generally, it takes a long time to significantly change the composition and quality of capital and labor, and the trend capital-output ratio therefore does not change much in the short run (Figure II.4).

Figure II.4. Ethiopia: Capital-Output Ratio



21. **According to the above analysis, potential GDP growth during 1991/92-2003/04 thus amounted to about 4.4 percent per year (Table II.3).**

### C. Assessing the Authorities' MDG Growth Scenario

22. **The Ethiopian authorities consider that a doubling of external aid flows and determined implementation of the reforms detailed in the SDPRP would significantly enhance Ethiopia's ability to achieve the MDGs.** Specifically regarding the income

poverty MDG, the authorities consider that raising the level of external aid and implementation of the identified reforms would allow average annual real GDP growth to rise to a level of 7 percent. Such a growth performance would be consistent with the high case scenario presented in the authorities' first annual progress report (APR) of the SDPRP, but would constitute a substantial improvement over the growth performance during 1991/92-2003/04 (Table II.4). The authorities' medium-term projection is premised in particular on a significant increase in agricultural output growth to an annual average of 7.5 percent from 2.2 percent during 1991/92-2003/04.

Table II.4. Ethiopia: Assessing Medium-term Real GDP Growth

	Actual 1991/92-2003/04	Authorities' Projection	
		ICOR 2004/05-2020/21	Real value added 2004/05-2020/21
<b>Production approach</b>			
Real GDP at factor cost	4.0	6.7	7.0
Agriculture	2.2		7.5
Nonagriculture	5.8		6.6
Real per capita GDP	1.1		4.2
<b>Nominal investment/Nominal GDP at market prices</b>			
Total	16.8		31.4
Private	9.1		15.6
Public	7.7		15.8
<b>Growth accounting</b>			
Real GDP at factor cost	4.0		7.0
Capital stock	1.4		3.0
Labor	2.0		2.3
TFP	0.7		1.7

Sources: Ethiopian authorities; and staff estimates and calculations.

23. **To assess the impact of such a scenario on real GDP growth, the staff was guided by the pattern of expenditure detailed in the “Extended PRSP” scenario in the Public Expenditure Review of the World Bank to develop a long-term profile for public recurrent and capital spending.** This projects an increase in the ratio of public investment to GDP to an average of 15.8 percent during 2004/05-2020/21 compared with 7.7 percent during 1991/92-2003/04. Furthermore, private sector investment is expected to be positively affected by the implementation of the authorities' reform program; as a working assumption, it is assumed that the ratio of private to public investment would be the same as that projected under the baseline scenario.

24. Utilizing two approaches, namely the Incremental Capital-Output Ratio (ICOR) approach, and a growth accounting approach, **the staff's calculations show that achieving the authorities' target for raising the level of average annual real GDP growth to 7 percent would require, in addition to the projected increase in public sector**

investment, also a substantial increase in private sector investment, as well as in total factor productivity.<sup>4</sup>

25. **The ICOR approach is based on the assumption that economic growth depends on investment as a share of GDP, adjusted by a factor which represents the quality of investment.** Thus:

- $g = (I/Y) / \mu$ ,
- where  $g$  is real GDP growth,  $I$  is total investment,  $Y$  is real output, and  $\mu$  is the quality of investment, or the incremental capital-output ratio. The ICOR represents the units of additional capital that are required to yield a unit of additional output.

26. **Assuming the same ICOR as that implied in the baseline scenario, and applying the projected level of total investment, as described above, yields an average annual growth rate in real GDP at factor cost of 6.7 percent during 2004/05-2020/21.** In terms of the growth accounting framework, and accounting for the projected increases in capital and labor, the contribution to real GDP growth from TFP would have to equal 1.7 percentage points in order to achieve average annual growth of 7 percent. The projected capital stock is calculated using the projection for gross investment, while for labor, it is assumed that the labor force continues to grow at the trend growth rate, and that education (as measured by average years of schooling) would increase at an average rate of 5.1 percent per year between 2000 and 2021, a rate that is comparable to historical growth rates.

27. **The above conclusion regarding the attainability of the authorities' target for real GDP growth depends critically on significant progress with the implementation of the authorities' reform program.** This assessment is consistent with empirical research which shows that the effect of aid on growth depends on the quality of institutions and policy.<sup>5</sup> Thus, raising average annual real GDP growth to 7 percent over the medium term from 4.0 percent during 1991/92-2003/04 would require, in addition to raising the level of external aid, significant progress with the implementation of key structural reforms in agriculture, private sector development, financial sector development, and external trade.<sup>6</sup>

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<sup>4</sup> See The Federal Democratic Republic of Ethiopia – Staff Report for the 2004 Article IV Consultation and Sixth Review Under the Three-Year Arrangement Under the Poverty Reduction and Growth Facility.

<sup>5</sup> See Burnside and Dollar.

<sup>6</sup> For details of required reforms, see reference noted in 4 above.