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Malawi

Annex: Scenario interventions, benchmarking and justifications

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Agriculture and Rural Development scenario

The following tables outline the components of each strategic intervention scenario, including the magnitude of change implemented in IFs and the benchmark (the historical or global context that suggests the reasonableness of its magnitude). The interventions within each scenario commence in 2023 and present a subsequent eight-year push to 2030, with the improvements maintained to 2063 (unless indicated otherwise).

Interventions and parameters	Intervention in IFs	Benchmark/justification/notes
Increase crop yields (ylm)	Interpolate from 1 to 1.6 by 2030 and interpolate to 1.5 by 2035 and hold	Between 2005 and 2012, Malawi increased average crop yields by 78%.

		In this scenario, average crop yields in Malawi increase by 77% over the period 2023 to 2030.
Reduce loss rate of agriculture production (aglossprodm)	Interpolate from 1 to 0.7 by 2030 and hold	To reduce agricultural production loss at the point of production. This intervention puts Malawi on a par with the projected average for low-income countries globally by 2030.
Reduce agriculture loss from producer to consumer (aglosstransm)	Interpolate from 1 to 0.7 by 2030 and hold	This intervention reduces agricultural loss from producer to consumer.
Increase land area equipped for irrigation (Landirareaequipm)	Interpolate from 1 to 1.2 by 2030, and interpolate to 1.1 by 2063	To mitigate the harmful effects of droughts and insufficient rainfall on agricultural production. Between 1991 and 1999, land area equipped for irrigation increased by 28.6% in The Gambia. In this scenario, irrigated land area increases by 35% over the period 2023 to 2030.
Increase water withdrawal (ground) (waterwithdrawalm)	Interpolate from 1 to 1.05 by 2030 and interpolate to 1 by 2063	To meet irrigation water requirements. Agriculture is the sector with by far the largest consumptive water use and water withdrawal in Malawi.
Increase food access/calories per capita (clpcm) (total)	Interpolate from 1.1 by 2030 and hold at 1.1 to 2040, and interpolate to 1.05 by 2063	To ensure that domestic food demand is satisfied before export. Between 2010 and 2017, calories per capita in Ethiopia increased by 12.3%. In this scenario, calories per capita increase by 15% over the period 2023 to 2030.
Increase forest protection (forestm)	Interpolate from 1 to 1.02 by 2063	Halt deforestation through environmental conservation and protection. Increase forest land by 0.4 million hectares between 2030 and 2063 to restore forest land to 2011 observed values.
Access to rural roads	Initial condition set at 95 in 2017	Increase rural accessibility to

(infraroadraitrgtyr)		all-weather roads. This intervention put the access rate to 80% by 2063. It is projected to be 68.7% by 2063 on the Current Path. In this scenario, the rural population with access to an all-weather road increases by 14% over the period 2023 to 2030.
Improve government effectiveness (goveffectm)	Interpolate from 1 to 1.45 by 2030 and hold at 1.45 to 2035, and interpolate to 1.2 by 2063	Between 2002 and 2009, Rwanda increased its government effectiveness score by about 48%. In this scenario, between 2023 and 2030, governance effectiveness score in Malawi increases by 52% (on par with Rwanda).
Increase access to electricity (rural)	Interpolate from 1 to 1.15 by 2030 and interpolate to 1.01 by 2063	Between 2011 and 2018, electricity access in rural areas increased by 241.4% in Ethiopia, albeit from a very low base. In this scenario, electricity access in rural areas in Malawi increases by 300% between 2023 and 2030, from a very low base (5%).
Increase social welfare transfers to the poorest and most vulnerable people (unskilled) (govhhtrnwelm)	Interpolate from 1 to 1.2 by 2030 and interpolate to 1.1 by 2063	In this scenario, government social welfare transfers reach 3.3% of GDP by 2030 (on par with Rwanda).

Human Capital Push scenario

Chart 59: Human Capital Push scenario interventions

Human Capital Push scenario

Interventions and parameters	Adjustment in IFs	Benchmark/justification/notes
Reduce AIDS-related death rate as per cent of infection rate (aidsdratem)	Interpolate from 1 to 0.8 by 2030 and hold	From 2010 to 2017, Guinea Bissau reduced AIDS-related deaths by 30%. In this scenario, Malawi achieves 41% reduction in AIDS-related deaths between 2023 and 2030.
Reduce maternal mortality ratio (matmortratiom)	Interpolate from 1 to 0.6 by 2030 and hold	Rwanda reduced the maternal mortality ratio by 57% from 2003 to 2010. In this scenario, Malawi achieves 53% reduction in maternal mortality in this scenario between 2023 and 2030.
Reduce under five mortality (hlmortcdchldm)	Reduce from 1 to 0.7 by 2030 and hold	Between 2009 and 2016, Malawi reduced child mortality by 42%. In

		this scenario, Malawi achieves 42% reduction in child deaths between 2023 and 2030.
Improve access to improved sanitation (sanitationm)	Interpolate from 1 to 1.65 by 2030 and hold	Between 2000 and 2007, Mozambique increased access to improved sanitation by 93%, albeit from a low base. In this scenario, Malawi achieves 72% improvement from 2023 and 2030.
Reduces severe acute malnutrition prevalence (SAM) (malnchpsamm)	Interpolate from 1 to 0.7 by 2030 and hold	Between 2010 and 2017, Malawi achieved a 24% reduction in total cases. Malawi achieves a 22% reduction in SAM total cases 2023 and 2030.
Improve access to improved sources of water (pipe) (Watsafem)	Interpolate from 1 to 1.2 by 2030 and hold	Ethiopia increased access by about 29% between 2013 and 2020. In this scenario, Malawi achieves 42% increase between 2023 and 2030, reaching 45% by 2030.
Improve access to improved sources of water (Watsafem) (otherimproved)	Interpolate from 1 to 1.35 by 2030 and hold	Ethiopia increased access by about 21% between 2010 and 2014, and Mozambique increased by 20%.
Increase primary education survival rate (total) (edprisurm)	Interpolate from 1 to 1.25 by 2030	Between 2005 and 2012, Malawi increased primary education survival by about 72%. Between 2023 and 2030, Malawi achieves an increase of 30%.
Improve lower secondary enrolment rate (total) (edseclowrenrm)	Interpolate from 1 to 1.5 by 2030 and hold	Between 2006 and 2013, Madagascar increased its gross lower secondary enrolment by 51.5%. In this scenario, between 2023 and 2030 Malawi increases by 24% (similar to the period 2006 to 2013 for Malawi).
Increase lower secondary graduation (total) (edseclowrgram)	Interpolate from 1 to 1.5 by 2030 and hold	Guinea increased its lower secondary completion rate by 32% between

		2015 and 2019. In this scenario, Malawi achieves a 46% increase between 2023 and 2030.
Improve transition rate from lower secondary to upper secondary education (edsecupprtranm)	Interpolate from 1 to 1.3 by 2030 and hold	Between 2003 and 2011, Mozambique increased its transition rate from lower secondary to upper secondary enrolment by 36.12%. In this scenario, Malawi achieves a 29% increase between 2023 and 2030.
Increase upper secondary graduation (total) (edsecupprgram)	Interpolate from 1 to 1.5 by 2030 and hold	Uganda increased its upper secondary education graduation rate by about 29% between 2015 and 2019. Malawi achieves a 71% increase between 2023 and 2030 taking the per cent of upper secondary graduation to 34% by 2030.
Increase vocational and technical training (edsecupprvocadd)	Interpolate to 20 by 2030 and hold	Between 2009 and 2016, enrolment in vocational training increased by 45.1% in Mozambique.
Improve quality of primary education (edqualpriallm)	Interpolate from 1 to 1.1 by 2030 and hold	Chad improved its test score by 13% between 1995 and 2005. In this scenario, Malawi improves its primary education quality by 11% between 2023 and 2030.
Improve quality of secondary education (edqualsecallm)	Interpolate from 1 to 1.1 by 2030 and hold	Burundi's score increased by about 10% between 2015 and 2019. In this scenario, Malawi improves its secondary education quality by 10% between 2023 and 2030.
Improve tertiary enrolment rate (male) (edterintm)	Interpolate from 1 to 1.35 by 2030 and hold	Between 2014 and 2018, male gross tertiary enrolment increased by 30% in Togo. In this scenario, Malawi achieves a 52% increase between 2004 and 2011, and a 302% increase between 2023 and 2030 from a very low base. Malawi is below Togo by 2030, reaching 16% by 2030.
Improve tertiary enrolment rate	Interpolate from 1 to 1.3 by 2030 and	Between 2014 and 2018, female

(female) (edterintm)	hold	gross tertiary enrolment increased by 59.4% in Togo. In this scenario, Malawi achieves a 287% increase between 2023 and 2030, reaching 16% by 2030.
Improve tertiary graduation (total) (edtergradm)	Interpolate from 1 to 1.7 by 2030 and hold	Between 2003 and 2010, tertiary graduation rate more than doubled (100%) in Ethiopia, albeit from a low base. Malawi's tertiary education outcome is one of the lowest in the world. In this scenario, Malawi achieves a 180% increase between 2023 and 2030 from a very low base (on par with Burkina Faso by 2030).
Increase share of science and engineering students in tertiary graduates (edterscienshradd)	Interpolate to 5 by 2030, and hold	The share of science and engineering students in tertiary graduates in Algeria increased by 39.7% between 2009 and 2016. In this scenario, Malawi achieves a 29% increase between 2023 and 2030.
Increase modern contraceptive use (contrusm)	Interpolate from 1 to 1.4 by 2030, and interpolate to 1 by 2040	Between 2000 and 2005, modern contraceptive use rate doubled (100%) in Ethiopia, from a low base. In this scenario, modern contraceptive use increases by 50% between 2023 and 2030 in Malawi.
Improve gender empowerment (gemm)	Interpolate from 1 to 1.2 by 2030 and hold	El Salvador improved its gender empowerment score by nearly 20% between 2001 and 2008. In this scenario, Malawi's score on the gender empowerment index increases by 21% between 2023 and 2030.

Business First scenario

Chart 60: Business First scenario interventions

Business First scenario

Interventions and parameters	Adjustment in IFs	Benchmark/justification/notes
Improve governance transparency (govcorruptm)	Interpolate from 1 to 1.5 by 2030 and interpolate to 1.25 by 2063	Between 2008 and 2015, Rwanda increased its score by 80%. In this scenario, Malawi's score increases by 43% between 2023 and 2030 (on par with Rwanda).
Increase government revenue (fiscal consolidation measure) (govrevm)	Interpolate from 1 to 1.2 by 2030 and interpolate to 1.1 by 2063	Between 2014 and 2016, government revenue in Rwanda increased by 24.5%. In this scenario, Malawi government revenue increases by 73% between 2023 and 2030.
Reduce government expenditure (other) (fiscal consolidation measure) (gdsm)	Interpolate from 1 to 0.7 by 2030 and hold	Used as a proxy for reduction in operational and administrative budget allocation.

Improve economic freedom (econfreem)	Interpolate from 1 to 1.15 by 2030 and hold at 1.15 to 2035 and interpolate to 1.1 by 2063	Rwanda improved its score for economic freedom by about 23% between 2000 and 2007. In this scenario, Malawi improves its score by 14% between 2023 and 2030 (on par with Rwanda).
Improve business regulation/ business environment (govbusregindm)	Interpolate from 1 to 0.8 by 2030 and hold	Between 2012 and 2019, regulatory quality in Ethiopia improved by 20%. The score for regulatory quality in Malawi increases by about 10% between 2023 and 2030.
Reduce capital cost to output ratio in energy (qem – Q) (OthRenew)	Interpolate from 1 to 0.8 by 2030 and hold	To reduce the cost of investing in renewables to provide greater energy access.
Accelerate urbanisation rate (pop in urban areas)	Initial condition set at 3.75 in 2017	To emulate the MIP-1 target of 25% by 2030.
Increase access to electricity (urban) (infraelecaccm)	Interpolate from 1 to 1.12 by 2030 and hold	Between 2012 and 2019, The Gambia increased electricity access by about 18% in urban areas. In this scenario, electricity access in urban areas (per cent of urban population) increases by 29% between 2023 and 2030, and reaches 80.1% by 2030 in line with MIP-1 target.
Increase access to fixed broadband (Ictbroadm)	Interpolate from 1 to 1.2 by 2030 and hold	From a very low base, access to fixed broadband in Mali increased by more than 100% between 2009 and 2016. In this scenario, fixed broadband per 100 people increases by 553% over the period 2023 to 2030, from a very low base of 1.4 subscriptions per 100 people in 2019, reaching 15 subscriptions per 100 people by 2030.
Access to mobile broadband (Ictbroadmobilm)	Interpolate from 1 to 1.3 by 2030 and hold	From a low base, mobile broadband Internet subscriptions per 100 people in Malawi increased by more than 100% between 2010 and 2017. In this scenario, mobile broadband per 100

		people increases by 50% over the period 2023 to 2030.
Increase R&D spending gdsm (R&D)	Interpolate from 1 to 1.9 by 2030 and hold	To improve knowledge capital which is a drag on productivity in Malawi. R&D spending is very low in Malawi. In this scenario, Government spending on R&D (% of GDP) reach 0.067% of GDP by 2030
Increase roads paved, length (infraroadpavedpcntm)	Interpolate from 1 to 1.075 by 2030 and hold	From 1990 to 1997, Eritrea increased its paved roads length by 26.5%. In this scenario, paved roads length in Malawi increases by 25% between 2023 and 2030.
Increase domestic investment in the economy (all sectors) (invm)	Interpolate from 1 to 1.2 by 2030 and hold at 1.2 to 2040 and interpolate to 1.1 by 2063	Historical benchmarking is not available for this indicator. Domestic investment as a share of GDP in Malawi is lower than in countries such as Uganda, Ethiopia and Mozambique.
Increase foreign direct investment flows to Malawi (xfdifinm)	Interpolate from 1 to 1.3 by 2030 and hold	FDI flows to Ethiopia (as per cent of GDP) increased by 60% between 1997 and 2004. In this scenario, FDI flows to Malawi (as per cent of GDP) increase by 61% between 2023 and 2030.
Increase female labour participation rate (female) (labparm)	Interpolate from 1.1 by 2030 and hold	This intervention puts Malawi on par with Madagascar, Rwanda and Ethiopia by 2030. Between 2023 and 2030, female labour participation rate increases by 10%.
Reduce electricity transmission and distribution loss (infraelectranlossm)	Interpolate from 1 to 0.7 by 2030 and hold	Between 1994 and 1999, Angola reduced electricity transmission losses by nearly 49% (before the year 2000, Angola was a low-income country). In this scenario, electricity transmission losses decrease by 28% between 2023 and 2030.
Increase mining (materials) export	Interpolate from 1 to 1.2 by 2030 and	Between 2023 and 2030, material

(xsm)	hold	exports increase by 60%, albeit from a very low base.
Increase manufacturing export (xsm)	Interpolate from 1 to 1.1 by 2030 and hold at 1.1 to 2040 and interpolate to 1.05 by 2063	Between 2023 and 2030, manufacturing exports increase by 5% to reach 20% of GDP (value by sector export) by 2030.

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Dr Kouassi Yeboua is a senior researcher in African Futures and Innovation programme in Pretoria. He recently served as lead author on ISS studies on the long-term development prospects of the DR Congo, the Horn of Africa, Nigeria and Malawi. Kouassi has published on various issues relating to foreign direct investment in Africa and is interested in development economics, macroeconomics, international economics, and economic modelling. He has a PhD in Economics.

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