



# Egypt

## Annex

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## Annex

- Current Path
- Scenario cluster interventions

### Current Path

Chart 47: Current Path adjustments

#### Interventions:

- Electricity generation capacity per person
- Urban population
- Informal economy (GDP) share of total

#### Historical data series:

- Per cent of electricity production from gas
- Per cent of electricity production from hydro
- Per cent of electricity production from oil
- Oil reserves
- Share of ICT contribution to GDP
- Government expenditure on education as % of GDP
- Government expenditure on health as % of GDP
- Per cent of population using Internet
- Agricultural land
- Paved roads in kilometres
- Total improved sanitation access

This project used IFs 7.63 with an amended IFsHist Egypt project file dated August 2021.

The following amendments have been made to the IFs Current Path forecast for Egypt:

Chart A1: Interventions

Series updated	Definition	Magnitudes/changes	Justification/source
infraelecgenapm	Electricity generation capacity per person	Interpolate 0.91 from 2015 to 2020, 0.82 from 2021 to 2025, maintain	Projected installed capacity by 2025 in IFs was too high; tapered down[1]

POPURBAN	Urban population	Adjust initial condition in 2015 to 42.73	Updated IFs with urban population estimates by 2041 from urban planning report in Egypt[2]
GDPINFORMSHR	Informal economy (GDP) share of total	Adjust initial condition in 2015 to 55	Share of the informal economy as a per cent of GDP was too modest by over 30 percentage points[3]

Chart A2: Project file updates (IFsHistseries)

Series updated	Definition	Magnitudes/changes	Justification/source
EnProdElec%Gas	Per cent of electricity production from gas	80% in 2018	Most recent values[4]
EnProdElec%Hydro	Per cent of electricity production from hydro	7% in 2018	Most recent values[5]
EnProdElec%Oil	Per cent of electricity production from oil	12% in 2018	Most recent values[6]
EnResorOilBGRBBOE	Oil reserves	4.4 in 2015	Most recent values[7]
ICT%GDP	Share of ICT contribution to GDP	3.8% in 2019 and 4.4% in 2020	Most recent values from GoE estimates[8]
GovtEdPub%GDP	Government expenditure on education as % of GDP	4% of GDP in 2015, 3.52% in 2016	Most recent values from GoE estimates[9]
GovtHI%GDP	Government expenditure on health as % of GDP	1.5% in 2015,	Most recent values from GoE estimates[10]
ICTInternet%Pop	Per cent of the population using Internet	47.6% in 2019, 57.5% in 2020	Most recent values from GoE estimates[11]

LandAgri	Agricultural land	3 836 in 2018	Agricultural land has slightly increased according to FAO[12]
RoadPavedKm	Paved roads in kilometres	176 900 in 2017, 179 900 in 2018 and 184 400 in 2019	Update extension of Egypt's paved road network[13]
WSSJMPSanitationTotal%Improved	Total improved sanitation access	97% in 2020	JMP released new data for 2020[14]



## Scenario cluster interventions

Chart 48: Number of interventions per scenario cluster

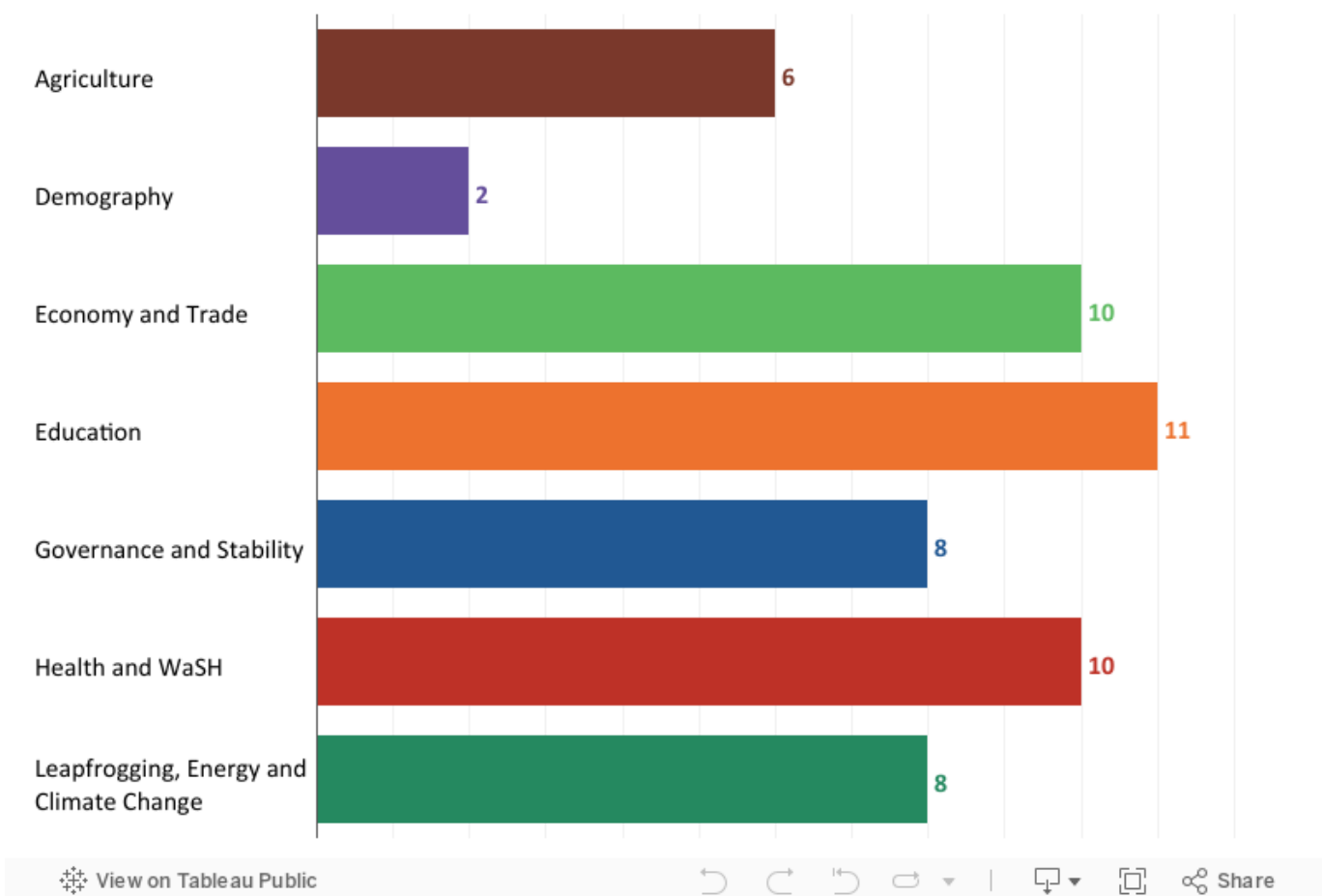


Chart A3: Scenario cluster interventions

Parameter	Multiplier name	Definition	Magnitude of intervention	Justification	Benchmark	Result
Demography						
contraception	contrusm	Increase access to modern contraception for all females of childbearing age	Interpolate 1.2 from 2023 to 2033; change repeat until 2050	Population growth is unsustainable given resource constraints/ Egypt is overpopulated	Egypt decreased the unmet need for contraception by 48.5% between 1992 (22.9%) and 2003 (11.8%)	Contraception use increases from 68.6% in the CP to 82.24% (19.9% increase and 13.7% points) in 2033

female labour force	labparm-(female15]	Increases the per cent of female population ages 15 and older who are economically active	Interpolate 1.5 from 2023 to 2033; change repeat until 2050	Low level of economic activity among females is cited as driver of high TFR	Algeria increased female labour force participation rate by 112.9% over a ten-year period (6.65% in 2000 to 14.16% in 2010)	Share of female labour force increases from 29.6% in CP to 44.5% (50% increase and 14.8% points) in 2033
<b>Education</b>						
Lower secondary gender parity time goal for graduation	edsec-lowrgnd-ret	Increases female to male ratio of lower secondary graduation	Interpolate 10 from 2023, change repeat	Male education attainment is higher than that of female learners	Research shows that in most MENA countries, women who get to secondary school often stay on and	Female lower secondary graduation increases from 83.9% in CP to 97.9% (13.9% points) in 2033
Upper secondary gender parity time goal for graduation	edsec-upprgnd-ret	Increases female to male ratio of upper secondary graduation	Interpolate 10 from 2023, change repeat	Male education attainment is higher than that of female learners	show great achievement at higher levels of education  Egypt attained a 9.4 percentage point increase in female graduation between 1990 and 2000 and Iran attained a 14.7 percentage point increase in the same time horizon	Female upper secondary graduation increases from 68.9% in CP to 79.3% (10.4% points) in 2033
Tertiary	edtergn-dreqint	Increases	Interpolate 10	Male intake is	Tunisia	Tertiary

gender parity for intake		female to male ratio of tertiary intake	from 2023, change repeat	higher than that of female learners	increased gender parity in tertiary enrolment by 42% between 1980 and 1990	enrolment increases from 38.8% to 45.4% (16.9% increase and 6.6% points) in 2033
Lower secondary graduation rate	edseclowr-gram	Increases rate of graduation at lower secondary	Interpolate 1.2 from 2023 to 2033; change repeat until 2050	Bottlenecks emerging at the secondary level compared to its peers	Iraq had a transition rate (lower to upper secondary) of over 11 percentage points between 2000 and 2006 from 79.06% to 90.18% and implying that many learners graduated from lower secondary	Lower secondary graduation increases from 81.7% in CP to 97.6% (19.5% increase and 15.9% points) in 2033
Upper secondary graduation rate	edsecuppr-gram	Increases rate of graduation at upper secondary	Interpolate 1.2 from 2023 to 2033; change repeat until 2050	Bottlenecks emerging at the secondary level compared to its peers	Syria increased secondary graduation rate by nearly 15 percentage points between 2000 (7.75%) and 2010 (22.7%)	Upper secondary increases from 68.7% in CP to 79.9% (11.2% points) in 2033
Upper secondary vocational share	edsecuppr-vocadd	Increases upper secondary vocational training	Interpolate 5 from 2023 to 2033; change repeat until 2050	High unemployment rate among young graduates; learning trade skills can increase their opportunities to earn an income	Malawi reduced rate of youth not in education, employment or training by 17.3 percentage points over an eight-year period	Upper secondary vocational enrolment increases from 46.6% in CP to 51.6% in 2033



					(50.17% in 2011 to 32.9% in 2017)	
Tertiary intake	edterintm	Increase rate of intake at the tertiary level	Interpolate 1.2 from 2023 to 2033; change repeat until 2050	Tertiary outcomes are below its peers	Kenya increased tertiary enrolment by 187% (7.4% points) from 3.99% to 11.46% between 2009 and 2017	Tertiary enrolment increases from 37.3% in CP to 44.1% (6.9% points and 18.4% increase) in 2033
Tertiary graduation rate	edter-gradm	Increases rate of graduation at tertiary level	Interpolate 1.2 from 2023 to 2033; change repeat until 2050	Bottleneck at tertiary level compared to its peers	Syria increased tertiary graduation by 130% (6.4% points) between 2001 and 2010 from 4.94% to 11.36%	Tertiary graduation increases from 20.1% in CP to 24.2% (4.2% points and 20.8% increase) in 2033
Tertiary-Scie-eng share of graduate	edterscien-shradd	Increases share of learners graduating with science and engineering degrees	Interpolate 5 from 2023 to 2033; change repeat until 2050	Intake in science and engineering is important for Egypt to prepare for Fourth Industrial Revolution and take advantage of technology for economic productivity	Zimbabwe increased share of sci-eng graduates by 37% between 2011 and 2015 from 15.88% to 21.79%	Tertiary sci-eng share of graduates increases from 16.6% in CP to 21.7% (30% increase) in 2033
Education quality-Primary	edqual-priallm	Increases quality of education at primary level	Interpolate 1.2 from 2023 to 2033; change repeat until 2050	Quality of primary education lags behind comparable peer country groups		Education quality for primary increases

						from 35.9 in CP to 43 in 2033
Education quality-Secondary	edqual-secallm	Increases quality of education at secondary level	Interpolate 1.1 from 2023 to 2033; change repeat until 2050	Quality of secondary education lags behind comparable peer country groups		Education quality for secondary increases from 44.9 in CP to 49.2 in 2033
<b>Health and WaSH</b>						
Mortality-Cancer	hlmortm- (Malig-Neopl)	Reduces deaths caused by cancer	Interpolate 0.8 from 2023 to 2033; change repeat until 2050	In the NCD category cancer is among the leading causes of death	These are mostly lifestyle diseases and with increased public awareness, proper facilities and early diagnosis can be detected and managed to prevent death	Cancer deaths decrease from 60.3 (1 000 deaths) in CP to 49.2 in 2033
Mortality-Cardiovascular	hlmortm- (Cardio-vasc)	Reduces deaths caused by cardiovascular-related complications	Interpolate 0.8 from 2023 to 2033; change repeat until 2050	In the NCD category cardiovascular-related complications are among the leading causes of death		Cardiovascular-related deaths decrease from 321.6 (1 000 deaths) in CP to 266.3 in 2033
Mortality-Respiratory infections	hlmortm	Reduces deaths caused by respiratory infections	Interpolate 0.8 from 2023 to 2033; change repeat until 2050	In the NCD category respiratory-related complications are among the leading causes of death		Respiratory infection deaths decrease from 17.08 (1 000 deaths) in CP to 12.8 in 2033
Mortality-Diabetes	hlmortm	Reduces deaths caused by diabetes	Interpolate 0.8 from 2023	Diabetes is highly prevalent in Egypt		Diabetes deaths decrease from 19.9 (1 000

			to 2033; change repeat until 2050			deaths) in CP to 16.2 in 2033
Mortality (Other non-communicable diseases)	hlmortm	Reduces deaths caused by other NCDs	Interpolate 0.8 from 2023 to 2033; change repeat until 2050	Other NCDs form a huge chunk of deaths in the NCD categorisation of deaths	Syria reduced deaths from other NCDs by 125% between 1990 and 2000	Other NCD deaths decrease from 13.5 (1 000 deaths) in CP to 11.2 in 2033
Mortality-Traffic accidents	hlmortm	Reduces deaths caused by road traffic accidents	Interpolate 0.7 from 2023 to 2033; change repeat until 2050	Traffic accidents are prevalent in Egypt	South Africa reduced traffic accidents by 46% between 2005 and 2015	Traffic accident deaths decrease from 37.8 (1 000 deaths) in CP to 26.7 in 2033
Communicable disease mortality for children under five	hlmort-cdchldm	Reduces deaths by communicable diseases in children under five	Interpolate 0.8 from 2023 to 2033; change repeat until 2050	Diarrhoea and other communicable diseases still plague especially rural areas of Egypt	Several African countries have managed this feat between 2000, and 2010 and 2015	Under-five child mortality reduces from 14.4 per 1 000 deaths to 11.2 in 2033
Treated wastewater	waste-water-treatment	Increases the portion of wastewater that is treated	Interpolate 1.5 from 2023 to 2033; change repeat until 2050	Egypt is experiencing water scarcity; treating wastewater could help manage the crisis	Egypt increased treated wastewater by 111% between 2002 and 2012	Treated wastewater increases from 6.361 km <sup>3</sup> in CP to 9.478 (49% increase) in 2033
Portion of waste water treated reused	waste-water-treatment	Increases the portion of treated wastewater actually reused	Interpolate 1.3 from 2023 to 2033; change repeat until 2050	Treating wastewater conserves and avails more water for use	South Africa increased the amount of wastewater treated and reused by 382%	Treated and reused wastewater increases from 1.638 km <sup>3</sup> in

					between 2000 and 2009	CP to 3.712 km <sup>3</sup> in 2033 (126.5%)
Rate of smoking	hlsmoking-stsw	Enforces more stringent regulation on tobacco sale and use	Interpolate 1.2 from 2023 to 2033; change repeat until 2050	Smoking is prevalent in Egypt and is associated with major NCDs	Many European countries have improved their TBS index[16]	Smoking rate of adults reduces from 14.4% in CP to 11.2%
<b>Economy and Trade</b>						
Exports (Agriculture)	agxm	Increases agricultural exports	Interpolate 1.1 from 2023 to 2033; change repeat until 2050	Egypt aims to increase its agricultural exports	Egypt increased agricultural exports (crops) by 238% between 1997 and 2007	Value of agricultural exports (crops) increases from 2.34 billion in CP to 3.2 billion in 2033 (38.8% increase)
Exports (Manufactures)	xsm	Increases manufactured exports	Interpolate 1.1 from 2023 to 2033; change repeat until 2050	Egypt wants to increase manufacturing	Egypt recorded about 20% increase in manufacturing value between 2000 and 2010 and 35% between 1990 and 2000	Share of manufacturing to GDP increases from 26.6% (US\$159.1 billion) in CP to 27.8% (US\$173 billion) in 2033 (-8.7% increase)
Exports (Energy)	enxm	Increases energy exports	Interpolate 1.2 from 2023 to 2033; change repeat until 2050	Egypt wants to increase energy exports and boost renewables share of contribution; Egypt has enough oil and gas reserves to achieve this if the international prices of hydrocarbons remain stable		Value of energy exports increases from US\$2 billion in CP to

						US\$3.5 billion in 2033 (74% increase)
Domestic investment	invm	Increases domestic investment	Interpolate 1.2 from 2023 to 2033; change repeat until 2050	Egypt wants to increase domestic investment opportunities for Egyptians	Gross capital formation (%GDP) increases from 16.6% in CP to 20.1% in 2033 (3.5% points)	
Economic freedom	econ-freem	increases economic freedom	Interpolate 1.2 from 2023 to 2033; change repeat until 2050	Reducing bureaucracy and raising awareness and opportunities for Egyptians to engage in economic activity is key for the country's growth	Zambia improved economic freedom by 53.5% between 1990 and 1995 and has sustained that growth for over 15 years	Economic freedom index increases from 5.46 in CP to 6.56 (20.2% increase) in 2033
Government regulation of business	govbus-regindm	Reduces hyper-regulation of business by government	Interpolate 0.8 from 2023 to 2033; change repeat until 2050	Although regulation of business has been moderated, there is still room to simplify ease of doing business	Government regulation quality score reduces from 5.0534 in the CP to 4.0347 (20% drop) in 2033	
Cost of starting a business	govbus-costm	Reduces the cost of starting a business	Interpolate 0.8 from 2023 to 2033; change repeat until 2050	Access to capital is one of the impediments to investment; reducing overall costs and availing credit facilities would help to increase productive investment	Declines in the first three years to get to 1% of GDP per capita by 2025 against 1.003% in the CP	
Worker remittances	xwork-remitinm	Increases remittances to	Interpolate 1.2 from 2023	Remittances form an important source of revenue for	Value of net remittances	

(in)		Egypt	to 2033; change repeat until 2050	households and foreign exchange for the GoE	increases from US\$8.5 billion in CP to US\$14.9 billion (74.2% increase) in 2033	
FDI inflows	xfdifinm		Interpolate 1.2 from 2023 to 2033; change repeat until 2050	Egypt attracts significant FDI, and this could improve	Cambodia increased FDI by 4% of GDP between 2008 and 2014	FDI inflows increase from 3.9% of GDP in CP to 4.5% in 2033 (15.3% increase)
Social security and welfare tax rate	sswel-taxrm	Increases social security and welfare tax rate (increases tax on households and firms for social security and welfare)	Interpolate 1.15 from 2023 to 2033; change repeat until 2050	Over half of Egypt's population rely on the informal sector. Requiring firms to offer social insurance can encourage formalisation; this is achieved by taxing firms and households to raise such revenue	Taxes on unskilled and skilled households increase from US\$22.7 billion to US\$25.3 billion and US\$40.1 billion to US\$44.9 billion in 2033; firm taxes increase from US\$33.8 billion to 37.6 billion, indirect taxes from US\$43.5 billion to US\$48.7 billion and social security welfare tax increases from US\$20.1 billion to US\$26.2 billion	

Leapfrogging, Energy and Climate Change

Capital costs-to-output ratio (other renewables)	qem	Reduce capital required to produce other renewables	Interpolate 0.8 from 2023 to 2033; change repeat until 2050	The cost of producing renewable energy is still relatively high	Germany increased level of production of renewables (otherren) by over 320% between 2005 and 2015	Production of other renewables (excluding hydro) increases from 0.14 BBOE in CP to 0.02 BBOE (42.9% increase) in 2033
Capital costs-to-output ratio (Nuclear)	qem	Reduce capital required to produce nuclear energy	Interpolate 0.8 from 2023 to 2033; change repeat until 2050	The cost of producing nuclear energy is still relatively high	South Korea increased nuclear energy production by 1 430% between 1980 (0.0066 BBOE) and 1990 (0.101 BBOE)	Nuclear production increases from 0.00001487 BBOE in CP to 0.00002437 BBOE (63.9% increase) in 2033
Capital costs-to-output ratio (coal)	qem	Increase capital required to produce coal	Interpolate 1.2 from 2023 to 2033; change repeat until 2050	Egypt produces some of its energy with coal and has reserves to last another two decades; reducing coal production would facilitate the shift towards renewables	Germany reduced level of coal production by over 50% between 1990 and 2000 and continues to reduce coal production	Coal production reduces from 0.00033695 BBC in CP to 0.00027426 BBC (18.6% drop) in 2033
carbon tax	carbtax	To discourage pollution and CO <sub>2</sub> emissions	Interpolate to US\$50/ton from 2023 to 2033; change repeat until 2050	A carbon tax would regulate pollution by firms, especially the energy	Germany reduced level of carbon emissions by 14% between 2001 and 2011, and	Carbon emissions reduce from 0.118 billion tons of carbon

				industry, thus mitigating the effects of climate change	continues to reduce coal production	in CP to 0.116 in 2033 (1.7% reduction)
ICT broadband	ict-broadm	Increases rate of broadband access	Interpolate 1.2 from 2023 to 2033; change repeat until 2050	Majority of the population still do not have fixed Internet in their homes	Egypt increased fixed broadband per 100 subscriptions by over 900% between 2007 and 2017	Increases from 28 per 100 people in CP to 32.8 (45.7% increase) in 2033
ICT mobile broadband	ictbroad-mobil	Increases rate of mobile broadband access	Interpolate 1.2 from 2023 to 2033; change repeat until 2050	Only just over half the population has access to Internet	Egypt increased mobile broadband per 100 subscriptions by 328% between 2009 and 2017	Marginal increase in subscriptions per 100 people but in millions, increases from 180 million people in CP to 180.014 million in 2033
ICT cyber benefit multiplier	ictcyb-benefitm	Increase ICT cyber benefit	Interpolate 1.2 from 2023 to 2033; change repeat until 2050	To increase use of technology in development	Egypt increased the growth and contribution of cyber benefit by about 200% between 2005 (0.479% of GDP) and 2012 (1.438%)	Cyber benefit increases from 1.59% of GDP in CP to 1.88% in 2033 (cumulative cyber benefit increases from US\$804.3 billion to US\$821.6 billion)
Road network density	infra-roadm	Increases road network density	Interpolate 1.15 from	Egypt has set on a road expansion agenda	Egypt has expanded	Road density increases from 2.47 km/1 000

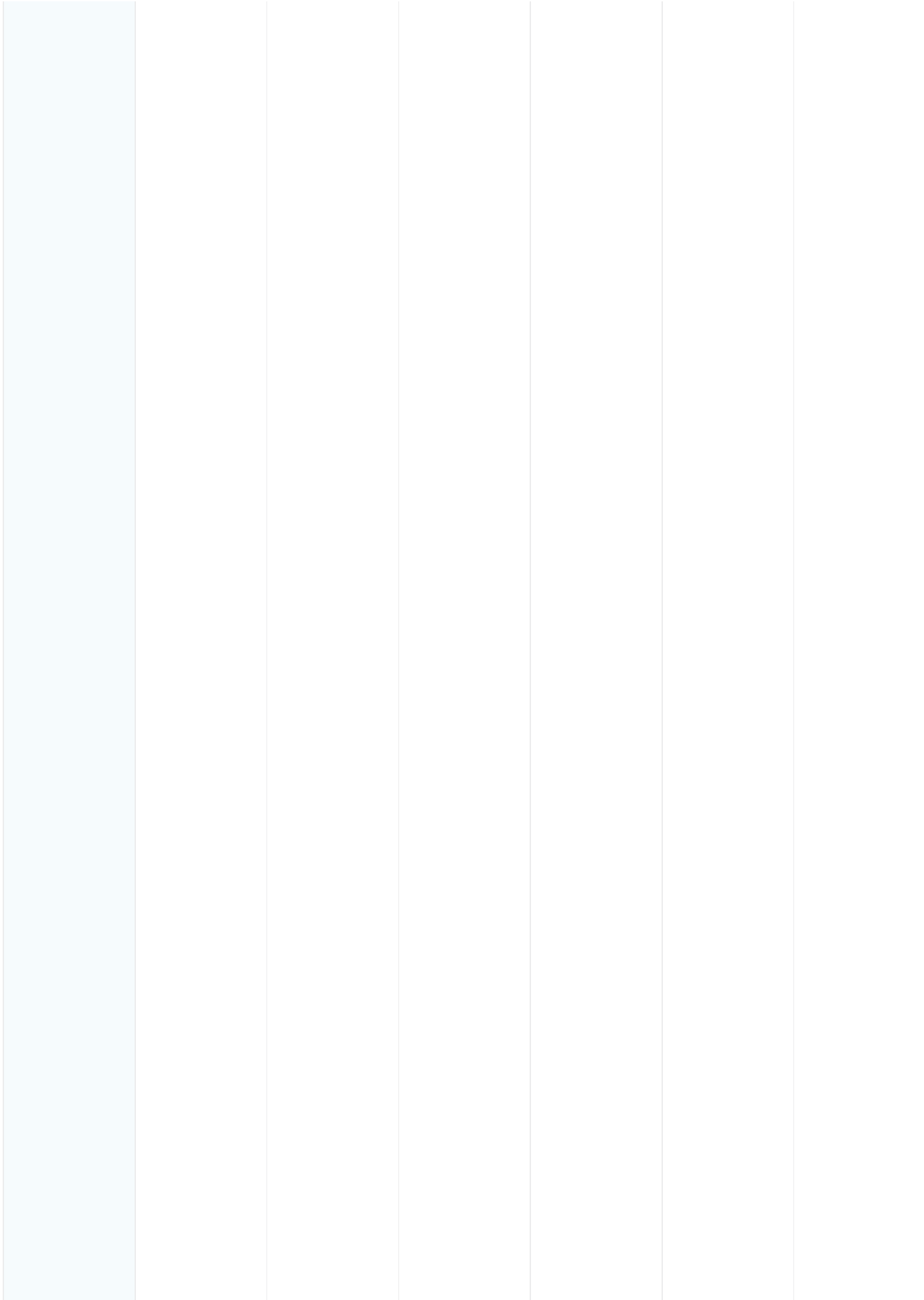


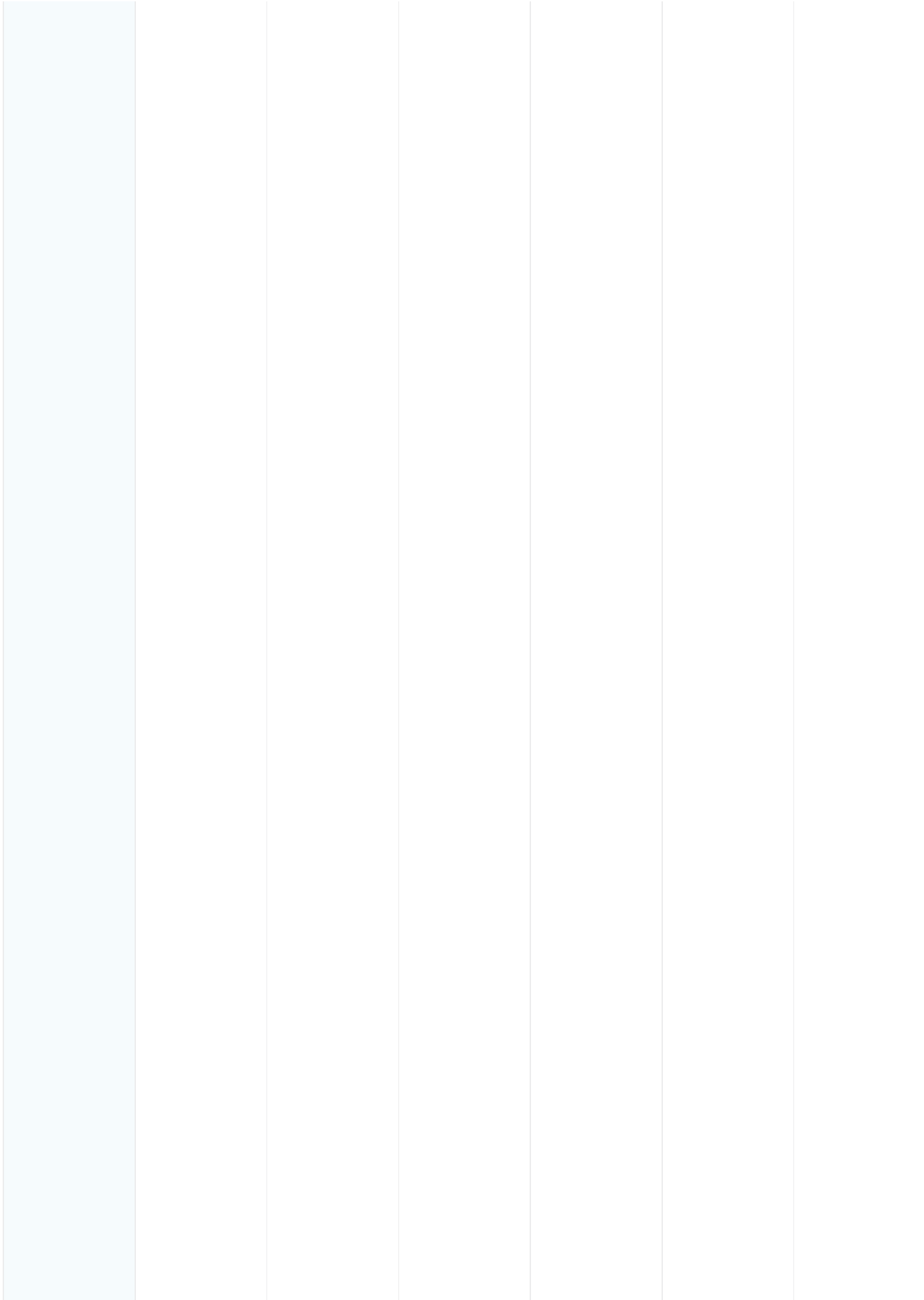
			2023 to 2033; change repeat until 2050		over 9 000 km of road in the past five years	hectares in CP to 2.82 in 2033; total road length increases by 35 000 km from 245 964 km in the CP
<b>Governance and Stability</b>						
Democracy	demmm	Increases level of democracy	Interpolate 1.2 from 2023 to 2033; change repeat until 2050	Egypt is an anocratic state which makes it more unstable than a full autocracy or full democracy	Egypt achieved a rise in democracy between 2004 and 2005 from -6 to -3 and between 2010 and 2011 from -3 to -2	Increases level of democracy from -2.852 in CP to -1.172 in 2033
Government effectiveness	goveffectm	Increases government effectiveness in provision of basic services and revenue collection	Interpolate 1.2 from 2023 to 2033; change repeat until 2050	Government effectiveness lags behind its peers and would ensure efficient service delivery	Côte d'Ivoire improved government effectiveness by 49.8% between 2010 and 2015	Government effectiveness increases from 2.15 in CP to 2.65 (23.4% increase) in 2033
Government corruption	gov-corruptm	Reduces corruption by government officials	Interpolate 1.3 from 2023 to 2033; change repeat until 2050	Corruption is pervasive in Egypt	Nigeria improved its corruption perception index by 58.3% between 2000 and 2005; it has sustained improvements for over six years	Egypt scores a higher index (less corrupt) from 3.407 in CP to 4.77 (39.93% improvement) in 2033

Gender empowerment	genm	Increases inclusion, particularly of women, in the democratic and nation-building process	Interpolate 1.3 from 2023 to 2033; change repeat until 2050	Inclusion, especially that of women into socio-economic processes, is needed in Egypt	Botswana increased the GEM index by 38% between 1995 and 2003	GEM UNDP index increases from 0.305 in CP to 0.397 (30% increase) in 2033
Governance security risk	gov-riskm	Reduces the risk of security deterioration	Interpolate 0.8 from 2023 to 2033; change repeat until 2050	Reduces the risk of insecurity, specifically the threat of terrorism, overpopulation and lack of economic opportunity		Security index in IFs increases from 0.753 in CP to 0.865 in 2033
Government expenditure (military)	gdsm	Reduces spending on military	Interpolate 0.9 from 2023 to 2033; change repeat until 2050	Egypt has one of the largest military forces and data sources on arms procurement deals between 2000 and 2019, and costs related to paramilitary activities highlight gaps and shortcomings in the data reported	Egypt has reduced military expenditure from US\$0.108 billion in 2002 to US\$0.053 billion in 2012 (103% drop)	Government consumption on military reduces from US\$21.5 billion to US\$20.2 billion in 2033 (6% drop)
Government to household welfare transfers (unskilled)	govhh-trnwelm	Increases government to household welfare transfers to poor people	Interpolate 1.1 from 2023 to 2033; change repeat until 2050	Transfers help poor households out of extreme poverty in the short to medium term	Discussions on reforming the food subsidy system, preferably to cash based, and to better target the most vulnerable are	Household transfers and welfare increase marginally from 11.42% of GDP in CP to 11.46% in 2033

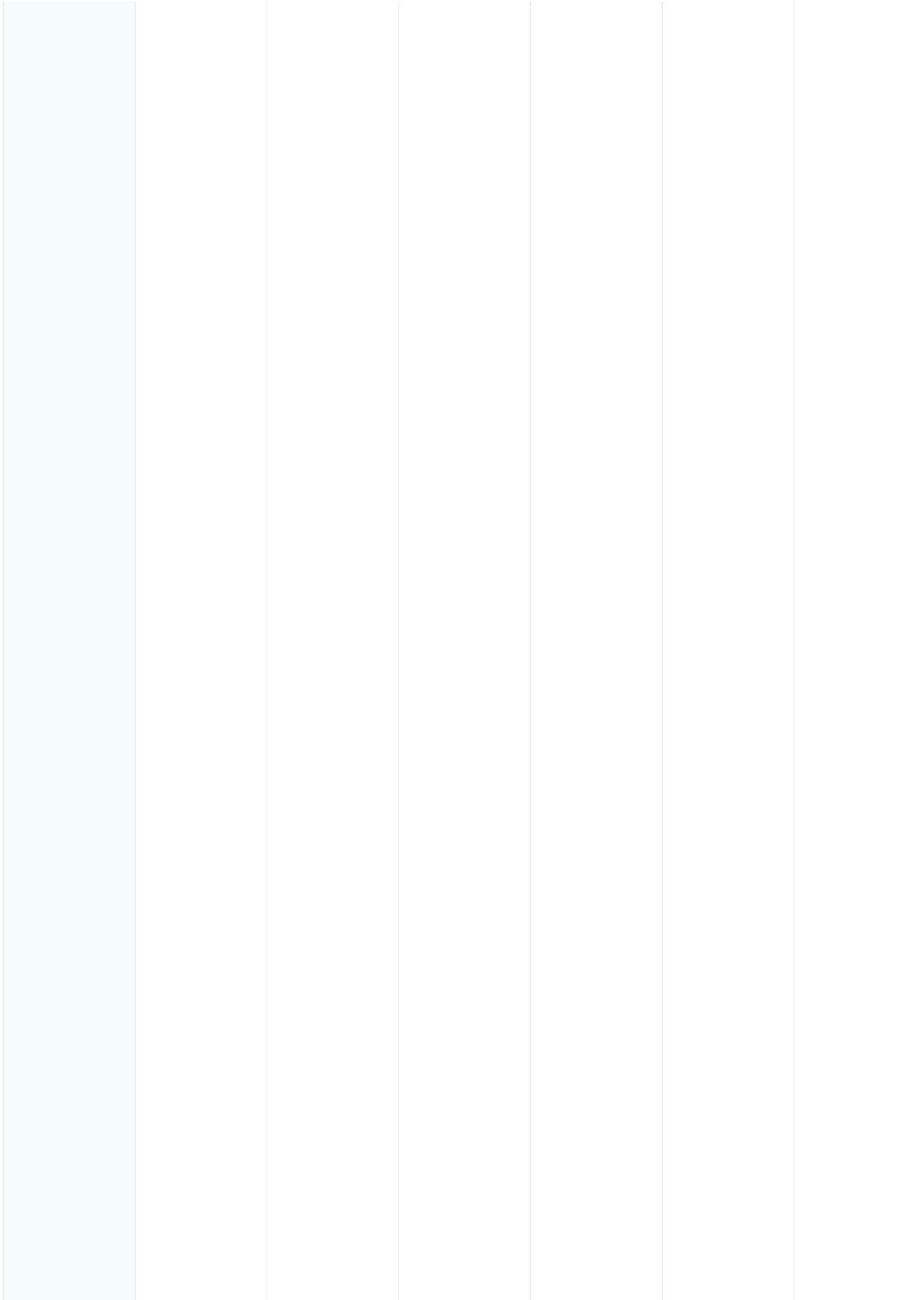
					already happening	
Government to household welfare transfers (skilled)	govhh-trnwelm	Reduces government to household welfare transfers to wealthy people	Interpolate 0.85 from 2023 to 2033; change repeat until 2050	Gradually reducing transfers to the wealthy, e.g. in the form of fuel subsidies avails more resources for development and assisting the vulnerable	Egypt has already started a subsidy reform programme on energy (fuel)	
<b>Agriculture</b>						
Yields (switch to allow water to constrain yields set at 1 from 2023 to 2033 and maintained to 2050)	ylm	Increases yields	Interpolate 1.15 from 2023 to 2033; change repeat until 2050	Crop yields are low relative to the resources spent on agriculture	Egypt has increased yields from 17.4 tons/hectares in 1990 to 21.42 in 2000 (23% rise)	Yields increase from 29.4 tons/hectare in CP to 32.9 (12.1% rise) in 2033
Land area actually irrigated	landirarea-actual	Increases area of land actually under irrigation	Interpolate 1.2 from 2023 to 2033; change repeat until 2050	Egypt has embarked on a mission to put more land under irrigation	Kenya doubled its area of land equipped for irrigation between 1992 and 2010 (from 73 000 ha to 150 000 ha)	Land area irrigated increases from 3 708 000 hectares in CP to 3 709 000 hectare in 2033
Per capita calorie demand	clpcm	Increases calorie demand (ensures domestic)	Interpolate 1.1 from 2023 to 2033; change repeat until 2050	To ensure that not all agricultural produce is exported	The Caribbean countries achieved (on average) 20% increase	Increases total per capita calorie/day from 2 998 in

		distribution of food, i.e. all produce is not for exportation)			between 1995 and 2010	CP to 3 303 (10.2% increase) in 2033
Crop land	ldcropm	Increases area of land under cultivation	Interpolate 1.1 from 2023 to 2033; change repeat until 2050	Egypt has embarked on reclaiming some desert land for farming	In 2016, Egypt announced it would reclaim 607 028 ha of marginal or desert lands for agricultural use <sup>[17]</sup>	Very slight increase from 3.77065 million hectares in CP to 3.77070 in 2033
Agricultural loss (producer to consumer)	agloss-transm	Reduces loss of agriculture as it moves from producer to consumer	Interpolate 0.8 from 2023 to 2033; change repeat until 2050	Agricultural loss occurs in the value chain		Agricultural loss and waste (crops) as a share of production declines from 23.1% in CP to 20.4% in 2033
Agricultural waste (consumer)	agloss-consm	Reduces rate of waste at consumption level	Interpolate 0.7 from 2023 to 2033; change repeat until 2050	Food waste is prevalent in Egypt	Many countries have started food banks to avoid food wastage	





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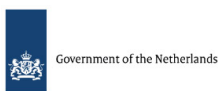


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## Endnotes

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## About the authors

Dr Jakkie Cilliers is the ISS's founder and former executive director of the ISS. He currently serves as chair of the ISS Board of Trustees and head of the African Futures and Innovation (AFI) programme at the Pretoria office of the ISS. His 2017 best-seller *Fate of the Nation* addresses South Africa's futures from political, economic and social perspectives. His three most recent books, *Africa First! Igniting a Growth Revolution* (March 2020), *The Future of Africa: Challenges and Opportunities* (April 2021), and *Africa Tomorrow: Pathways to Prosperity* (June 2022) take a rigorous look at the continent as a whole.

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## About African Futures & Innovation

Scenarios and forecasting can help Africa identify and respond to opportunities and threats. The work of the African Futures & Innovation (AFI) program at the Institute for Security Studies aims to understand and address a widening gap between indices of wellbeing in Africa and elsewhere in the world. The AFI helps stakeholders understand likely future developments. Research findings and their policy implications are widely disseminated, often in collaboration with in-country partners. Forecasting tools inspire debate and provide insights into possible trajectories that inform planning, prioritisation and effective resource allocation. Africa's future depends on today's choices and actions by governments and their non-governmental and international partners. The AFI provides empirical data that informs short- and medium-term decisions with long-term implications. The AFI enhances Africa's capacity to prepare for and respond to future challenges. The program is headed by Dr Jakkie Cilliers.