Technical & policy segment

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Integrating climate change into macroeconomic modeling frameworks

1. Introduction

MoFPED has taken steps to incorporate climate change policies into Uganda's macroeconomic modeling frameworks. This includes the development of environmental satellite accounts, which are now appended to Uganda's Social Accounting Matrix (SAM). Work is ongoing to integrate climate change variables into the country's macroeconomic models.

Issue: Integrating climate change adaptation and mitigation policies in macro-policy modeling and analysis within the Ministry of Finance.

2. Policy documents supporting climate change

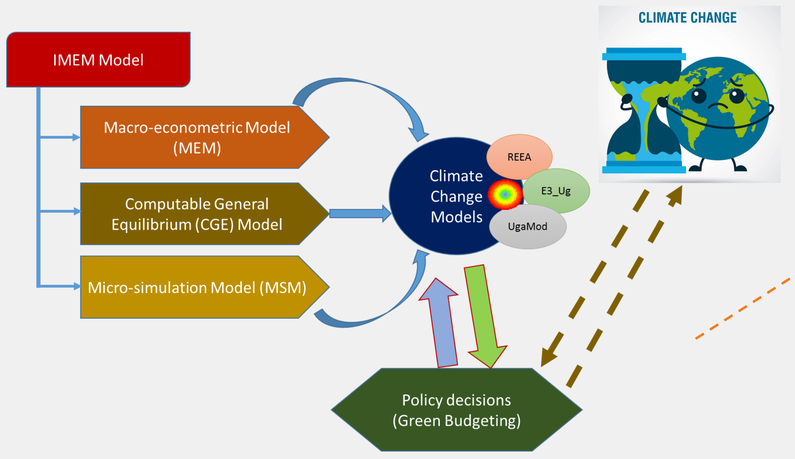
1. National Climate Change Policy April (2015)	• Policy framework • Policy direction • Implementation arrangements – from policy to action • Legal and Regulatory framework • Monitoring, reporting and evaluation
2. National Climate Change Act (2021)	• Climate change response measures • Measuring of Emissions, Reporting & verification of information • Institutional arrangements & financing
3. Uganda Green Growth Development Strategy (2017/18 – 2030/40	• Opportunities for green Growth and Dev't • Green growth Development Strategic Framework • Road-map for implementation
4. Vision 2040 and NDP III	• NDP : Has section on Natural resources, Environment, Climate Change and Water Management • Vision 2040: Has section on Climate Change
5. National Environment Act	•Policy on the environment •Urban and District Structure for Environmental Management •National Environmental Fund •Management of wetlands, waste water etc.
6. PFM Act 2015	• Mandates macroeconomic modelling & Analysis • Fiscal risks assessment and mitigation measures

3. Methodology

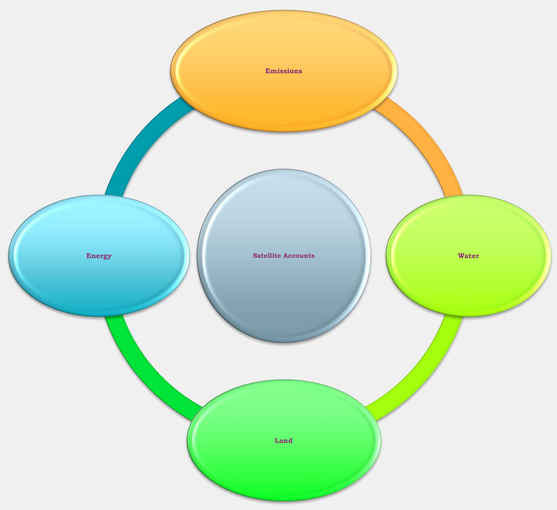
Economy-Wide Models with climate change
- *Dynamic CGE Model*
- *Multiplier Modeling*
- *UGAMOD*

4. Tools for climate modeling

1. Modelling Framework - Climate Change



2. Environmental SAM



3. Rapid Environment Economic Assessment Tool – Climate Change

Inputs (User interface)

ORIGINAL AGGREGATES

Total Output	Intermediate consumption	GVAbp	Original Final demand	CHANGE: Increase in final demand
2 952	400	2 552	2 389	250
14 634	1 239	13 395	10 798	250
4 334	1 024	3 303	2 450	0
60	43	16	0	0
4 252	249	4 003	2 175	0
2 284	102	2 182	1 899	0
2 613	1 276	1 337	364	0
15 272	7 331	7 941	12 078	0
13 330	5 026	8 304	8 329	0
1 570	191	1 379	635	0
2 853	275	2 578	2 611	0
15 715	9 607	6 109	15 715	0
13 935	4 103	9 832	1 653	0
6 705	3 088	3 621	3 452	0
5 106	1 895	3 212	4 431	0
4 945	2 815	2 130	1 678	0
5 119	2 247	2 871	1 874	0
7 486	970	6 515	6 433	0
3 229	899	2 330	859	0
3 077	1 176	1 901	1 231	0
5 450	2 772	2 678	5 450	0
6 270	1 493	4 777	6 270	0
6 157	2 847	3 310	6 157	0
270	139	131	270	0
5 902	2 919	2 984	5 341	0
891	0	891	891	0
155 014	54 126	100 887	105 473	500

From existing data to simulated aggregate macro-indicators

Outputs

MODELED AGGREGATES

New final demand	New output (L.f)	New intermediate consumption	new GVA
2 639	3 202	433	2 769
11 048	14 895	1 261	13 634
2 450	4 334	1 025	3 309
0	62	45	17
2 175	4 252	249	4 003
1 899	2 284	102	2 182
364	2 614	1 276	1 338
12 078	15 273	7 332	7 941
8 329	13 943	5 081	8 913
635	1 571	191	1 380
2 611	2 853	275	2 578
15 715	15 715	9 607	6 109
1 653	13 946	4 106	9 840
3 492	6 717	3 092	3 625
4 431	5 106	1 895	3 212
1 678	4 946	2 816	2 130
1 874	5 120	2 248	2 872
6 433	7 486	971	6 516
859	3 230	899	2 331
1 231	3 079	1 177	1 903
5 450	5 450	2 772	2 678
6 270	6 270	1 493	4 777
6 157	6 157	2 847	3 310
270	270	139	131
5 341	5 902	2 919	2 984
891	891	0	891
105 973	155 569	54 199	101 370
		Increase in GVA	0.5%

GVA BY REGION

Central and Kampala	Eastern	Northern	Western
1 391	982	76	320
6 847	4 836	376	1 575
1 662	1 174	91	382
9	6	0	2
3 007	621	12	363
1 410	507	75	189
952	99	12	275
4 738	1 352	243	1 608
5 883	1 277	502	1 251
794	232	93	261
1 483	434	174	487
5 616	105	142	246
5 987	1 414	805	1 638
2 813	347	288	177
1 913	452	270	576
1 466	267	188	210
1 479	525	249	620
4 960	624	282	649
1 774	223	101	232
1 448	182	82	190
2 038	257	116	267
2 349	914	656	857
1 627	634	455	594
87	15	8	21
1 981	351	181	471
592	105	54	141
64 301	17 936	5 533	13 600
61%	17%	5%	13%

NEW GVA BY REGION

Central and Kampala	Eastern	Northern	Western
1 509	1 065	83	347
6 969	4 922	383	1 603
1 662	1 174	91	382
9	6	0	2
3 007	621	12	363
1 410	507	75	189
953	99	12	275
4 738	1 352	243	1 608
5 889	1 278	503	1 252
794	232	93	261
1 483	434	174	487
5 616	105	142	246
5 987	1 415	806	1 639
2 817	347	289	177
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1 479	525	249	620
4 960	624	282	649
1 775	223	101	232
1 449	182	83	190
2 038	257	116	267
2 349	914	656	857
1 627	634	455	594
87	15	8	21
1 981	351	181	471
592	105	54	141
64 559	18 109	5 548	13 659
64%	18%	5%	13%

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