Equations of System Dynamics Model

Democratic_Accountability(t) = Democratic_Accountability(t - dt) + (change_in_DA) * dt

INIT Democratic_Accountability = 1

INFLOWS:

change_in_DA = min((max_DA-Democratic_Accountability),(Government_Stability*effect_of_GS_on_DA)+(Military_in_Politics*effect_of_MiP_on_DA))

Economic_Openness(t) = Economic_Openness(t - dt) + (change_in_Economic_Openness) * dt

INIT Economic_Openness = 33.70

INFLOWS:

change_in_Economic_Openness = (Level_of_Corruption-neutral_LoC)*effect_of_LoC_on_Economic_Openness

Government_Expenditure(t) = Government_Expenditure(t - dt) + (change_in_GE) * dt

INIT Government_Expenditure = 12

INFLOWS:

change_in_GE = min((max_GE-Government_Expenditure),(neutral_LoC-Level_of_Corruption)*effect_of_LoC_on_GE)

Government_Stability(t) = Government_Stability(t - dt) + (change_in_GS) * dt

INIT Government_Stability = 5.25

INFLOWS:

change_in_GS = min((max_GS-Government_Stability),(Law_&_Order*effect_of_L&O_on_GS))

Income_Inequality(t) = Income_Inequality(t - dt) + (change_in_Income_Inequality) * dt

INIT Income_Inequality = 34.50

INFLOWS:

change_in_Income_Inequality = min((max_Income_Inequality-Income_Inequality),(effect_of_SEC_on_Income_Inequality*Socio_Economic_Conditions)+(Level_of_Corruption-neutral_LoC)*effect_of_LoC_on_Income_Inequality)

Inflation(t) = Inflation(t - dt) + (change_in_inflation) * dt

INIT Inflation = 6.09

INFLOWS:

change_in_inflation = (Level_of_GDP*effect_of_Economic_Growth_on_Inflation)

Law_&_Order(t) = Law_&_Order(t - dt) + (change_in_L&O) * dt

INIT Law_&_Order = 2

INFLOWS:

change_in_L&O = min((max_L&O-Law_&_Order),(Level_of_Corruption-neutral_LoC)*effect_of_LoC_on_L&O+Peoples_Attitude_Against_Corruption*effect_of_PAAC_on_L&O)

Level_of_Corruption(t) = Level_of_Corruption(t - dt) + (change_in_LoC) * dt

INIT Level_of_Corruption = 1

INFLOWS:

change_in_LoC = min((max_LoC-Level_of_Corruption),(Democratic_Accountability*effect_of_DA_on_LoC)+(effect_of_OC_on_LoC*Organised_Crime)+(Inflation*effect_of_inflation_on_LoC)+(Income_Inequality*effect_of_Income_Inequality_on_LoC))

Level_of_GDP(t) = Level_of_GDP(t - dt) + (change_in_Level_of_GDP) * dt

INIT Level_of_GDP = 35.24

INFLOWS:

change_in_Level_of_GDP = (Economic_Openness*effect_of_Economic_Openness_on_Level_of_GDP)

Military_in_Politics(t) = Military_in_Politics(t - dt) + (change_in_MiP) * dt

INIT Military_in_Politics = 1

INFLOWS:

change_in_MiP = min((max_MiP-Military_in_Politics),(Law_&_Order*effect_of_L&O_on_MiP))

Organised_Crime(t) = Organised_Crime(t - dt) + (change_in_OC) * dt

INIT Organised_Crime = 84

INFLOWS:

change_in_OC = min((max_OC-Organised_Crime),(effect_of_L&O_on_OC*Law_&_Order))

Peoples_Attitude_Against_Corruption(t) = Peoples_Attitude_Against_Corruption(t - dt) + (change_in_PAAC) * dt

INIT Peoples_Attitude_Against_Corruption = 5

INFLOWS:

change_in_PAAC = min((max_PAAC-Peoples_Attitude_Against_Corruption),(Level_of_Corruption-neutral_LoC)*effect_of_LoC_on_PAAC)

Socio_Economic_Conditions(t) = Socio_Economic_Conditions(t - dt) + (change_in_SEC) * dt

INIT Socio_Economic_Conditions = 6.92

INFLOWS:

change_in_SEC = min((max_SEC-Socio_Economic_Conditions),(effect_of_GE_on_SEC*Government_Expenditure))

effect_of_DA_on_LoC = 0.215

effect_of_Economic_Growth_on_Inflation = -0.00102

effect_of_Economic_Openness_on_Level_of_GDP = 0.1002

effect_of_GE_on_SEC = 0.00258

effect_of_GS_on_DA = 0.014

effect_of_Income_Inequality_on_LoC = -0.0025

effect_of_inflation_on_LoC = -0.00250

effect_of_L&O_on_GS = 0.028

effect_of_L&O_on_MiP = 0.0022

effect_of_L&O_on_OC = -0.030

effect_of_LoC_on_Economic_Openness = 0.15

effect_of_LoC_on_GE = -0.0905

effect_of_LoC_on_Income_Inequality = -0.002

effect_of_LoC_on_L&O = 0.032

effect_of_LoC_on_PAAC = -0.106

effect_of_MiP_on_DA = 0.0019

effect_of_OC_on_LoC = -0.002

effect_of_PAAC_on_L&O = 0.015

effect_of_SEC_on_Income_Inequality = -0.002

max_DA = 6

max_GE = 100

max_GS = 12

max_Income_Inequality = 100

max_L&O = 6

max_LoC = 6

max_MiP = 6

max_OC = 100

max_PAAC = 10

max_SEC = 12

neutral_LoC = 3.0