First Workshop on Long-term Finance

Secretariat on Climate Change

Prof. Jeffrey D. Sachs

July 9, 2012

Bonn, Germany

FUNDAMENTAL ECONOMIC ISSUES IN CLIMATE CHANGE:

NEED FOR RAPID AND DEEP DECARBONIZATION

NEED FOR DEEP TECHNOLOGICAL CHANGE

NEED FOR CLIMATE ADAPTATION AND RESILIENCE

ALL OF THESE POSE SIGNIFICANT INCREMENTAL COSTS

BUT THE COSTS ARE MUCH LESS THAN THE COSTS OF BAU

TO SOME EXTENT, ACTIONS WILL BE TAKEN THROUGH:

PEER PRESSURES, **MORAL IMPERATIVES**, **REPUTATIONAL BENEFITS**, AND **FIRST-MOVER ADVANTAGES**

YET TO A GREAT EXTENT, ACTIONS WILL BE TAKEN BECAUSE OF POLICY INCENTIVES: **REGULATIONS**, **CARBON PERMITS**, **CARBON TAXES**, **FEED-IN TARIFFS,** AND **OTHER SUBSIDIES**

UNDER ARTICLE 4.3 OF THE UN FRAMEWORK CONVENTION ON CLIMATE CHANGE DEVELOPED COUNTRIES COMMITTED TO PROVIDE FUNDING FOR THE "AGREED FULL INCREMENTAL COSTS" OF CLIMATE CHANGE IN DEVELOPING COUNTRIES . . . IN CANCUN, DEVELOPED COUNTRIES RENEWED THEIR PLEDGE TO SCALE UP FUNDING FOR CLIMATE ACTIONS TO US$100 BILLION ANNUALLY FROM PUBLIC, PRIVATE AND INNOVATIVE SOURCES BY 2020.

SOURCE: WWW.CLIMATEFUNDSUPDATE.ORG

THREE CLIMATE FINANCING CHALLENGES

INTERNATIONAL FINANCING OF $100 BILLION PER YEAR

FINANCING OF NATIONAL MITIGATION STRATEGIES

FINANCING OF NATIONAL ADAPTATION STRATEGIES

PLUS ADDITIONAL COMPLEXITIES

WE NEED AN ASSESSMENT RULE FOR EACH COUNTRY

THE ASSESSMENT SHOULD BE BASED ON

CARBON EMISSIONS
(POLLUTER PAYS PRINCIPLE)

AND

ABILITY TO PAY

I propose the following assessment rate for Country i:

Assessment (i) =

CO_2 Emissions (i) x CO_2 Assessment Rate x GDP Factor (i)

The Assessment Rate is expressed in $US/tons of CO_2

I would suggest a GDP Factor as follows:

High-income country (>$12,276): 1.0
High Middle-income country ($3,976-$12,275): 0.5
Low Middle-income country ($1,006-$3975): 0.25
Low-income country (<$1,005): 0.0

AMOUNTS RAISED GLOBALLY FOR DIFFERENT LEVELS OF ASSESSMENT PER TON OF CO_2

$/ton of CO_2	Total Green Fund Revenues Worldwide	Cents Per Gallon in Low-Income Countries	Cents Per Gallon in Low Middle-Income Countries	Cents Per Gallon in Upper-Middle Income Countries	Cents Per Gallon in High-Income Countries
1	$24 billion	0	0.2	0.4	0.9
2	$42 billion	0	0.4	0.9	1.8
3	$72 billion	0	0.7	1.3	2.6
4	$96 billion	0	0.9	1.8	3.5

CONCLUSION: $4 per ton for high-income, $2 per ton for upper-middle-income, $1 per ton for lower-middle-income, and $0 per ton for low-income would achieve the global objective of around $100 billion

KEY QUESTIONS:

WILL MIDDLE-INCOME COUNTRIES AGREE TO SHARE IN THE SUPPORT OF LOW-INCOME COUNTRIES?

WILL THE UNITED STATES AND OTHER “RESISTANT” HIGH-INCOME COUNTRIES FINALLY AGREE TO A CO_2 ASSESSMENT SYSTEM?

ILLUSTRATIVE ASSESSMENT BY COUNTRY ($4 PER TON OF CO_2 EMISSION)

Country	CO_2 emissions (million tons per year)	GDP/capita Ranking	GDP Factor	Total Assessment (at $4/ton)	Assessments as % of GDP (PPP equivalent)
China	7,710	Upper Middle-Income	0.5	$15.4 billion	0.16%
India	1,602	Lower Middle-Income	0.25	$1.6 billion	0.10%
Mozambique	2.35	Lower Income	0	0	0
United Kingdom	520	Higher Income	1	$2.0 billion	0.10%
United States	5,420	Higher Income	1	$21.6 billion	0.14%

AT THE NATIONAL LEVEL, MITIGATION EFFORTS ARE BEST GUIDED BY A LONG-TERM AND PREDICTABLE "NET TAX" ON CO_2, WHICH IS FAR MORE POWERFUL AND EFFICIENT THAN AN EMISSIONS TRADING (CAP-AND-TRADE) MARKET

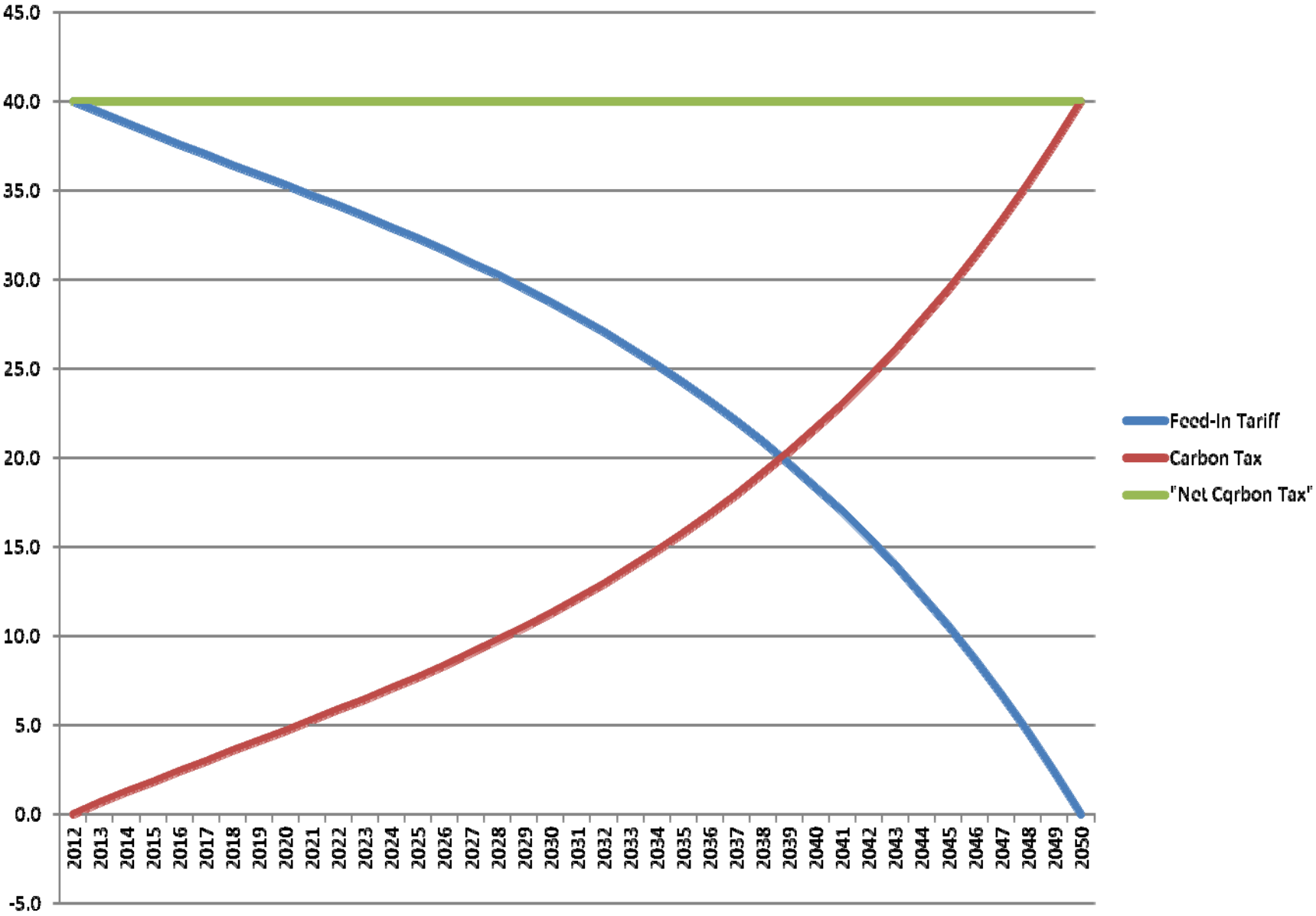
"NET CARBON TAX" = CARBON TAX + FEED-IN SUBSIDY

ONE “BALANCED-BUDGET RULE” WOULD BE TO INTRODUCE A FEED-IN TARIFF (I.E. SUBSIDY) FOR LOW-CARBON ENERGY, PAID FOR BY A GRADUALLY RISING TAX ON HIGH-CARBON ENERGY.

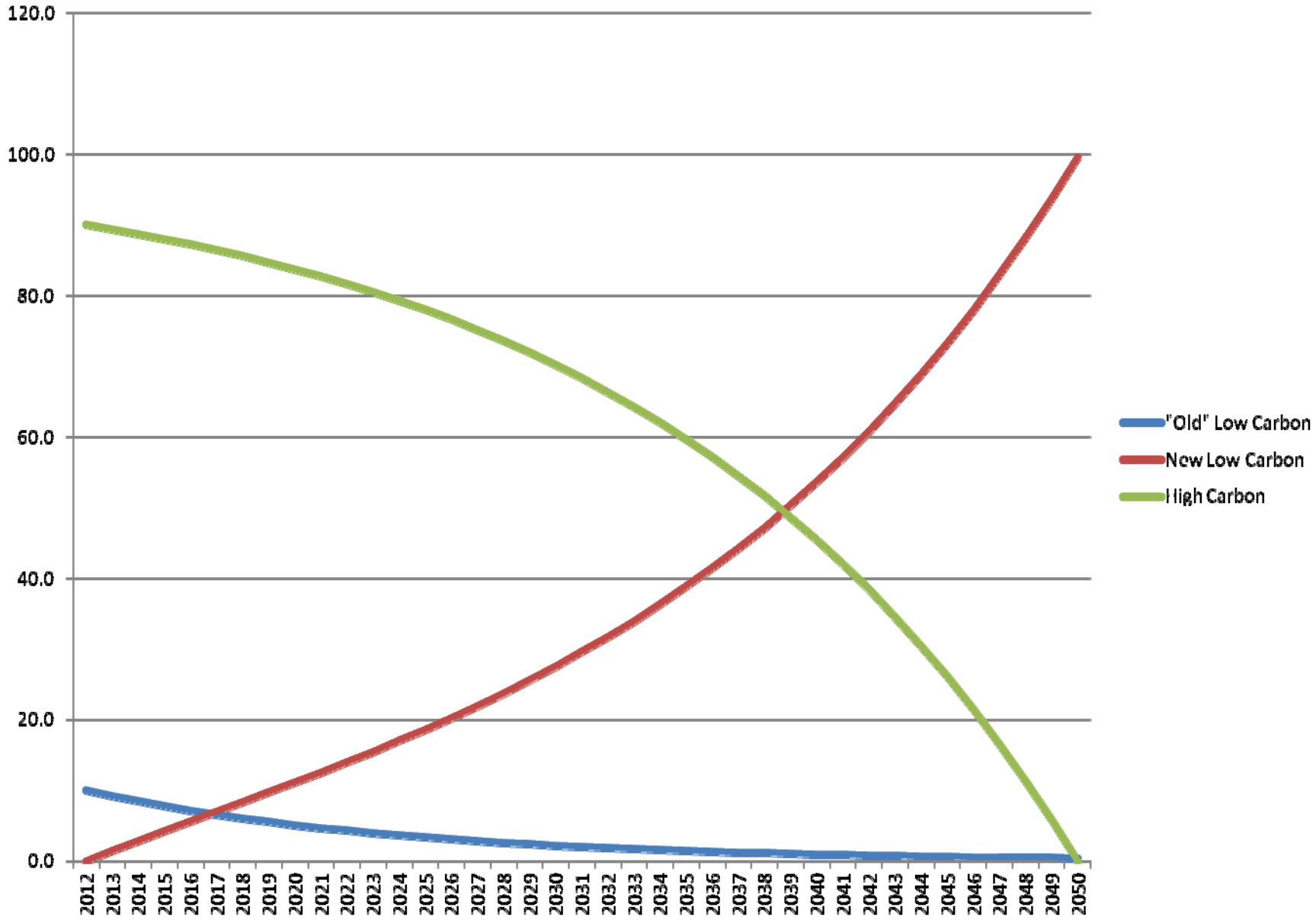
THE KEY IS TO MAKE THE CARBON TAX PLUS THE RENEWABLE SUBSIDY LARGE AND PREDICTABLE

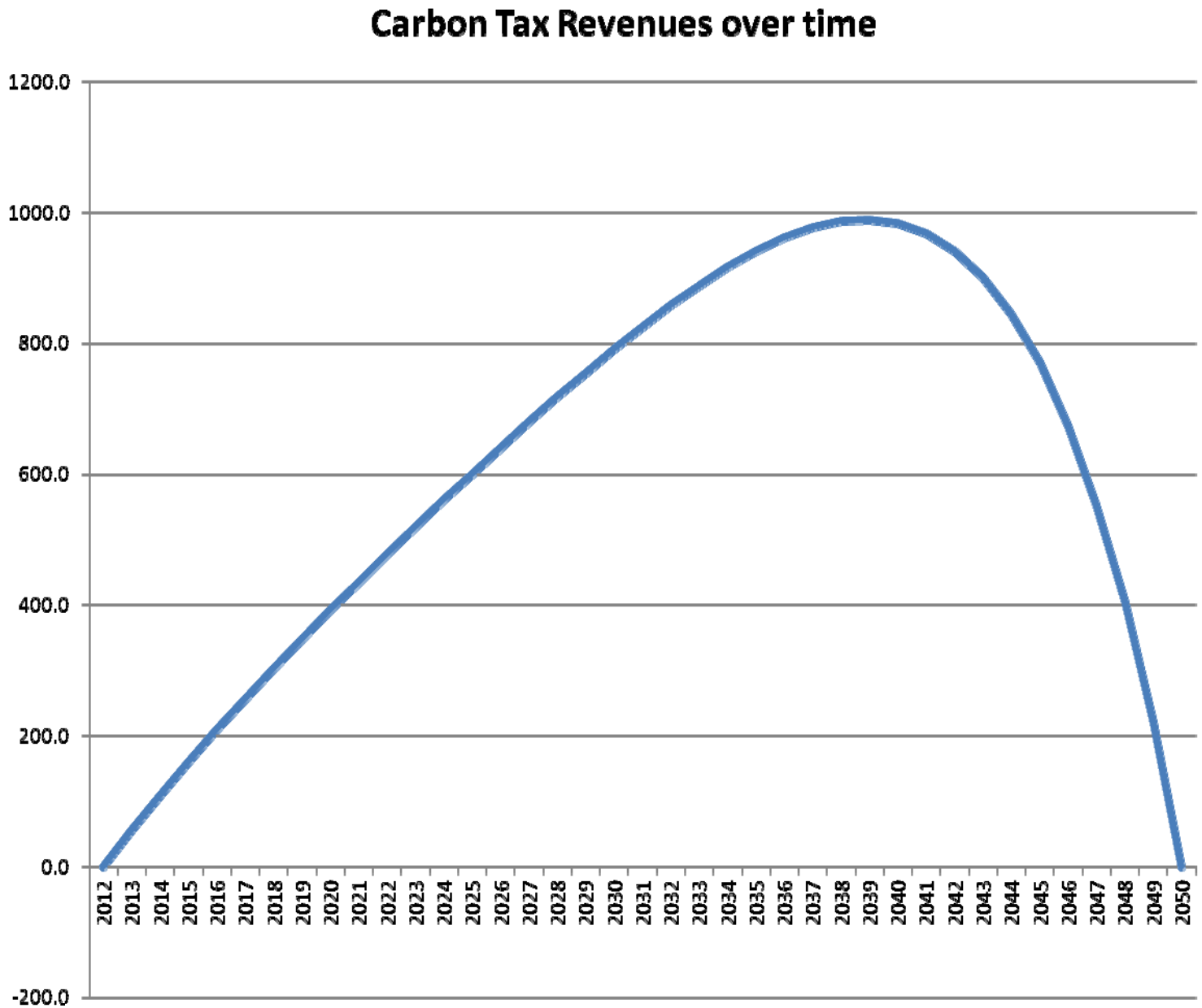
E.G. \$40/TON OF CO_2

ILLUSTRATION OF A RISING CARBON TAX AND DECLINING FEED-IN TARIFF, ALL BALANCED BUDGET



Changing Proportions of Low-Carbon and High-Carbon Energy Sources




Carbon Tax Revenues over time
1200.0
1000.0
800.0
600.0
400.0
200.0
0.0
-200.0
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
2027
2028
2029
2030
2031
2032
2033
2034
2035
2036
2037
2038
2039
2040
2041
2042
2043
2044
2045
2046
2047
2048
2049
2050

Climate-change mitigation and adaptation programs are highly context specific, and require detailed and costed plans from local to national levels. Such plans are only now be formulated. The emerging Sustainable Development Goals (SDGs) can become an important stimulus to detailed local-to-national planning.