Citation

Muñoz, Lucio, 2025. **Environmental sustainability thinking 103: Using the critical problem-solving impossibility zone theory to point out why anthropocentric led critical development issues such a global warming has not been solved since 1987 and why they should not be expected to be solved if we continue to use non-transition-based market development tools.** In ***CEBEM-REDESMA Boletin*****,** Año 19, Nº 11, November, La Paz, Bolivia.

Environmental sustainability thinking 103: Using the critical problem-solving impossibility zone theory to point out why anthropocentric led critical development issues such a global warming has not been solved since 1987 and why they should not be expected to be solved if we continue to use non-transition-based market development tools

By

Lucio Muñoz*

*** Independent Qualitative Comparative Researcher / Consultant, Vancouver, BC, Canada Email: munoz@interchange.ubc.ca**

Abstract

It can be said that irresponsible human led economic behavior has led to a critical pollution production problem affecting irresponsible critical development problem led dynamics in a negative loop frame, which has taken us to a world of non-optimal production, non-optimal consumption and non-optimal population dynamics through time, with increasing unsustainability driving critical issues like global warming. This is the anthropocentric led view of negative economic impacts on critical development problem dynamics, including global warming. The goal of this paper is to link the critical problem-solving impossibility zone theory with this anthropocentric led view to create an anthropocentric led critical problem-solving impossibility zone linked to global warming dynamics and use it to highlight why approaches used to deal with this negative anthropocentric behavior since 1987 to now, namely sustainable development goals (since WCED 1987), dwarf green markets (since UNCSD 2012 Rio + 20), and circular traditional markets (since about 2022), have not worked and it is getting worse; and why they should not be expected to fix the pollution production problem associated negatively with the global warming issue.

Introduction

a) The critical pollution production problem-solving impossibility zone

The idea that there is a problem-solving impossibility zone separating irresponsible market dynamics (IRM) and irresponsible critical development problem dynamics (IRCDP), which is the space where critical pollution production problems (POPP) cannot be fully fixed has recently been shared (Muñoz 2025) as summarized in Figure 1 below:

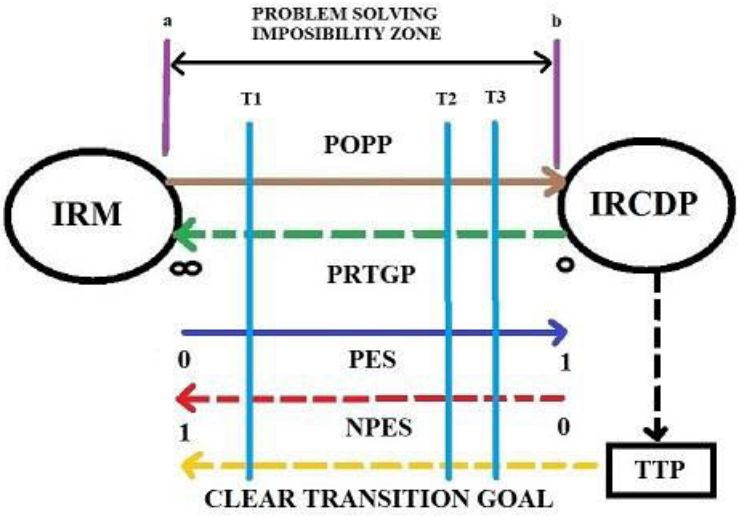

Figure 1 The critical development problem solving impossibility zone

Figure 1 above indicates that between point "a" and point "b" there is a critical problem-solving impossibility zone, where the pollution production problem (POPP) can not be fully fixed with the use of no transition-based development tools like Ti placed perpendicular to the pollution problem arrow. A careful look at Figure 1 above tells us that any development tool (Ti) like T1, T2, T3 can not fix the pollution production problem (POPP) they are being aimed at solving as they are no-transition tools operating under polluting sources of energy (PES) as shown by the blue line from left to right, which go hand in hand with the pollution production problem (POPP) as indicated by the brown arrow from left to right. The broken golden arrow means these tools have no clear transition goal, they have a full pollution reduction technology gap problem (PRTGP) as indicated by the broken green arrow from right to left, which means no supply of non-polluting sources of energy (NPES) exist as indicated by the broken red arrow from right to left, and hence, there is a transition tool problem (TTP) as indicated by the broken black arrow from IRCDP to TTP since they are no transition tools.

b) The critical pollution production problem-solving impossibility zone in terms of irresponsible human behavior led global warming

The anthropocentric led critical problem-solving impossibility zone can be stated by making irresponsible market behavior (IRM) equal to irresponsible human behavior led economic dynamics (IRHUBLE) so that IRM = IRBUBLE; and making the irresponsible critical development problem (IRCDP) be the irresponsible human behavior led global warming (IRHUBLGW) so that IRCDP = IRHUBLGW, as shown below:

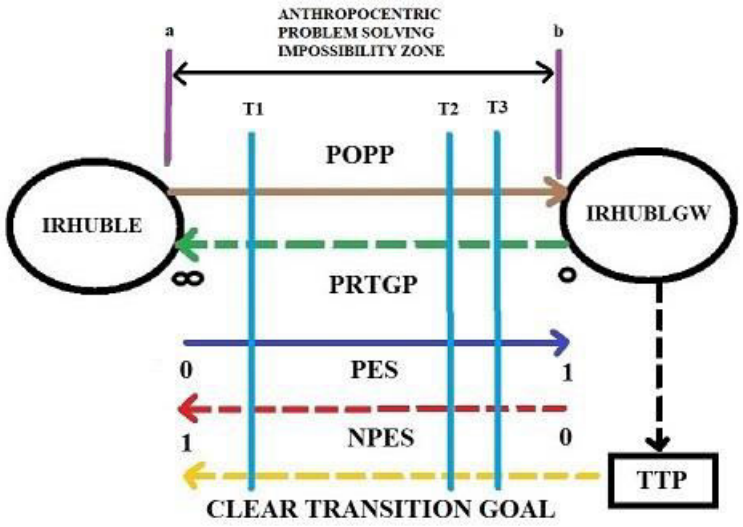

Figure 2 The anthropocentric led critical development problem-solving impossibility zone

Figure 2 above highlights that between point "a" and point "b" there is an anthropocentric critical problem-solving impossibility zone, where the pollution production problem (POPP) cannot be fully fixed with the use of no transition-based development tools like Ti placed perpendicular to the pollution problem arrow. A close look at Figure 2 above indicates that any development tool (Ti) like T1, T2, T3 cannot fix the anthropocentric pollution production problem (POPP) they are being aimed at solving as they are no-transition tools operating under polluting sources of energy (PES) as shown by the blue line from left to right, which go hand in hand with the anthropocentric pollution production problem (POPP) as indicated by the brown arrow from left to right. The broken golden arrow means these tools have no clear transition goal, they have a full pollution reduction technology gap problem (PRTGP) as indicated by the broken green arrow from right to left, which means no supply of non-polluting sources of energy (NPES) exist as indicated by the broken red arrow from right to left, and hence, there is a transition tool problem (TTP) as indicated by the broken black arrow from IRHUBLGW to TTP since they are no transition tools.

c) Linking the no-transition tools in the problem-solving impossibility zone to the remaining pollution production problem (RPOPP)

One non-transition tools like T1, T2 and T3 are used; they create a permanent market failure and associated remaining pollution production problem (RPOPP) that is active as they address only a portion of the pollution being produced as indicated in Figure 3 below:

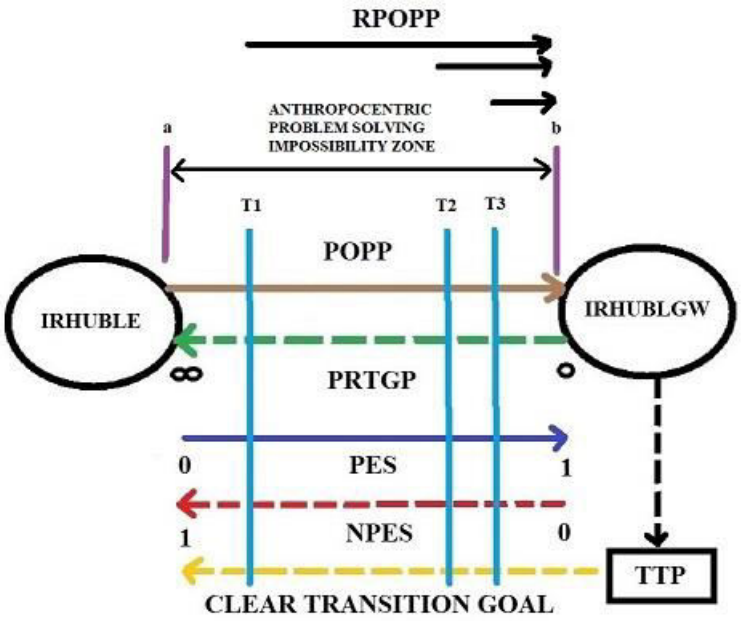

Figure 3 Linking the critical problem solving impossibility zone with remaing critical pollution production problem (RPOPP) active as non-transition tools T1, T2, T3...Tn work

Figure 3 above stresses that the location of the no transition tool Ti intercepting the anthropocentric pollution production problem (POPP) determines the size of the remaining anthropocentric pollution production problem (RPOPP). In other words, Figure 3 above shows that there is a remaining pollution production problem (RPOPP) associated with each non-transition tool as a consequence of the market failure they create, where for example in the case above the no transition tool T1, it has bigger remaining pollution production problem RPOPP than no transition tool T2 as T1 handles less pollution than tool T2.

Hence the point where the vertical line representing the no-transition tool Ti like T1 cuts the pollution production problem arrow determines the level of pollution being accounted for and the remaining pollution production problem RPOPP linked to that specific no transition tool. Hence, tool T3 in Figure 3 above has a smaller remaining pollution production problem than tool T2 as tool T3 handles more pollution production problem.

d) The need to understand the impact of the three major attempts to change human behavior towards a pollution free world

Hence, consistent with the discussion above, it can be said that irresponsible human led economic behavior has led to a critical pollution production problem affecting irresponsible critical development problem led dynamics in a negative loop frame, which has taken us to a world of non-optimal production, non-optimal consumption and non-optimal population dynamics through time, with increasing unsustainability driving

critical issues like global warming. This is the anthropocentric led view of negative economic impacts on critical development problem dynamics, including global warming. The goal of this paper is to link the critical problem-solving impossibility zone theory with this anthropocentric led view to create an anthropocentric led critical problem-solving impossibility zone linked to global warming dynamics and use it to highlight why approaches used to deal with this negative anthropocentric behavior since 1987 to now, namely sustainable development goals since 1987's Our Common Future (WCED 1987), dwarf green markets since 2012 Rio + 20(UNCSD 2012a; UNCSD 2012b), and circular traditional markets since about 2022(WB 2022; OECD 2024; OECD 2025a), have not worked as the critical anthropocentric environmental problems are getting worse (IPCC 2021a; IPCC 2021b; OECD 2025b), and why they should not be expected to fix the pollution production problem associated negatively with the global warming issue.

The goals of this paper

a) To place sustainable development thinking/since 1987 into the anthropocentric critical problem-solving impossibility zone as it is a no transition tool and to highlight the implications of doing this; b) To place dwarf green market thinking/since 2012 into the anthropocentric critical problem-solving impossibility zone as it is a no transition tool and to point out the implications of doing this; c) To place circular traditional economic thinking/since 2022 into the anthropocentric critical problem-solving impossibility zone as it is a no transition tool and to stress the implications of doing this; and d) To place all tools, sustainable development, dwarf green market and circular traditional market, within the same anthropocentric critical problem-solving impossibility zone to point out commonalities.

Methodology

First, the terminology and operational concepts used in this paper are introduced. Second, the sustainable development thinking/since 1987 is placed into the anthropocentric critical problem-solving impossibility zone as it is a no transition tool and its implications are highlighted. Third, the dwarf green market thinking/since 2012 is brought in the anthropocentric critical problem-solving impossibility zone as it is a no transition tool and the implications of this are pointed out. Fourth, the circular traditional economic thinking/since 2022 is placed into the anthropocentric critical problem-solving impossibility zone as it is a no transition tool and the implications of this are indicated; Fifth, all tools, sustainable development, dwarf green market and circular traditional market, are stated within the anthropocentric critical problem-solving impossibility zone as all of them are no transition tools to point out commonalities in terms of critical

anthropocentric problem-solving thinking. And sixth, some food for thoughts and conclusions are listed.

Terminology

M = Market CDP = Critical development problem

REM = Responsible market dynamics IRM = Irresponsible market dynamics

RECDP = Responsible critical development problem dynamics

IRCDP = Irresponsible critical development problem dynamics

POPP = Pollution production problem

PRTGP = Pollution reduction technology gap problem

TTP = Transition tool problem PES = Polluting energy source

NPES = No polluting energy source PTT = Proper transition tool

CM = Clean market CMi = Clean market "i"

PTTi = Proper transition tool "i" T1 = No transition-based tool "1"

Ti = No transition-based tools "i" POPPi = Pollution production problem "i"

PRTGPi = Pollution reduction technology gap "i"

PESi = Polluting energy source "i" NPESi = No polluting energy source "i"

RETG = Renewable energy technology gap RE = Renewable energy

NRE = Non-renewable energy ECLM = Environmentally clean market

DM = Dirty market SD = Sustainable development

DGM = Dwarf green market CTM = Circular traditional market

IRHUBLE = Irresponsible human behavior led economy

IRHUBLGW= Irresponsible human behavior led global warming

Operational concepts

1) Clean market, a pollution-less market.

2) Dirty market, a pollution production market.

3) Problem solving impossibility zone, the place where no full solution to the pollution production problem exists.

4) Problem solving possibility point, the only place where the conditions for a full solution to the pollution production problem exist.

5) Pollution production problem, the issue that separates dirty economies from clean economies.

6) Anthropocentric clean economy, a pollutionless economy led by responsible human behavior.

7) Anthropocentric dirty economy, a pollution production economy led by irresponsible human behavior.

8) Anthropocentric problem-solving impossibility zone, the place where no full solution to the anthropocentric pollution production problem exists.

9) Anthropocentric problem-solving possibility point, the only place where the conditions for a full solution to the anthropocentric pollution production problem exist.

10) Anthropocentric pollution production problem, the issue that separates anthropocentric dirty economies from anthropocentric clean economies.

The sustainable development period 1987 to now and the socio-environmental critical pollution problem-solving impossibility zone

The Brundtland Commission found in 1987 that traditional market thinking had created a socio-environmental sustainability pollution production problem (SEPOPP), that needed to be corrected, but they chose in 1987 a partial solution using sustainable development thinking tool SD, a situation depicted in Figure 4 below by the 1987 vertical blue line:

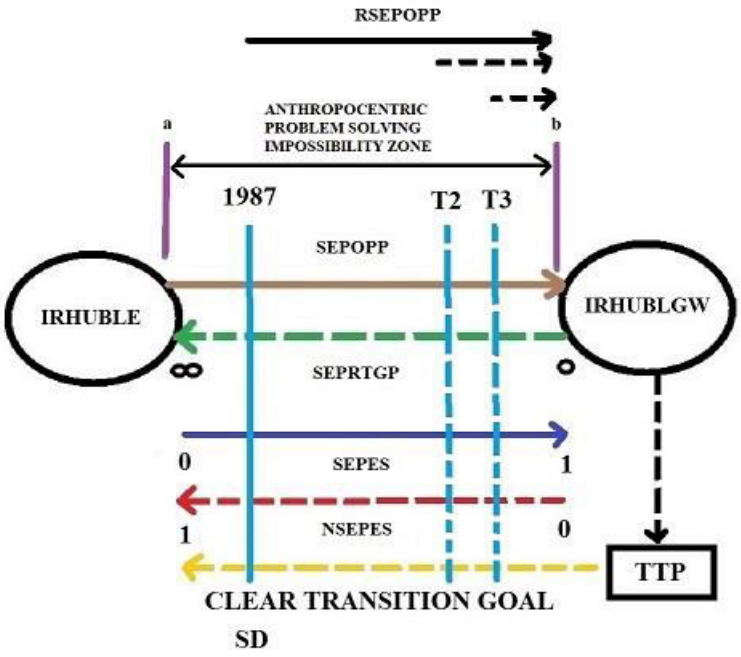

Figure 4 The use of sustainable development means (SD) to addres critical socio-environmental sustainability problems and the structure of its expected failure

Figure 4 above clearly indicates that the 1987 sustainable development tool (SD) is a no transition development tool as indicated by the blue vertical line from 1987 to SD, which creates a market failure that feeds the remaining socio-environmental pollution production problem RSEPOPP as indicated by black arrow gong from left to right from 1987 to point "b". Notice that the 1987 SD tool has no clear transition goal towards a socio-environmental pollution-less world as indicated by the broken golden arrow going from right to left, it has a full socio-environmental pollution reduction technology gap problem (SEPRTGP) as indicated by the broken green arrow going from right to left, it has no supply of no socio-environmental polluting energy sources as indicated by the broken red arrow going from right to left, and it has a transition tool problem TTP since it is a no transition tool as indicated by the broken arrow going from IRHUBLGW to TTP.

Notice based on Figure 4 above that if under socio-environmental pollution reduction technology gaps SEPRTGP the polluting sources of energy PES disappear suddenly and the blue line was then broken then there would be economy black outs in sustainable development-based markets as there is no source of no polluting energy available to close the energy gap needed to run economies efficiently polluting sources of energy disappear due to the existence of the socio-environmental pollution reduction technology gap problem SEPRTGP.

Implication 1:

You cannot solve socio-environmental pollution production problems like global warming created by traditional market thinking by using no-transition development tools like sustainable development as they create a market failure and operate under remaining socio-environmental pollution production problems.

Implication 2:

You cannot and should not expect to solve a socio-environmental pollution production problem like global warming by using sustainable development thinking as this tool falls within the critical anthropocentric problem-solving impossibility zone.

The dwarf green market period 2012 to now and the environmental critical pollution problem-solving impossibility zone

In 2012 the United Nations Commission on Sustainable Development (UNCSD) decided to give priority to solving the environmental pollution production problem EPOPP associated with traditional market thinking and the tool they ended up using are dwarf green markets (DGM) as they moved away from green market, green economy and green growth thinking, and this no transition tool is highlighted in Figure 5 below by the continuous 2012 vertical blue line:

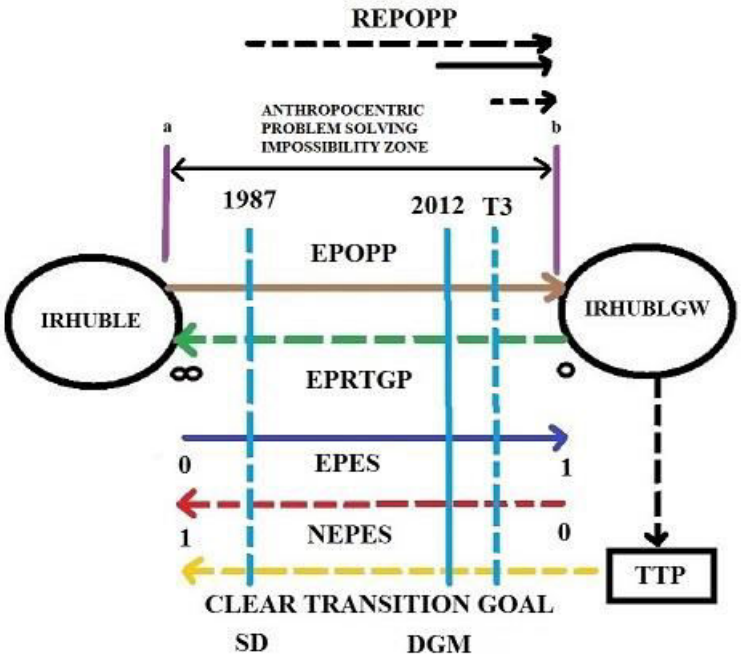

Figure 5 The use of dwarf green market means (DGM) to address critical environmental sustainability problems and the structure of expected failure

Figure 5 above clearly tells us that the 2012 dwarf green market (DGM) is a no transition development tool as told by the blue vertical line from 2012 to DGM, which creates a market failure that feeds the remaining environmental pollution production problem REPOPP as indicated by black arrow gong from left to right from 2012 to point "b". Notice that the 2012 DGM tool has no clear transition goal towards an environmental pollutionless world as indicated by the broken golden arrow going from right to left as it works using polluting energy sources EPES as indicated by the blue arrow going from left to right, it has a full environmental pollution reduction technology gap problem (EPRTGP) as indicated by the broken green arrow going from right to left, it

has no supply of no environmental polluting energy sources NEPES as indicated by the broken red arrow going from right to left, and it has a transition tool problem TTP since it is a no transition tool as indicated by the broken arrow going from IRHUBLGW to TTP.

Notice based in Figure 5 above that if under environmental pollution reduction technology gaps EPRTGP the polluting sources of energy PES disappear suddenly and the blue line was then broken; then there would be economy black outs in dwarf green markets as there is no source of no polluting energy available to close the energy gap needed to run economies efficiently when polluting energy sources disappear due to the existence of the environmental pollution reduction technology gap problem EPRTGP.

Implication 3:

You cannot solve environmental pollution production problems like global warming created by traditional market thinking by using no-transition development tools like dwarf green markets as they create a market failure and operate under remaining environmental pollution production problems.

Implication 4:

You cannot and should not expect to solve an environmental pollution production problem like global warming by using dwarf green market thinking as this tool falls within the critical anthropocentric problem-solving impossibility zone.

The circular traditional economy period about 2022 to now and the socio-environmental critical pollution problem-solving impossibility zone

In 2022 or so the world seems to go the way of circular traditional market thinking (CTM), actively being promoted right now, but not to address the socio-environmental pollution production problem affecting the linear traditional market, but to address resource use inefficiency issues affecting economic activity, a situation displayed in Figure 6 below with a broken vertical blue arrow going from 2022 to CTM:

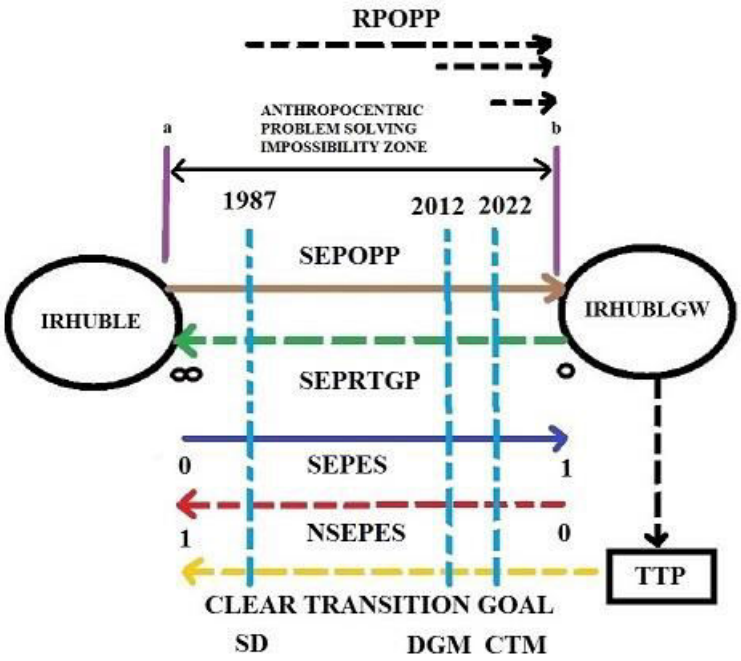

Figure 6 The use of circular traditional market tools (TCM) to address resource use inneficiency issues instead of the critical socio-environmental pollution production problem (SEPOPP) associated with the linear market they are supposedly correcting and the structure of its expected failure

Figure 6 above depicts the circular traditional economy (CTM) as a non-transition and socio-environmental pollution production friendly tools expressed as a broken blue vertical line. If we look closely, Figure 6 above clearly shows that the 2022 circular traditional market tool (CTM) is a no transition development tool, but it has a broken blue structure as it is not geared to solving the pollution production problem, but a resource use inefficiency problem. For this reason, circular traditional markets, just as linear markets do, operate under socio-environmental market failure and full socio-environmental sustainability gap pressures.

Notice based on Figure 6 above the following: i) the circular economy operates under a full socio-environmental pollution production problem SEPOPP as it relies on socio-environmental polluting energy sources SEPES as indicated by the continues brown arrow and blue arrow respectively going from left to right; ii) the circular economy operates under a socio-environmental pollution reduction technology gap SEPRTGP and therefore, it has no supply of no socio-environmental polluting energy sources NSEPES available as indicated by the broken green arrow and broken red arrow respectively going from right to left; iii) the circular economy has no clear transition goal to a pollutionless world as it is not aimed at solving the pollution production problem, but the resource use inefficiency problem as indicated by the broken golden arrow going from right to left; and iv) the circular economy then, has a transition too problem TTP as it is a no transition tool towards pollutionless environments.

Notice based on Figure 6 above that if under socio-environmental pollution reduction technology gaps SEPRTGP the polluting sources of energy PES disappear suddenly and the blue line was then broken then there would be economy black outs in circular traditional markets as there is no source of no polluting energy available to close the energy gap needed to run economies efficiently if polluting energy sources suddenly

disappear due to the existence of the socio-environmental pollution reduction technology gap problem SEPRTGP.

Implication 5:

You cannot solve environmental pollution production problems like global warming created by traditional market thinking by addressing resource use inefficiency problems and leaving the pollution production problem to solve itself or assumed away.

Implication 6:

You cannot and should not expect to solve an environmental pollution production problem like global warming by using circular economic thinking as this tool not just falls within the anthropocentric critical problem-solving impossibility zone, but it is not even aimed at solving the socio-environmental pollution production problem that goes with circular traditional market thinking, but a resource use efficiency problem.

The structure of why the socio-environmental sustainability problem has not been solved since 1987 and why it should not be expected to ever be solved using no-transition tools

In summary, we should not expect to solve a critical pollution production problem related problem linked to issues like global warming with the use of no-transition tools like sustainable development (SD 1987), dwarf green markets (DGM 2012) and circular traditional markets (CTM 2022) as all of them fall within the critical anthropocentric problem-solving impossibility zone as pointed out in Figure 7 below:

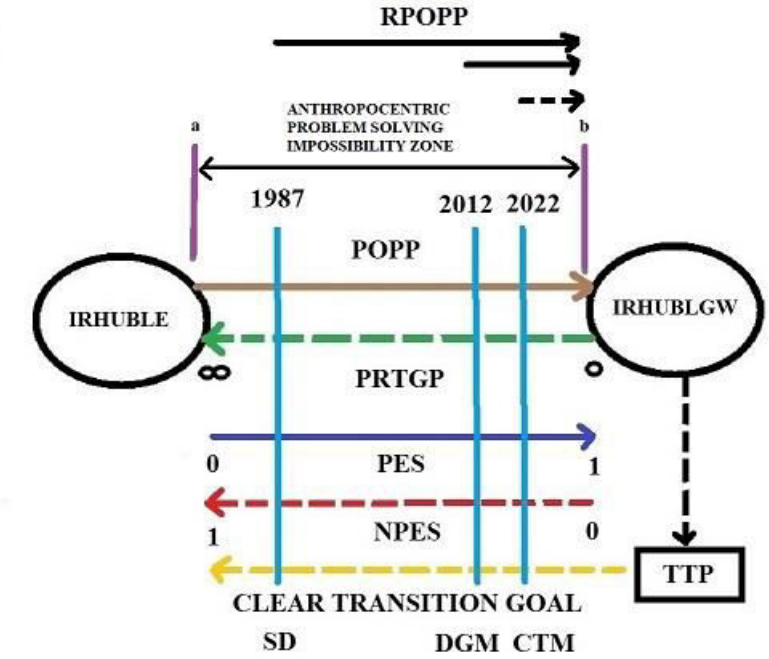

Figure 7 The structure of why the critical pollution production problem (POPP) has not been solved since 1987 and it can not be solved by using no-transition market tools

We can highlight based on Figure 7 above the common factors that tell us that we should not expect to solve critical development issues like global warming using no

transition tools like sustainable development SD, dwarf green markets DGM and circular traditional economies CTM as they are all non-transition tools operation, some under remaining pollution production problems such as sustainable development and dwarf green markets while others operate under full socio-environmental sustainability gaps like circular traditional markets. Moreover, we can see that all no-transition tools above, SD, DGM, and CTM have the following in common: i) they operate under pollution reduction technology gaps PRTGP as indicated by the continuous brown arrow; ii) they all work under no clear transition goals toward pollutionless worlds as indicated by the broken golden arrow, iii) they all act under no nonpolluting energy sources NPES as they do not exist, and iv) they all operate under transition tools problems TTP as they are not aimed for transitions to pollutionless environments.

Implication 7:

We cannot solve or expect to solve the socio-environmental pollution problems created by traditional market thinking linked to issues like global warming by using any of these no transition tools, namely sustainable development tools SD, dwarf green market tools DGM and circular traditional market tools CTM. Notice if that under pollution reduction technology gaps problems PRTGP if the polluting sources of energy PES suddenly disappear and then blue line goes broken, then we should expect to see economy black outs in all no transition markets as there is no source of no polluting energy available to close the energy gap created by the sudden disappearance of pollution energy sources needed to run economies efficiently due to the existence of the pollution reduction technology gap problem PRTGP.

Food for thoughts

a) Should we expect to solve a critical problem by assuming externalities way? I think no, what do you think? b) Should we expect resource use efficiency under cost externalization, full or partial? I think no, what do you think? c) Can we expect to solve a critical development problem by normalizing irresponsible human behavior? I think no, what do you think? d) Can you solve a critical development problem by focusing on related problems? I think no, what do you think? and e) Can we solve a distorted market led critical development problem by addressing the resource use inefficiencies encouraged by those market distortions? I think no, what do you think?

Conclusions

In general, it was shown that the anthropocentric critical problem-solving impossibility zone theory can be used to point out why no transition development tools can not solve critical anthropocentric problems like global warming linked to the pollution production problem associated with traditional economic thinking. In particular, it was shown that all sustainable development tools, all dwarf green market tools and all circular traditional economy tools can not solved the critical pollution production problem driving issues like global warming for the same reasons: i) all of them are no transition tools; ii) all of them operate under a pollution reduction technology gap problem as all of them work using polluting energy sources; iii) all of them lack a supply

of no polluting energy sources as the result of the pollution reduction technology gap so if polluting energy sources were to suddenly disappear there would be economy black outs; iv) all of the lack a clear transition goal towards pollutionless worlds; and v) all of them are subjected to the transition tool problem as all of them operate under market failures and remaining sustainability gaps which do not provide a path to pollutionless environments.

References

Intergovernmental Panel on Climate Change (IPCC), 2021a. **Climate change widespread, rapid, and intensifying,** August 09.

Intergovernmental Panel on Climate Change (IPCC), 2021b: **Summary for Policymakers.** In: *Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* [Masson-Delmotte, V., P. Zhai, A. Pirani, S.L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M.I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T.K. Maycock, T. Waterfield, O. Yelekçi, R. Yu, and B. Zhou (eds.)]. In Press.

Muñoz, Lucio, 2025. **Environmental sustainability thought 102: The theory of how to link the critical pollution production generation problem with the critical pollution production solving problem step by step to point out expected problem solutions and failures? What are the implications of doing this?,** In CEBEM-REDESMA Boletin, Año 19, Nº 10, October, La Paz, Bolivia.

Organization for Economic Cooperation and Development (OECD), 2024. **Monitoring Progress towards a Resource-Efficient and Circular Economy**, OECD Publishing, June 26.

Organization for Economic Cooperation and Development (OECD), 2025a. **Resource Efficiency and the Circular Economy,** Topics.

Organisation for cooperation and development (OECD), 2025b. **Environment at a glance dashboard**, Paris, France.

United Nations Conference on Sustainable Development (UNCSD), 2012a**.** **Rio+20 Concludes with Big Package of Commitments for Action and Agreement by World Leaders on Path for a Sustainable Future**, Press Release, June 20-22, New York, NY, USA.

United Nations Conference on Sustainable Development (UNCSD), 2012b. **The Future We Want**, June 20-22, New York, NY, USA.

World Bank (WB), 2022**.** **Squaring the Circle: Policies from Europe's Circular Economy Transition,** Press Release, December 06.

World Commission on Environment and Development (WCED), 1987. Our Common Future, Oxford United Press, London.

Citation

Muñoz, Lucio, 2025. **Environmental sustainability thinking 103: Using the critical problem-solving impossibility zone theory to point out why anthropocentric led critical development issues such a global warming has not been solved since 1987 and why they should not be expected to be solved if we continue to use non-transition-based market development tools.** In ***CEBEM-REDESMA Boletin*****,** Año 19, Nº 11, November, La Paz, Bolivia.