Citation:

Muñoz, Lucio, 2025. **Environmental sustainability thinking 101: The environmental pollution production problem, global warming and dwarf green markets since 2012: Pointing out the energy future we need to construct and the one we need to avoid, In: *MSI Journal of Multidisciplinary Research(MSIJMR)*,** November 04, Volume: 2, Issue: 11, ISSN 3049-0669. **https://doi.org/10.5281/zenodo.17534676**
https://zenodo.org/records/17534676

Environmental sustainability thinking 101: The environmental pollution production problem, global warming and dwarf green markets since 2012: Pointing out the energy future we need to construct and the one we need to avoid

By

Lucio Muñoz*

*** Independent qualitative comparative researcher / consultant, Vancouver, BC, Canada. Email: munoz@interchange.ubc.ca**

Abstract

The road towards 2012 Rio + 20 was a road that was supposed to lead to the energy future we needed to build, a future towards a pollutionless world, but instead it led to a future we should have avoided, a future under ongoing dwarf green market failures. Perhaps this route was possible or it was allowed to go unchallenged because of green market paradigm shift knowledge gaps created when you shift from fully dirty economies to a fully clean economy, which hides possible transitions tools available and it makes more attractive, specially politically, to use no transition development tools; and by doing this we give a blessing of permanency to the market failures we are supposed to be trying to fix. Among the goals of this paper are: i) to show analytically and graphically, using the critical anthropocentric environmental problem-solving impossibility zone theory, how and why dwarf green market tools and thinking cannot be expected to fix the pollution production problem linked to traditional market thinking as pollution production continue to take place in the permanent environmental market failure under which they work; and ii) And then use this framework to point out the energy future we need to construct and the one we need to avoid.

Introduction

A) The environmental pollution production problem, global warming and dwarf green markets link since 2012

It has been recently pointed out (Muñoz 2025) that there is a pollution production problem separating irresponsible human behavior led market dynamics (IRHUBLE) from irresponsible human behavior led global warming (IRHULGW), a situation that existed in 2012 Rio + 20 (UNCSD 2012a; UNCSD 2012b) when the world went the way of dwarf green markets (DGM) and which it is depicted in Figure 1 below:

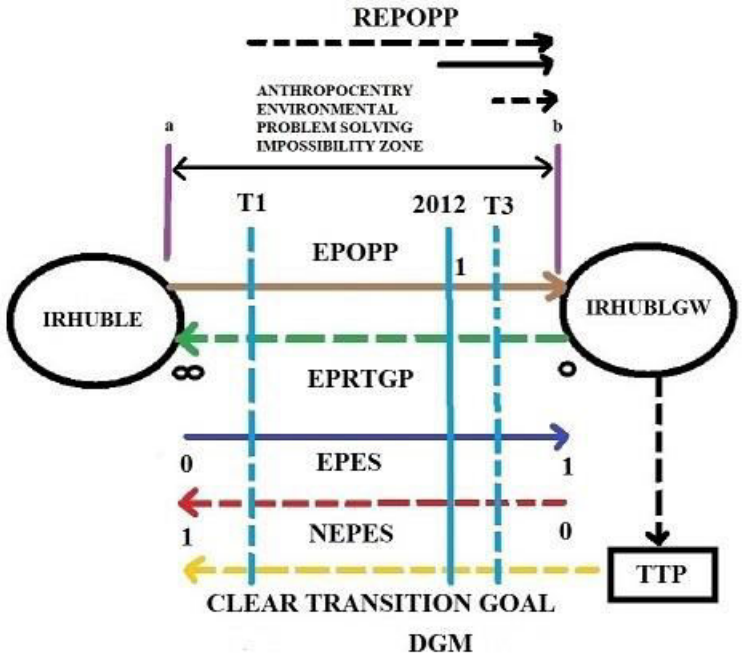

Figure 1 The use of dwarf green market means (DGM) to address critical environmental sustainability problems and the structure of expected failure

Figure 1 above tells us that there is an anthropocentric environmental problem-solving impossibility zone (AEPSIZ) separating the irresponsible dynamics of the market tool (IRHUBLE) and the irresponsible dynamics of the global warming problem (IRHUBLGW), and this zone begins at point "a" and ends at point "b". Figure 1 also shows that the 2012 dwarf green market tool (DGM) aimed at addressing the environmentally pollution problem partially is a no transition to environmental pollution-less market tool, which has a remaining environmental pollution problem (REPOPP) attached as it works as shown by continues black arrow at top going from left to right. Notice too that at point at point "b" you have a fully environmentally dirty economy or fully dominant environmentally pollution-based economy; and at point "a" you have a fully environmentally clean economy or fully dominant environmentally clean economy and the position of the 2012 dwarf green markets and goals in between point "a" and point "b" means that they were implemented without a clear transition goal to one day move from environmentally polluting economies to environmentally clean economies.

B) The link between the anthropocentric environmental critical problem-solving impossibility zone and polluting and no polluting sources of energy

Figure 1 above highlights too that the 2012 dwarf green markets (DGM) were set up in an environment where there is full environmental pollution reduction technology gap (EPRTGP) indicated by the broken green arrow going from right to left from "0" to ∞ as the market is run on environmentally polluting sources of energy (EPES) as indicated by the continues blue arrow going from left to right from 0 to 1 ; and hence these markets are lacking a supply of no environmental polluting energy sources (NEPES) as indicated by the broken red arrow going from right to left from 0 to 1; and since they were implemented in the absence of the need to transition to environmentally clean economies as the need to transition to clean economies they never were, and never has been, one of the 17 sustainable development goals as anyone can see(UN 2025).

Finally it is important to highlight that in Figure 1 above point "b" is a point of full cost externalization and notice that point 1 on the vertical 2012 blue line of the dwarf green market DGM is a point of partial cost externalization and the distance from point "a" to point "b" is the full environmental pollution production problem EPOPP and the distance from point "1" to point "b" is the remaining environmental pollution production problem linked to and affecting the working of the dwarf green market DGM

C) The need to understand the nature of the anthropocentric critical environmental problem-solving possibility point

Notice that if we flip point "b" in Figure 1 above from being the point of full environmental cost externalization to a point of full environmental cost internalization, then we can then create an anthropocentric critical environmental problem solving possibility point, where the proper clear environmental transition goal can be set up, which would determine the proper environmental transition tool to put to work and would move to close the environmental pollution reduction technology gap problem to release or produce no environmental polluting energy sources to fully substitute environmental polluting energy sources and transition that way from environmentally dirty economies to environmentally clean economies.

D) The need to link the discussion above to the energy future we need and the one we should avoid

Consistent with the discussion above it can be said the road towards 2012 Rio + 20 was a road that was supposed to lead to the energy future we needed to build, a future towards a pollutionless world, but instead it led to a future we should have avoided, a future under ongoing dwarf green market failures. The need to avoid the future we have not avoided seemed to be indirectly recognized when indicating the need to substitute polluting energy sources for no polluting ones to improve air quality and minimize other impacts (OECD 2025). Perhaps this route was possible or it was allowed to go unchallenged because of green market paradigm shift

knowledge gaps created when you shift from fully dirty economies to a fully clean economy, which hides possible transitions tools available and it makes more attractive, specially politically, to use no transition development tools; and by doing this we give a blessing of permanency to the market failures we are supposed to be trying to fix. The consequences and nature of green market paradigm shift avoidance and period 2012 to now have been recently pointed out (Muñoz 2022; Muñoz 2024). Among the goals of this paper are: i) to show analytically and graphically, using the critical anthropocentric environmental problem-solving impossibility zone theory, how and why dwarf green market tools and thinking cannot be expected to fix the pollution production problem linked to traditional market thinking as pollution production continue to take place in the permanent environmental market failure under which they work; and ii) And then use this framework to point out the energy future we need to construct and the one we need to avoid.

Goals of this paper

a) To introduce the nature of the anthropocentric critical environmental pollution problem-solving impossibility zone and possibility point and their implications; and b) To use these frameworks to point out the energy future that we need to built and the one we should avoid.

Methodology

1) The terminology and operation concepts used in this paper are given; 2) The no transition nature of dwarf green markets is highlighted; 3) To the nature of the anthropocentric critical environmental pollution problem-solving impossibility zone and its implications is introduced; 4) The nature of the anthropocentric critical environmental pollution problem-solving possibility point and its implications is stressed; 5)The anthropocentric critical environmental pollution problem-solving possibility point to stress the energy future we need to construct is pointed out: 6) To the anthropocentric critical environmental pollution problem-solving impossibility zone framework is used to indicate the energy future we need to avoid; and 7) Some relevant food for thoughts and conclusions are provided.

Terminology

TM = Traditional market GM = Green market

DGM = Dwarf green market EM = Environmental margin

DWM = Dwarf environmental margin CLM = Clean market

ECLM = Environmentally clean market

EPES = Environmental polluting energy sources

NEPES = No environmental polluting energy sources

EPRTGP = Environmental pollution reduction technology gap

EPOPP = Environmental pollution production problem

REPOPP = Remaining environmental pollution production problem

IRHUBLE = Irresponsible human behavior led economy

IRHUBLGW = Irresponsible human behavior led global warming

REHUBLE = Responsible human behavior led economy

REHUBLWG = Responsible human behavior led global warming

AEPSIZ = Anthropocentric environmental problem solving impossibility zone

AEPSPP = Anthropocentric environmental problem solving possibility point

---

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.

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

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

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

The no transition nature of dwarf green markets

As mentioned in the introduction, no transition tools to environmentally clean markets were set up in 2012 Rio + 20 when the decision to give priority to solving the environmental pollution problem was formalized so making dwarf green markets no transition tools a la environmental pollution management market the relevant tools to use as the one shown at point 1 in Figure 2 below:

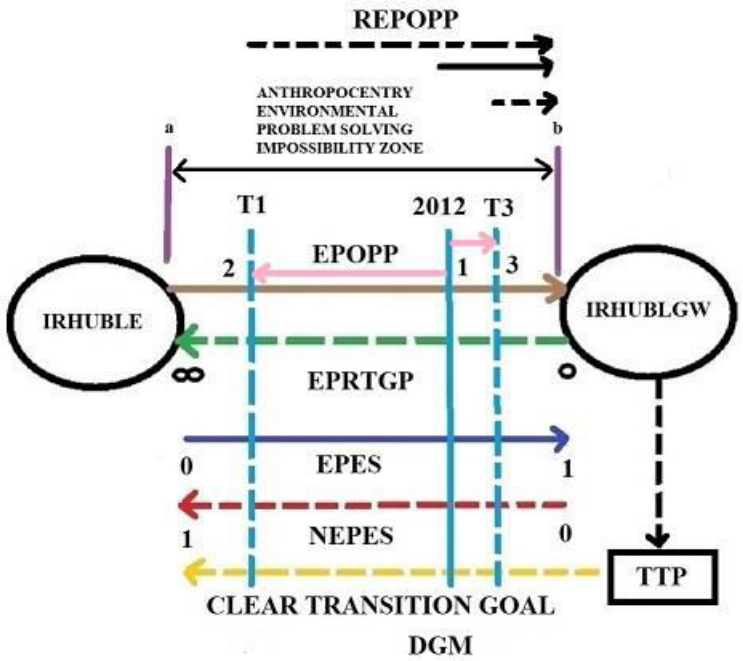

Figure 2 The nature of dwarf green markets as no transition tools a la environmental externality manament markets

Notice that in Figure 2 above the economy (E) is led (L) by irresponsible human behavior IRHUB so it is called irresponsible human led economy IRHBLE; and global warming (GW) in turn is led(L) by irresponsible human behavior(IRHUB) too so it is called irresponsible human behavior led global warming IRHBLGW; and these two irresponsible (IR) components are separated by the environmental pollution production problem EPOPP associated with the irresponsible economy (IRHUBLE), and the 2012 dwarf green market tool DGM sits in between and it is aimed at partially addressing this pollution production problem using pollution production management thinking.

Hence, Figure 2 above displays the structure of the 2012 dwarf green markets DGM as a vertical line managing some part of the environmental pollution production problem at point 1 on the EPOPP unbroken black arrow going from irresponsible market dynamics IRHUBLE to irresponsible global warming dynamics IRHUBLGW. See that point "b" here is the point of full environmental cost externalization as at that point the economy runs only on environmentally polluting sources of energy EPES as shown by the blue EPES arrow going from left to right.

Moreover, Figure 2 above can be used to derived the following from the dwarf green market world; i) there is a tool transition problem TTP as they are no transition tools as indicated by the broken black arrow from IRHUBLGW to TTP, ii) there is no clear goal to transition to environmentally clean economies or environmental pollutionless markets as indicated by the broken gold arrow going from right to left from IRHUBLGW to IRHUBLE, iii) it is a world where having a full supply of no polluting sources of energy NPES is not a priority as there is no incentive to close the environmental pollution reduction technology gap EPRTGP as indicated by the broken red arrow going from right to left, and iv) there is an environmental pollution reduction technology gap problem EPRTGP affecting it as indicated by the broken EPRTGP arrow going from right to left.

We can point out the no transition nature or the permanent environmental market failure situation of the 2012 dwarf green market tool (DGM) in Figure 2 above by looking at the expansion of pollution production from point 1 to point 3, by looking at the contraction of pollution production from point 1 to point 2, and by looking at the expected behavior of environmental pollution production managers in these pollution management based markets when managing them. The expansion of pollution production from point 1 to point 3 in dwarf green markets DGM can only happens in two ways i) the environmental pollution manager decreases the size of the dwarf green margin (DWGM) to be passed to consumers , and then dwarf green producers expand production at lower dwarf green prices (DGP) increasing pollution production in the process, but the pollution manager would not do this because it goes against its own pollution reduction policy; and ii) Dwarf green producers could reduce the size of the dwarf green margin to be passed to consumers on their own and externalize the rest, but the pollution manager would not allow this as it would increase pollution production. Hence if the pollution manager does not decrease the size of the dwarf green margin and it does not allow at

the same time dwarf green producers to reduce it themselves, then the dwarf green market DGM is stuck at point 1.

The contraction of pollution production from point 1 to point 2 in dwarf green markets can again only happens in two ways i) the environmental pollution manager increases the size of the dwarf green margin(DWGM) to be passed to consumers and then dwarf green producers contract production at higher dwarf green prices (DGMP), and the pollution manager would do this because it goes fine with its own incremental pollution reduction policy; and ii) Dwarf green producers could increase the size of the dwarf green margin to be passed to consumers on their own to increase environmentally friendliness and internalized that extra environmental cost at profit expense, but dwarf green producers are in the business of producing maximum profits not to be environmentally friendly on your own like in dwarf green markets DGM

Hence if the pollution manager does not increase the size of the dwarf green margin and since dwarf green producers should not be expected to take an economic loss to be more environmentally friendly on their own as that goes against the need to maximize profit at any dwarf green market point, then again the dwarf green market is stuck at point 1. And the above situation shows that dwarf green markets DGM are no transition tools aimed at managing the consequences of irresponsible human behavior led economies (IRHUBLE), not at fixing the root-cause of the pollution production problem embedded in those irresponsible economies (IRE).

Stating the anthropocentric critical environmental problem solving possibility point

Notice that if we fully internalized environmental costs of production (EM), then the model shift from irresponsible (IR) to responsible (RE) as now there is a clear goal to transition to environmental pollutionless economies as then environmental pollution reduction becomes a good profit making opportunity that allows green market transition to the environmentally clean economy creating in the process a critical problem possibility point at point “b” as stated in Figure 3 below.

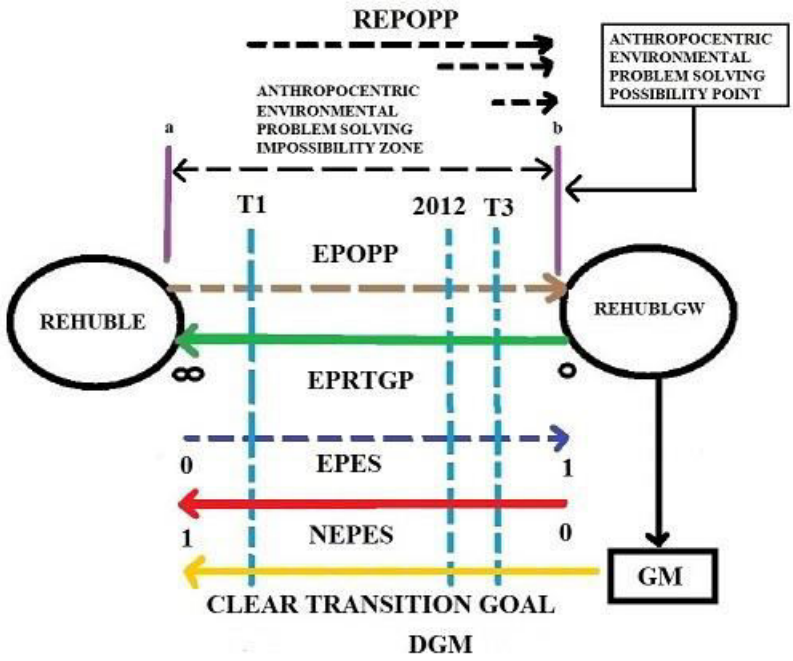

Figure 3 The structure of the anthropocentric critical environmental problem-solving possibility point

It can be seen based on Figure 3 above that at point "b" there is an anthropocentric environmental problem solving possibility point (AEPSPP), and here there is no longer an environmental pollution production problem EPOPP as well as there is no remaining environmental pollution problem REPOPP as the result of full environmental cost internalization. See that now at the critical problem solving possibility point "b" (AEPSPP) in Figure 3 above we can appreciate the following: i) there is a clear transition goal to go from irresponsible environmental human behavior led economy IRHUBLE to a responsible environmental human behavior led economy REHUBLE transforming irresponsible environmental human behavior led global warming IRHUBLGW to a responsible one REHUBLGW, ii) these move towards responsible environmental behavior (REHUB) provides now incentives to close the environmental pollution reduction technology gap problem EPRTGP producing the no environmental polluting sources of energy NEPES needed to permanent substitute the polluting sources of energy EPES; iii) there is now a proper transition tool set up a la green markets GM so it can be transitioned by slowly but surely producing at the lowest green market price possible, and iv) this allows the case of making money while reducing environmental pollution to the point where the green market price GMP equals the environmentally clean market price ECLMP so that GMP = ECLMP to become now a permanent environmental pollutionless market or environmentally responsible economy REHUBLE as shown by all continuous arrows from right to left in Figure 3 above. Notice that the possibility point at point "b" (AEPSPP) breaks the impossibility zone that exist from point "a" to point "b" as a direct result of full environmental cost internalization.

Finally, it is important to stress that in Figure 3 above point "b" (AEPSPP) is a point of full cost internalization now and see that point 1 on the vertical 2012 blue line of the dwarf green market DGM no longer has a remaining pollution production problem so the distance from point "a" to point "b" is now broken as the is no longer an environmental pollution production problem EPOPP as it has been internalized and the distance from point "1" to point "b" is broken too as there is no longer remaining environmental pollution production problem linked to and affecting the working of the green market GM. In other words under green markets GM there are no longer environmental sustainability gaps or remaining environmental pollution production problem, and hence, there are no longer remaining sustainability gap problems.

The structure of the anthropocentric critical problem solving problem impossibility zone for dwarf green markets

The critical problem solving impossibility zone (AEPSIZ) under which dwarf green markets DGM operate then can be stated as indicated below in Figure 4:

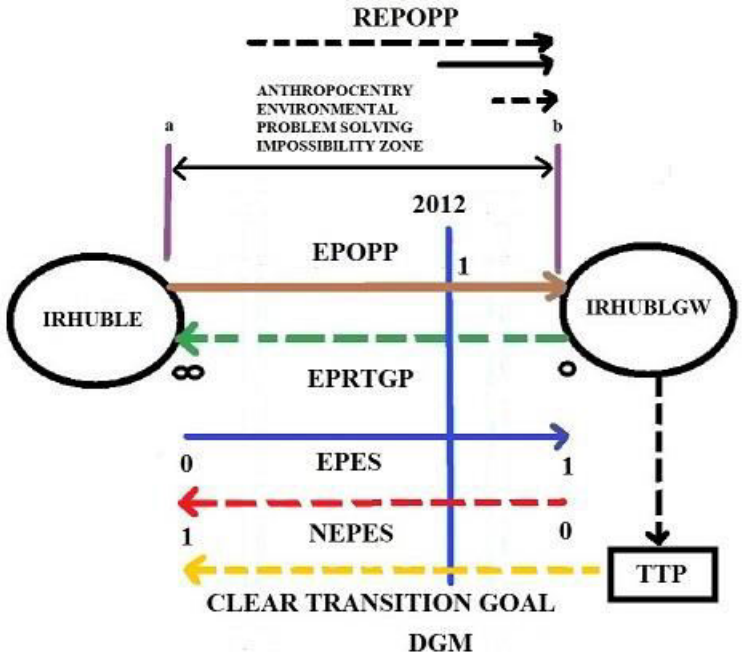

Figure 4 The anthropocentric critical environmental problem-solving impossibility zone for dwarf green markets (DGM)

Figure 4 points out that when dwarf green market tools DGM are at work i) there is still a remaining environmental pollution production problem REPOPP that goes from point 1 to point "b"; ii) They run using environmentally polluting energy sources as indicated by the continuous blue line; and iii) they are stuck at point 1 unless the environmental pollution manager increases the dwarf green margin to further contract pollution reduction levels. Notice that the broken arrows in Figure 4 show what dwarf green markets lack: i) They have a fully open environmental pollution reduction technology gap problem EPRTGP as indicated by the broken green arrow; ii)

They do not have a clear goal to transition to environmentally clean economies as indicated by the broken gold arrow; iii) they do not have a supply of no environmental polluting sources of energy NEPES as indicated by the broken red arrow; and iv) they do not have a proper transition tool to environmentally clean markets as shown by the broken down black arrow from IRHUBLGW to TTP.

Implications related to implementing no transition tools such as dwarf green markets to address the critical environmental pollution production problem embedded in Figure 4 above

a) A shift from fully dirty markets to pollutionless markets is not possible

Consistent with the discussion above based on Figure 4, as dwarf green markets are stuck at point 1, the point of permanent environmental market failure and the point that can only change if the pollution managers decides to change the dwarf green margin to be charged to consumers, then they cannot be transitioned towards environmentally pollutionless markets, a situation pointed out in Figure 5 below:

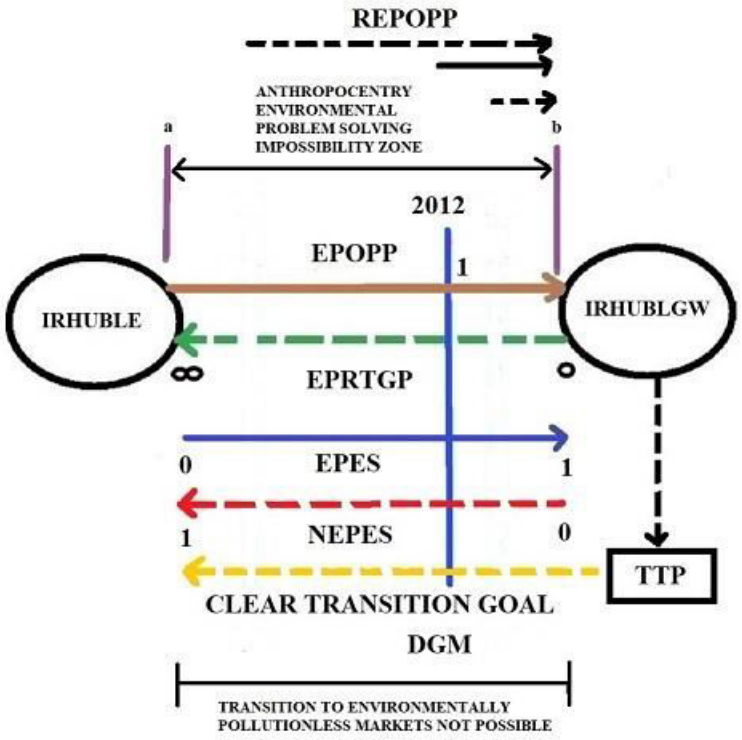

Figure 5 Dwarf green markets (DGM) as an inappropriate tool to address the anthropocentric critical problem solving problem as it resides in the impossibility zone

Figure 5 above tells us in dwarf green markets, transition to environmentally clean economies is not possible as they are stuck producing and consuming at point 1 or at any point on the environmental pollution production problem at the discretion of the environmental

pollution production manager or the government as dwarf green markets are markets under permanent government intervention. Also notice that the continuous blue line indicates that dwarf green markets are running only on environmental polluting energy sources EPES.

b) A world under possible and unbearable economy black outs is possible

As dwarf green markets operate under environmental polluting energy sources EPES and they have no supply of no environmental pollution sources of energy NEPES, then if polluting energy sources suddenly disappear there will be economy black out with the possibility of unbearable economy black outs leading to economy collapses depending of the nature of the environmental pollution reduction technology gap problem EPRTGP as shown in Figure 6 below:

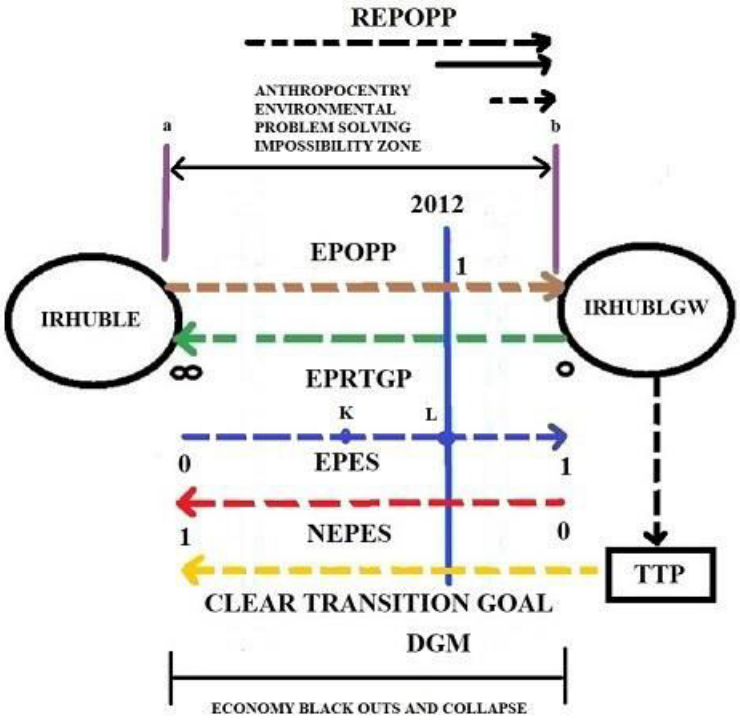

Figure 6 The world under economy black outs when environmental pollution sources of energy suddenly disappear while the environmental technology gap problem has not be addressed

Figure 6 above shows the situation dwarf green markets DGM are in when the environmental pollution sources of energy EPES is using to operate suddenly disappear as indicated by the broken blue line. Notice that the environmental pollution production problem EPOPP disappears if the environmental polluting sources of energy EPES disappear as indicated by the broken EPOPP arrow and as there is not a supply available of no environmental pollution energy sources NEPES, then there will be economic black outs and economy collapses.

For example, if the dwarf green market DGM is operating at point 1 it requires environmentally pollution energy sources EPES at the level of point L on the broken blue line, then a) if the environmental polluting source of energy EPES disappear at that point L there will

be an economy collapse as there is are no sources of no polluting energy to pick up the fall as the environmental pollution reduction technology gap problem is wide open; and b) if the environmental polluting energy sources EPES disappear at point K, then there would be initially economy black outs, but without no polluting sources of energy NPES to pick up the gap, there will be soon an economy collapse.

Implications related to implementing proper transition tools such as green markets to address the critical environmental pollution production problem embedded in Figure 3 above

a) A shift from fully dirty markets to pollutionless markets is possible

Consistent with the discussion above based on Figure 5, as green markets are proper transition tools then it is possible to transition them towards environmentally clean markets or responsible human behavior led markets REHUBLE as highlighted in Figure 7 below:

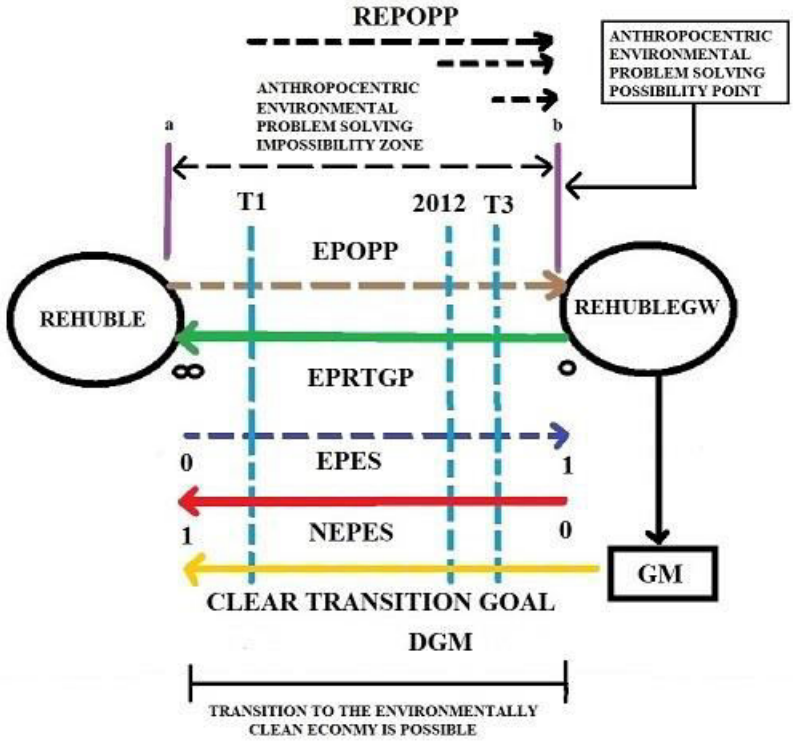

Figure 7 Green markets (GM) as the appropriate transition tool at the anthropocentric critical problem solving possibility point

Notice now that since in Figure 7 there is a clear transition goal to bring the market from point "b" towards the responsible human behavior led economy REHUBLE as indicated by the continuous golden arrow, using the green market GM as the transition tool. See in Figure 7 too, that now the environmental pollution reduction technology gap is closed as indicated by the continues green arrow going from REHUBLWG to REHUBLE, and you can appreciate too in

Figure 7 above that since no environmentally polluting sources of energy NEPES have permanently substituted environmentally polluting energy sources EPES there is no longer an external pollution production problem as indicated by the broken EPOPP arrow.

Hence Figure 7 above shows the conditions under which transition to the environmentally clean economy is possible as a permanent fix to the environmental pollution production problem, which are: i) Set a clear transition goal towards environmental pollutionless markets; ii) Set up green markets; iii) invest in fully closing the environmental pollution production technology gap; and iv) transition the green markets towards clean market by a process of substituting permanently polluting energy sources by no polluting ones to be able to produce at the lowest green market price possible until full transition happens at the point where the green market prices equals the environmentally clean market price. Finally notice that at the possibility point "b" (AEPSPP) when the renewable energy technology gap is closed, there are no remaining pollution production problems as the broken REPOPP arrow on top in Figure 7 above shows.

b) A world under possible but sometimes bearable economy black outs is possible

The possibility of economy black outs in the transition process from green markets to clean markets if environmental polluting energy sources disappear suddenly is still there, but the closer we are at closing the renewable energy technology gap problem when this happens, the more bearable economy black out are as they become extra incentive to close the remaining technology gap even faster as opportunities for further reducing pollution production come along, which means incentives to seek lower green market prices to maximize green profits, a situation that can be appreciated with the help of Figure 8 below:

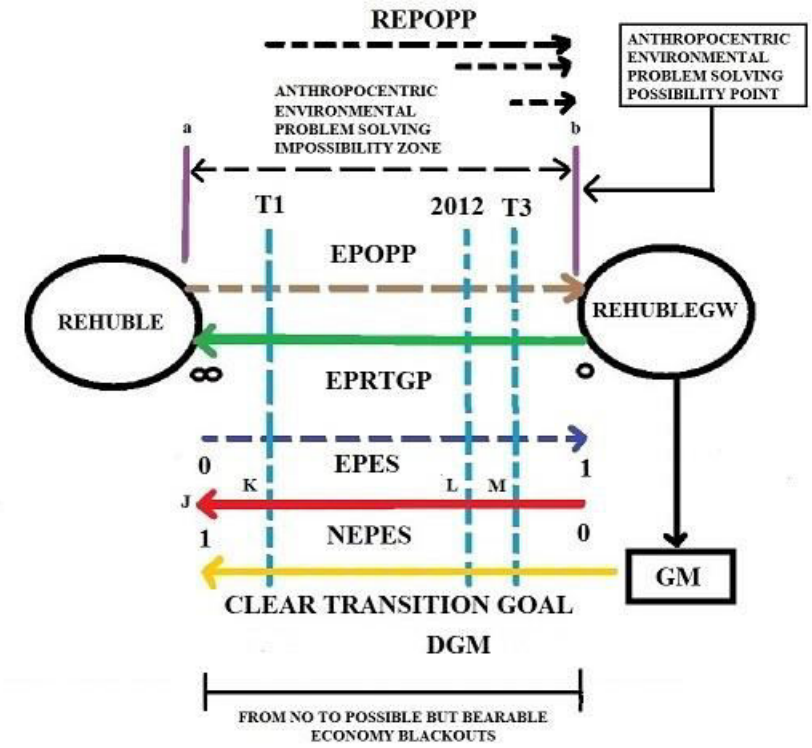

Figure 8 Transitions to environmentally clean economies and economic black outs

Figure 8 above depicts the world under the anthropocentric environmental problem solving possibility point (AEPSPP) where economy black out are possible if environmentally polluting energy sources EPES suddenly disappear as indicated by the broken blue EPES arrow, but all depend of the state of the renewable energy technology gap at that moment. For example, a) if the transition to the environmentally clean economy is at point "J" when the renewable energy technology gap is closed there will be no economy black outs if environmental polluting energy sources disappear suddenly; b) if the transition to the environmentally clean economy is at point "K", a dominant renewable energy based economy exist, then there may be economy black outs, but they would be bearable as they would provide incentives to green market producers to go the extra mile and close the remaining environmental pollution reduction technology gap faster and make more money generating even lower green market prices; and c) if the transition to the environmentally clean economy is at point "L" or worse at point "M" we should expect economy black outs first and economy collapses soon after as not enough environmentally clean energy is around to support those levels of green economic activity.

Hence, figure 8 show the structure of the critical environmental problem solving possibility point and the possible transition route and an requirements to transition from irresponsible human behavior based economies to responsible human behavior ones.

The energy future we need to construct to fix the environmental pollution production problem

Notice that Figure 8 above highlights a future where we close the environmental pollution reduction technology gap problem while polluting energy sources are still around, and set the goal to close it way before those polluting energy sources are exhausted, this is the energy future we need to construct, which is indicated in Figure 9 below:

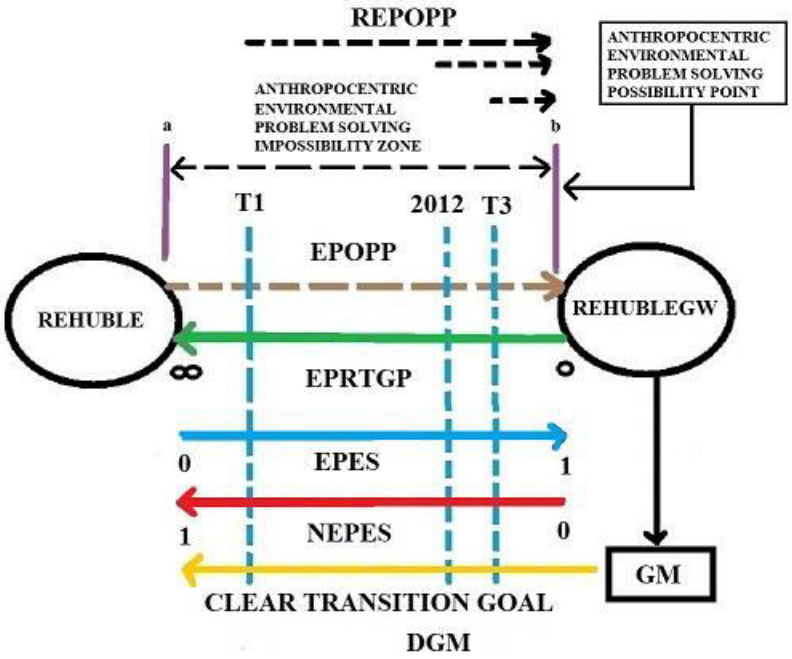

Figure 9 The energy future we want to construct: closing the environmental pollution reduction technology gap EPRTGP while polluting energy sources are still around

The critical environmental problem solving possibility point at point "b" in Figure 9 above indicates that to fix the environmental pollution production problem EPOPP we need to construct a future where: i) The priority goal is to transition towards environmentally responsible human behavior led economies or environmental pollutionless markets; b) To set up green markets as the proper tool for such a transition; c) to invest in closing the renewable energy technology gap to permanent leave behind polluting sources of energy; c) the faster we close this gap the easier would be to avoid economy black outs and collapses.

Notice that this effort requires serious shift in thinking and acting, for example we have to shift from macroeconomic and microeconomic thinking to green economics and green microeconomic thinking to handle green market problems, we have to shift education programs at all levels kindergarten to university and gear them towards eco-economic codependent choices, and we have to have governments that stay outside green markets unless there is a green market failure so that green producers and green consumers assume the eco-economic responsibility that comes with leaving the old traditional economy thinking behind.

The energy future we need to avoid exacerbating the global warming or critical problem issue while addressing it

See that Figure 7 above stresses the future we should avoid, a world under environmentally polluting sources of energy with no interest in closing the environmental pollution reduction technology gap, as this future will lead to economic black outs sooner or later if alternative energy sources are not readily available when polluting sources of energy are suddenly no longer around or are left behind, for example due to resources exhaustion or wars or deep environmental policy, a situation described in Figure 10 below:

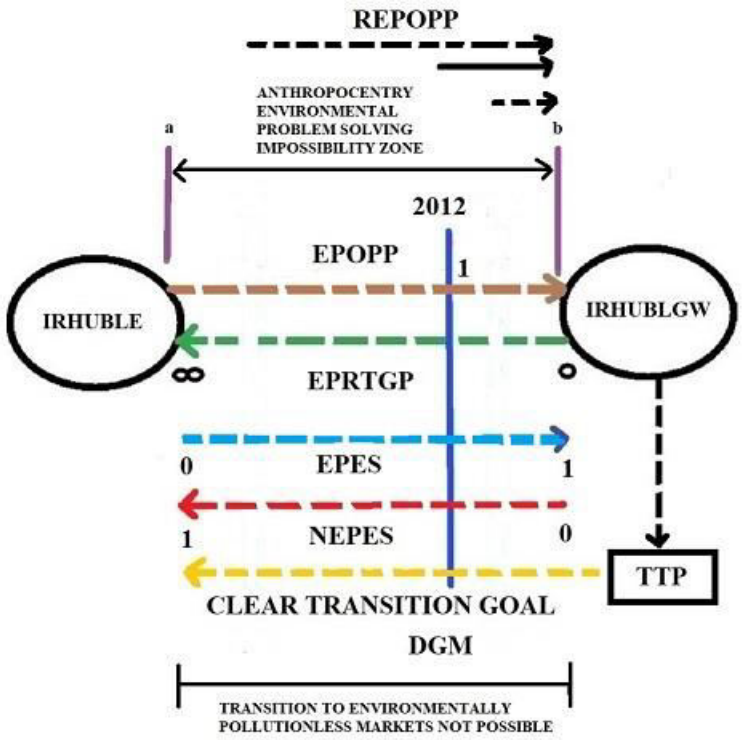

Figure 10 The energy future we need to avoid: Having polluting energy sources disappear while the environmental pollution reduction technology problem is not addressed or closed

Notice that the situation indicated in Figure 10 above, a world with a full environmental pollution reduction technology gap problem, is the same one where dwarf green markets DGM are set up, a word with no transition to environmentally clean markets and a world of possible economy black out if tomorrow there are no more polluting sources of energy available as we lack the supply of no polluting energy sources to make up for their absence as closing the renewable energy technology gap in dwarf green markets is not a good business opportunity for dwarf green producers and dwarf green consumers.

The implications for past and current critical environmental pollution production problem solving actions implemented since 1987

Closing the environmental pollution production technology gap was not and it is not a goal in sustainable development thinking a la 1987 WCED(WCED 1987); it is not the goal in dwarf green market thinking a la 2012 UNCSD too (UNCSD 2012a:UNCSD 2012b), and it is not the goal of circular traditional market thinking a la EUROPE also (WB 2022) so all those no transition tools would not work in the impossibility zone and eventually when polluting energy sources disappear there will be economy black outs as there would not be no polluting energy sources ready available to cover that gap to keep economies running efficiently. The greater the renewable energy technology gap, the greater the risk of economy black outs in case of as sudden lack of polluting sources of energy.

It seems to be important to point out that wars seem to increase the risk of economy black outs under an open renewable energy technology gap problem as they can suddenly limit or cut all together access to polluting energy sources, requiring more expensive adjustments that if we have invested heavily in transitioning to the environmentally clean economy from 1987 or from 2012 or from 2023, by endorsing the future we need to avoid we are favoring in the process the development and wealth of the owners of the environmental polluting sources of energy instead of encouraging a new wave of owners and wealth of no environmental pollution sources of energy.

Food for thoughts

a) Should we expect economy black outs if the renewable energy technology gap is never closed and polluting sources of energy suddenly disappear? I think yes, what do you think? b) Can you truly fix a problem with a patch? I think No, what do you think? c) Can economies collapse in front of our eyes if we use an environmental patch forever? I think yes, what do you think? d) Should a world under clean market be a human right? I think yes, what do you think? e) Would a total environmental system collapse make an environmental cost internalization policy be politically palatable? I think yes, what do you think?

Conclusions

First, it was highlighted that irresponsible human led economic behavior has been driving irresponsible behavior led global warming through an ongoing negative environmental pollution production loop. Second, it was pointed out that the environmental pollution problem that separates irresponsible economic behavior and irresponsible global warming trends can be fixed and it can be patched. Third, it was pointed out that all the patches such as sustainable development, dwarf green markets, and circular economic thinking fall within the

anthropocentric critical problem solving impossibility zone, which means they will never be able to fix the environmental problem they are addressing as there is still a remaining environmental pollution problem affecting the sustainability of the no transition tool as they work. Fourth, it was highlighted that the pollution problem can only be fixed if we use proper transition tools towards environmentally clean markets such as the use of green markets, but the fix in this case must state clearly that the goal is to transition towards environmental pollutionless markets, for which we need to close the environmental pollution reduction technology gap problem so as to be able to permanently substitute polluting energy source by no polluting ones. Fifth, it was pointed out that when we use no transition tools to deal with the environmental pollution production problem then there is no path to transition to environmentally clean economies as they operate under permanent environmental market failure and if polluting sources of energy disappear suddenly, due to exhaustion or war, there will be economy black outs as the environmental pollution reduction technology gap is not closed and hence, no supply of no polluting energy sources is available. Sixth, it was stressed that when we use proper transition tools such a green markets GM there is a path towards environmentally clean economies as they operate freely producing at the lowest green market price (GMP) possible until the green market price becomes the environmentally clean market prices (ECLMP) with an environmental margin (EM) of zero so that GMP = ECLMP, where EM = 0. Seventh, it was indicated that when the environmental technology gap problem is fully closed and suddenly polluting energy sources disappear there are no economy black outs, but if polluting sources of energy disappear just before the renewable energy technology gap is closed, then the economy black outs provide last push for incentives to full closed the gap as rapidly as possible as now environmental pollution reduction is a good profit making opportunity. And when the environmentally technology gap is two wide such as when you are in a dominant non-renewable energy based economy and polluting sources disappear, there will be economy black outs and then collapses. Eight, in general it was shown that the energy world we need to construct is the one where there are no renewable energy technology gaps and we can run economies under using full renewable energy based economies and that the world we need to avoid, is the world we are living in since 1987 WCED, where the world runs on polluting energy sources and where closing the renewable energy gap does not make it as a goal, when it should have been the first goal if fixing the problem was the aim.

References

Muñoz, Lucio, 2022. Sustainability thoughts 140: How can the consequences of the 2012 green market paradigm shift avoidance move that led to the world of dwarf green markets of today be highlighted, including the green Marxism threat?, *In: International Journal of Latest Research in Engineering and Technology (IJLRET),* Vol. 8, Issue 10, Pp. 05-17, October, ISSN: 2454-5031, India.

Muñoz, Lucio, 2024**.** Sustainability thoughts 195: Understanding the road from sustainable development thinking to green market paradigm shift avoidance 1987-2022: What are the implications of this?, In: *CEBEM-REDESMA Boletin*, Año 18, Nº 6, La Paz, Bolivia.

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.

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

United Nations (UN), 2025**.** **THE 17 SUSTAINABLE DEVELOPMENT GOALS,** Department of Economic and Social Affairs

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 101: The environmental pollution production problem, global warming and dwarf green markets since 2012: Pointing out the energy future we need to construct and the one we need to avoid, In: *MSI Journal of Multidisciplinary Research(MSIJMR)*,** November 04, Volume: 2, Issue: 11, ISSN 3049-0669.