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How can the dwarf green market paradigm-traditional market paradigm based sustainability framework be stated and use to show that patching external market failures shifts the responsibility for market failure from dwarf green market paradigm producers/dwarf green market paradigm consumers to governments placing governments in direct conflict of interest with their role as market overseers if things go from bad to worse?

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Abstract

There is an environmental pollution production problem separating traditional market paradigms from green market paradigms. In other words, there is an external environmental market failure between green market paradigms and traditional market paradigms, which needs to be fixed. It is the role of governments to address market failures when free markets run into them to make sure economies run efficiently as the government role is to act as market promoter, as a market monitor, as a market regulator, and as market policy enforcer under no conflict of interest since the responsibility of proper market functioning and of market failures falls on green market paradigm producers and green market paradigm consumers, and on traditional market paradigm producers and traditional market paradigm consumers, respectively. Hence if the government fully fixes the external environmental market failure by fully shifting traditional market paradigms to green market paradigm the responsibility for market failure passes from traditional market paradigm producers and consumers to green market paradigm producers and consumers; and the government then would intervene only if there are internal green market paradigm failures. However, if the government chooses, knowingly or due to green market paradigm shift knowledge gaps or

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due to simply by relying on the external environmental market failure externality neutrality assumption to ignore a real external environmental market failure, to implement dwarf green market paradigms to manage the consequences of the external environmental market failure, then the responsibility for dwarf green market paradigm failure as things go from bad to worse falls now on governments, not on dwarf green market paradigm producers and dwarf green market paradigm consumers. And this makes the following questions relevant: How can the dwarf green market paradigm-traditional market paradigm based sustainability framework be stated and use to show that patching external environmental market failures shifts the responsibility for market failure from dwarf green market paradigm producers/dwarf green market paradigm consumers to governments placing governments in direct conflict of interest with their role as market overseers if things go from bad to worse? As markets here are under permanent government interventions, what are the implications of this situation for critical environmental problem-solving advocacy?

Introduction

1) The environmental pollution production problem separating free traditional market paradigms from free green market paradigms

It has been recently indicated (Muñoz 2026) that there is an environmental pollution production problem (EPOPP) separating traditional market paradigms (TM) from green market paradigms (GM), which represent the traditional market paradigm sustainability problem (TMPSP), a situation indicated in Figure 1 below:

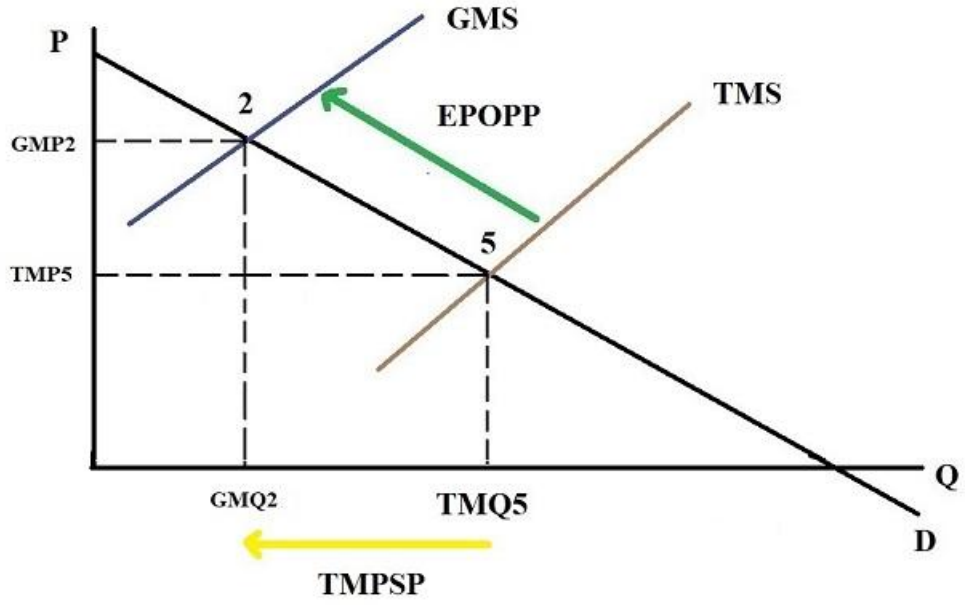

Figure 1 The green market paradigms(GM)-traditional market paradigm(TM) based sustainaibilty framework

Figure 1 above tells us that there is an environmental pollution production problem (EPOPP) separating traditional market paradigms (TM) from green market paradigms (GM) as

indicated by the continuous green arrow from TMS to GMS. In other words, there is an external environmental market failure between green market paradigms and traditional market paradigms, representing the traditional market paradigm sustainability problem (TMPSP) or environmental sustainability problem which needs to be fixed.

a) The nature of green market paradigms

At point 2 in Figure 1 above we have a green market paradigm (GM), where there is no internal market failure and there is no external market failure, a market cleared at price GMP2 and producing and consuming GMQ2. And this means this type of market does not have an environmental pollution production problem (EPOPP). Responsibility for internal market failure in green market paradigms (GM) fall on green market paradigm producers and green market paradigm consumers, and in those cases government intervention without conflict of interest to correct environmental market failures is expected. In other words, at point 2 there is internal and external market efficiency at the same time.

b) The nature of traditional market paradigms

At point 5 in Figure 1 above we have a traditional market paradigm (TM), where there is no internal market failure, but there is an external market failure, a market cleared at price TMP5 and producing and consuming TMQ5. And this means this type of market does have an environmental pollution production problem (EPOPP). Responsibility for internal market failure in traditional market paradigms (TM) fall on traditional market paradigm's producers and traditional market paradigm's consumers, and in those cases government intervention without conflict of interest to correct market failures is expected.

c) The nature of the sustainability problem that needs to be fixed

There is an environmental pollution production problem (EPOPP) separating traditional market paradigms (TM) from true green market paradigms (GM) as indicated by the arrow going from TMS to GMS in Figure 1 above, an environmental problem embedded in the distorted market price structure of traditional market paradigms, which makes it the traditional market paradigm sustainability problem (TMPSP) or environmental sustainability problem that need to be fixed so traditional market paradigms can be transformed into green market paradigms creating that way fully environmentally responsible or fully efficient green markets.

d) The choices governments have when dealing with real environmental market failures

It is the duty of governments to ensure the existence of fully responsible or fully efficient markets; and hence, when there are real market failures they have the duty to intervene and correct those market failures by removing the abnormalities embedded in the traditional market paradigm to ensure that the economies they are overseeing are running fully efficiently or fully responsibly, and therefore, they are responsible for ensuring that markets are running free of abnormalities, and Figure 1 above describes a real environmental market failure associated with traditional market paradigms that the government needs to fix. However, if the government takes the position that real environmental market failures do not exist or can be assumed away or can be fully ignored, then the government may feel there is no duty to intervene and while no intervention is taking place to fix market failures the consequences of the real environmental market failures assumed away continue to pile up especially if the government promotes and support traditional market paradigm expansions under real external environmental market failure. In other words, when facing real environmental market failures, the government can fix them or ignore them. If they fix them, they are implementing their duty properly, and if they ignore them, knowingly or due to green market paradigm shift knowledge gaps, they are creating the conditions to not implement their duties properly, and then the consequences of the real environmental market failure being ignored as it is still active and the environmental pollution production problem will continue to accumulate making the government a helper in creating environmental pollution production problems, problems they have the duty to fix, situations described below in more detail. It is important to highlight here that both green market paradigms (GM) at point 2 and traditional market paradigms (TM) at point 5 in Figure 1 above are both free markets, and hence the responsibility for any market failures in their markets falls on green market paradigm's producers and consumers and on traditional market paradigm's producers and consumers, it does not fall on governments, and since the government here has nothing to do with environmental market failures then when dealing with environmental market failures it does not have any conflict of interest, and because of that in the face of advocacy for correcting environmental market failures the government will tend to respect the right to protest legally: Advocacy here should keep in mind that if they legally pressure those without conflict of interest in free markets, in this case the government, they have a better pressure point on corporations and consumers while giving governments the reasons they need to respect the right to protest against irresponsible environmental corporate and consumer behavior legally or in extreme cases giving them the reasons they need to make the right to protest against irresponsible environmental corporate and consumer behavior legally even easier.

2) The expected government action under no environmental market failure neutrality assumptions

If the government takes a real external environmental market failure as real we should expect it to fix it, a situation highlighted in Figure 2 below:

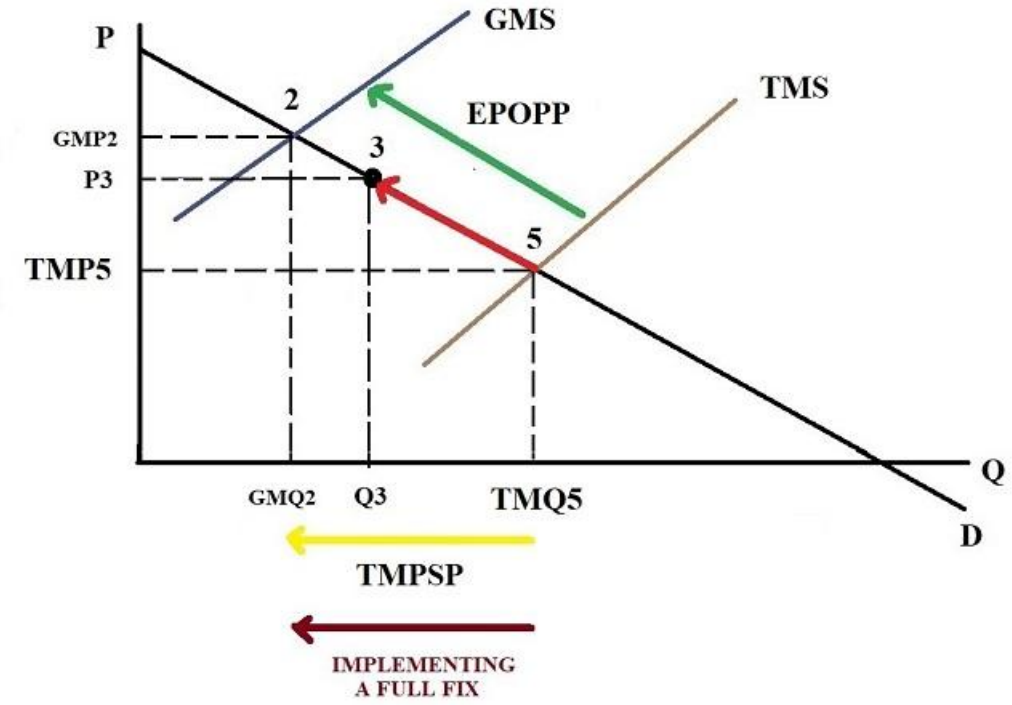

Figure 2 Expected government action under no environmental market failure neutrality assumptions

Figure 2 above shows that when governments see real external environmental market failures in traditional market paradigms (TM) they can fix them by closing the traditional market paradigm sustainability problem (TMPSP) or environmental sustainability problem or the environmental pollution production problem (EPOPP) associated with it through full critical environmental problem cost internalization to shift the traditional market paradigm (TM) from point 5 to point 2, transforming it into a green market paradigm (GM) as indicated by the black arrow going from TMQ5 to GMQ2/implementing a full environmental fix. And this is possible as here the government is acting under no external environmental market failure neutrality assumptions. In summary, under no external environmental market failure externality assumptions the government fulfils is duty to fix the environmental market failure fully and promote fully responsible or fully efficient green market paradigm behavior. The government here would not implement partial solutions such as the one at point 3 in Figure 2 above as it

needs to fully correct the real environmental pollution production problem (EPOPP) when under no environmental pollution production externality assumptions.

3) The expected government action under environmental market failure neutrality assumptions

If the government has a real external environmental market failure to fix, but it assumes it away or ignores it this creates a situation where government actions affect the real environmental pollution production problem it has assumed away and has a role in promoting environmentally irresponsible traditional market paradigms expansions, a situation summarized in Figure 3 below:

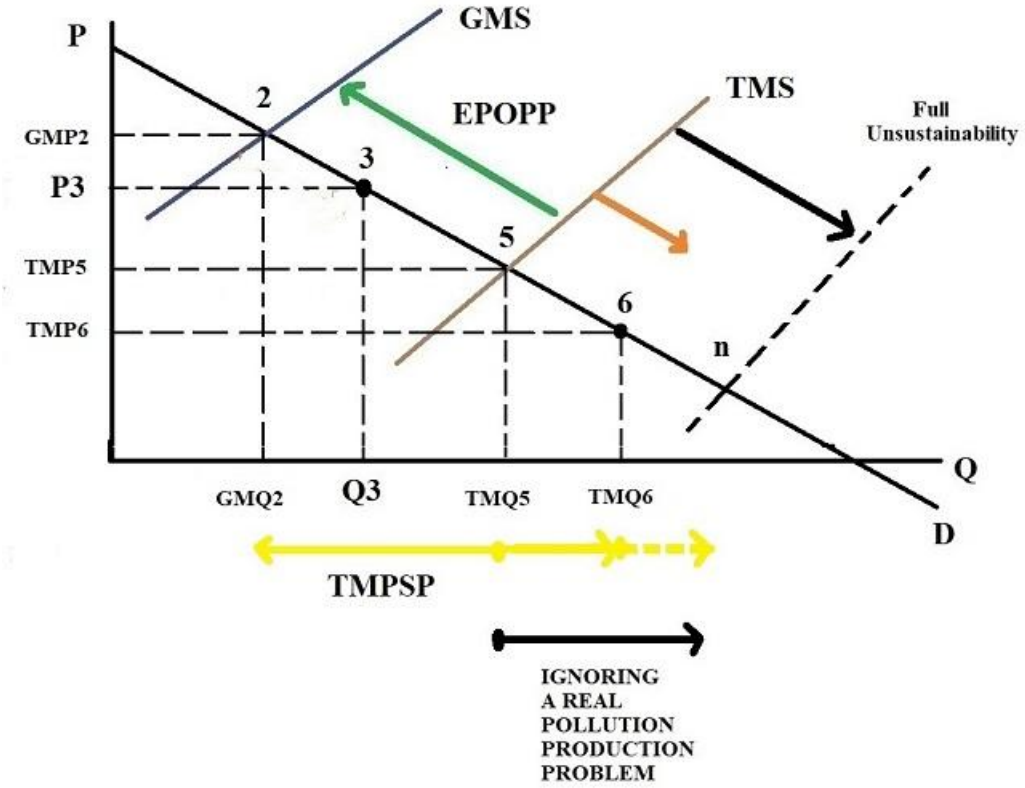

Figure 3 Expected government action under environmental market failure neutrality assumptions

Figure 3 above indicates that when governments ignore or assumed away real external environmental market failures in traditional market paradigms(TM) they will not fix them, instead they will promote and support traditional market paradigm expansions as indicated by the red arrow going from left to right from point 5 to point 6. Notice that this action by the government expands the environmental pollution production problem (EPOPP) by the distance from point 5 to point 6, which means it expands the traditional market paradigm sustainability

problem (TMPSP) or environmental sustainability problem by the distance from TMQ5 to TMQ6; and therefore, that government actions makes the external environmental market failure worse, but all these real aspects are assumed away in the name of the external environmental market failure externality neutrality assumption or position the government adheres to as shown by the black arrow going from left to right from point 5 or TMQ5, and notice that the government support for traditional market paradigm expansions beyond point 6 helps bring the traditional market paradigms closer to full unsustainability, but they cannot see this situation as the real external environmental market failure is assumed away. In summary, under external environmental market failures externality assumptions, knowingly or not, the government is supporting irresponsible environmental pollution production behavior in traditional market paradigms while a real external environmental market failure is getting worse. It is important to mention here that the environmental externality production neutrality assumption leads to worlds operating under environmentally distorted market prices that drive the environmental pollution production problem. For example, the socio-environmental externality neutrality assumption embedded in Adam Smith's perfect market theory(Smith 1776) simplified reality extremely (Muñoz 2020) creating in the process an economic component dominant distorted market(Muñoz 2010) instead of advancing a model that reflects general market complexity and full socio-environmental inclusion in terms of true sustainability market thinking(Muñoz 2015) forcing us today to go backwards in terms of economic thinking(Muñoz 2012) to be able to correct the socio-environmental pollution production consequences of that socio-environmental externality neutrality assumption in the traditional market since 1776 that the Brundtland commission documented in 1987 (WCED 1987) in "Our Common Future". Sadly, we started corrections with the wrong foot, in 1987 instead of going the way of sustainability markets and thinking (Muñoz 2016a) to address the socio-environmental sustainability problem the world went the way of sustainable development thinking (Muñoz 2025a); and then in 2012(UNCSD 2012a; UNCSD 2012b) instead of going the way of green markets and thinking(Muñoz 2016b) to address the environmental sustainability problem the world went the way of dwarf green market thinking(Muñoz 2025b).

4) The government role in external environmental market failures in the same plane

It is possible to contrast expected government actions when they take real external environmental market failures as real and when they choose to ignore real external

environmental market failures based on the external environmental market failure production neutrality assumption as shown in Figure 4 below**:**

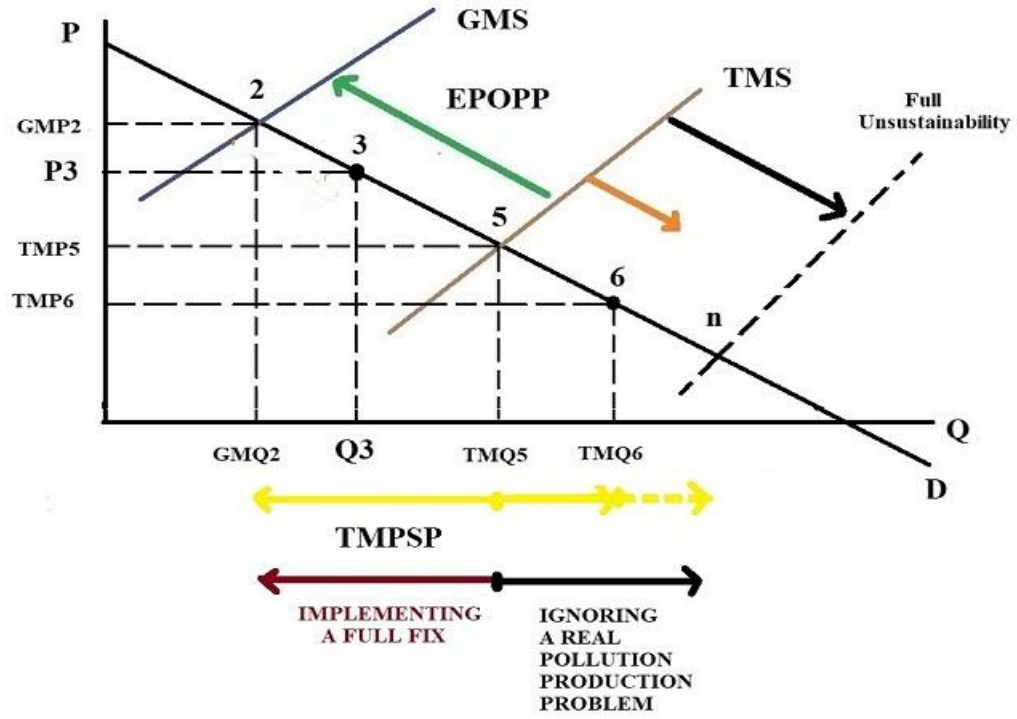

Figure 4 The actions government takes under no environmental market failure neufrality assumptions and under environmental market failure neutrality assumptions in the same plane

Figure 4 above can be used to contrast expected government action when real external environmental market failures are fully addressed or fully ignored: a) Under no external environmental market failure neutrality assumptions the government should be expected to fully fix the external environmental market failure and close the environmental pollution production problem (EPOPP), and when doing this closing the traditional market paradigm sustainability problem (TMPSP) or environmental sustainability problem as the black arrow going from right to left shows: here the government is partner of responsible green market paradigm behavior; b) Under external environmental market failure neutrality assumption the government should be expected to fully ignore a real external environmental market failure and leave the environmental pollution production problem (EPOPP), and hence leave the traditional market paradigm sustainability problem (TMPSP) or environmental sustainability problem open, and these environmental pollution production problems and traditional market paradigm sustainability problem will expand as the government expands environmentally irresponsible traditional market paradigm behavior as indicated by the black arrow going from left to right from TMQ5. And as traditional market paradigms expand to point 6 and beyond, they get closer to full

unsustainability with the help of the government: here the government is partner of environmentally irresponsible traditional market paradigm behavior.

5) The nature of the limits to market growth schedules attached to each possible government action in the face of environmental market failures and the link to the role of governments

The limits to green market paradigm (GM) expansions and of traditional market paradigm (TM) expansions and the role the government plays bringing markets towards full unsustainability or full environmental sustainability can be appreciated when looking at the information in Figure 5 below:

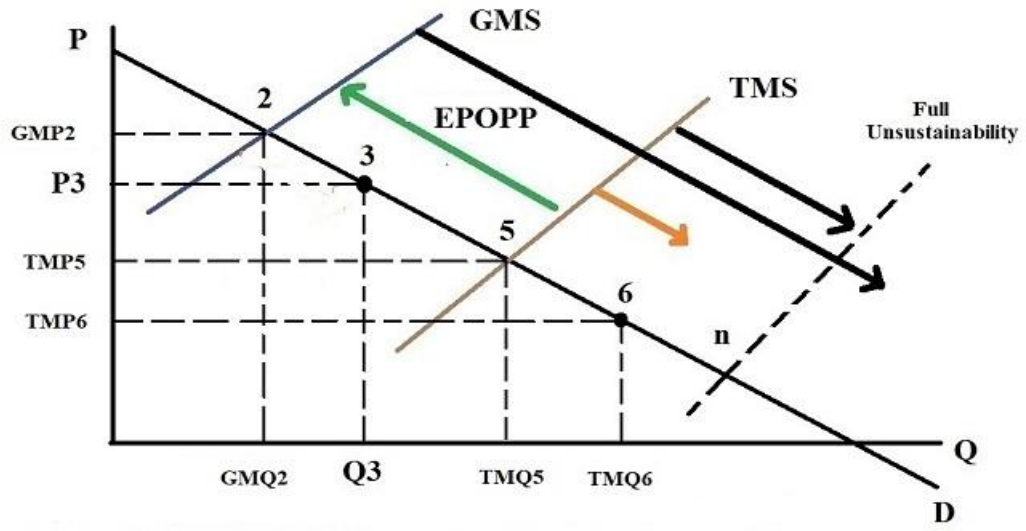

Figure 5 The working of green market paradigms(GM) and traditional market paradigms(TM)

Figure 5 above indicates the following of limits to growth: a) Green market paradigms(GM) do not have environmental pollution production limits to growth as indicated by the continuous black arrow going from left to right from GMS and passing beyond the full unsustainability line at point "n"; b) Traditional market paradigms (TM) do have environmental pollution production limits to growth as they tend towards collapse as they approach the full unsustainability point "n"; and c) Green market paradigm (GM) expansions do not expand the environmental pollution production problem(EPOPP) as expansions are optimal expansions as the environmental pollution production problem (EPOPP) here is internalized while traditional market paradigm (TM) expansions expand the environmental pollution production problem (EPOPP), whether we take a real environmental pollution production problem as real or if we assumed it away. When governments fix external environmental market failures fully, they

transform traditional market paradigms into green market paradigms, and hence they are promoting environmentally responsible market behavior, but when governments ignore real external environmental market failures and focus on expanding traditional market paradigms, first it is promoting environmentally irresponsible traditional market behavior as traditional market paradigm expansion takes place the real external environmental market failure and its environmental pollution production problem goes from bad to worse, and second, if this promotion is long term, the government is helping traditional market paradigms to approach the point of full unsustainability or collapse "n" in Figure 5 above faster; and therefore, the government here becomes a tool of support for environmentally irresponsible traditional market behavior which will lead the economies they are supposed to oversee and prevent from collapsing tending towards collapse or vertical paradigm evolution faster.

6) The need to understand the consequences of a partial fix to environmental market failure problems

Now imaging the government decides to accept that the external environmental market failure and its consequences are real and therefore, they need to be addressed to ensure economies run fully efficiently, but instead of fully fixing the external environmental market problem, it decides to implement a partial fix, a dwarf green market paradigm, an action that knowingly or not will affect a) the government role in that new dwarf green market paradigm; b) the government need to be outside conflict of interest if the partial fix or dwarf green market paradigm tends towards collapse after implementation; c) the impact of the partial decision or dwarf green market paradigm on the need to move to a world under no environmental external market failures; d) the impact of implementing a partial solution or dwarf green market paradigm under permanent environmental pollution production market failure as there is still a remaining environmental pollution production problem attached to this partial solution or dwarf green market paradigm; and e) the impact on the efficiency of the partial solution or dwarf green market paradigm once set up . And the need to understand the impacts of partial fixes to real external environmental market failures raises important questions such as how can the dwarf green market paradigm-traditional market paradigm based sustainability framework be stated and use to show that patching external environmental market failures shifts the responsibility for market failure from dwarf green market paradigm producers/dwarf green market paradigm consumers to governments placing governments in direct conflict of interest with their role as

market overseers if things go from bad to worse?. What are the main implications linked to partial solutions to critical and real external environmental market failures?

Goals of this paper

1) To state the dwarf green market paradigm (DGM)-market traditional market paradigm (TM) based sustainability framework or DGM-TM based sustainability framework; 2) To indicate the long term consequences of dwarf green market paradigm implementation in terms of worsening remaining environmental pollution production problems while they are at work; 3) To highlight the impossibility of voluntary dwarf green market paradigm expansions and contractions when markets are under permanent government intervention; 4) To point out the nature of the contraction limits to the government market contraction schedule for the dwarf green market paradigm; and 5) To contrast the working of green market paradigms, dwarf green market paradigms, and traditional market paradigms to show that dwarf green market paradigms work the opposite way and that they have different types of limits, expansion limits and contraction limits.

Methodology

First, the terminology used in this paper is shared. Second, the dwarf green market paradigm (DGM)-traditional market paradigm (TM) based sustainability framework or DGM-TM based sustainability framework is highlighted. Third, the long term consequences of dwarf green market paradigm implementation in terms of worsening remaining environmental pollution production problems while they are at work is pointed out. Fourth, the impossibility of voluntary dwarf green market paradigm expansions and contractions when markets are under permanent government intervention is stressed. Fifth, the nature of the contraction limits affecting dwarf green market paradigms is addressed; Sixth, the working of green market paradigms, dwarf green market paradigms, and traditional market paradigms is placed in the same plane in order to show that dwarf green market paradigms work the opposite way as the other paradigms and to indicate that there are limits to the government's market contraction policy under dwarf green market paradigms. And finally, some food for thoughts and relevant conclusions are given.

Terminology

GM = Green market paradigm GMS = Green market paradigm supply

GMP = Green market price GMQ = Green market quantity

TM = Traditional market paradigm TMS = Traditional market paradigm supply

TMP = Traditional market price TMQ = Traditional market quantity

DGM = Dwarf green market paradigm DGMS = Dwarf green market paradigm supply

DGMP = Dwarf green market paradigm market price

DGMQ = Dwarf green market paradigm quantity

EPOPP = Environmental pollution production problem

NEPOPP = No environmental pollution production problem

REPOPP = Remaining environmental pollution production problem

TMPSP = Traditional market paradigm sustainability problem SG = Sustainability gap

P = Paradigm/market price Q = Paradigm/market quantity produced/consumed

D = Paradigm/market demand MS = Paradigm/market supply

Pi = Paradigm/market price "i" Qi = Paradigm/market quantity "i"

YS = Yellow sustainability TS = True sustainability

S = Sustainability FUS = Full unsustainability

DWGM = Dwarf green margin EDM = Environmental dwarf margin

Relevant concepts

1) Green market paradigm, *a world without environmental abnormalities embedded in it.*

2) Traditional market paradigm, *a world with full socio-environmental abnormalities embedded in it.*

3) Environmental pollution production problem, *the situation created when traditional market paradigms externalize non-dominant environmental component issues.*

4) Sustainability, *the world under full cost internalization.*

5) Market expansion, *an increase in market activity.*

6) Market contraction, *a decrease in market activity.*

7) Government intervention, *the action taken to address market failures.*

8) Market failure, *the situation created by internally and/or externally distorted market prices.*

9) Internal market failure, *the situation created by internally distorted market prices.*

10) External market failure, *the situation created by externally distorted market prices.*

11) Optimal expansion, *an increase in optimal economic activity, an efficient expansion*

12) Non-optimal expansion, *an increase in non-optimal economic activity, an inefficient expansion*

13) Environmental externality neutrality assumption, *markets can expand for ever without generating environmental externalities or environmental pollution production problems, it allows you to ignore the presence and the need for action in the face of real environmental pollution production problems by just assuming them away.*

14) No environmental externality neutrality assumption, *markets cannot expand for ever as they generate environmental externalities as they expand, which accumulate through time to a point that they can lead either to paradigm collapse if left alone or vertical paradigm shift if the governments plays its overseer role properly, it does not allow you to ignore the present and the need for action in the face of real environmental pollution production problems as you cannot or you can no longer assume them away.*

15) Distorted market prices, *prices that deviate from optimal market prices due to endogenous and/or exogenous issues*

16) Dwarf green market paradigm, *a partial solution to a traditional market paradigm's real external environmental market failure*

17) Remaining environmental pollution production problem, *the situation created when dwarf green market paradigms only internalize a portion of the environmental pollution production problem, externalizing the rest.*

18) External environmental market failure neutrality assumption, *the view that traditional market paradigms only have internal market failures; and hence, real external environmental market failures and their consequences can be assumed away, and therefore, they can be left without fixing.*

19) No external environmental market failure neutrality assumption, *the view that traditional market paradigms have external environmental market failures; and hence, real environmental market failures and their consequences cannot be assumed away, and therefore, they must be fully fixed.*

20) Partial environmental externality neutrality assumption, *the view that dwarf green market paradigm contractions do not create remaining environmental pollution production problems, and hence, they have no environmental pollution contraction limits.*

21) No partial environmental externality neutrality assumption, *the view that dwarf green market paradigms contractions do create remaining environmental pollution production problems, and hence, they have environmental pollution contraction limits.*

The dwarf green market paradigm (DGM)-traditional market paradigm (TM) based sustainability framework

If we place the dwarf green market paradigm (DGM) in between the green market paradigm (GM) and the traditional market paradigm (TM) in Figure 1 above, we transform the green market paradigm (GM)-traditional market paradigm (TM) based sustainability framework into the dwarf green market paradigm (DGM)-traditional market paradigm(TM) based sustainability framework as shown in Figure 6 below:

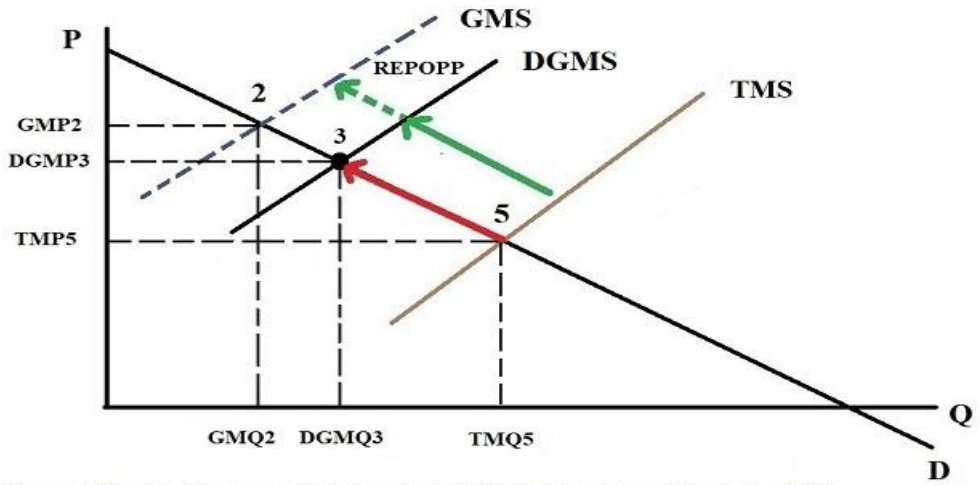

Figure 6 The dwarf green market paradigm(DGM)-traditional market paradigm(TM) based sustainability framework

Figure 6 above shows that at point 3 we have a dwarf green market paradigm (DGM), set up by the government to partially fixed the real external environmental market failure associated with the traditional market paradigm (TM), a market that requires permanent government intervention, which means it is a market under permanent environmental pollution production market failure. Notice that that the dwarf green market paradigm (DGM) is a move from point 5 to point 3 as some of the environmental pollution production problem is accounted for, the distance from point 5 to point 3 as indicated by the continuous green arrow going from right to left from point 5 to point 3; and notice that the dwarf green market paradigm (DGM) at point 3 has a remaining environmental pollution production problem (REPOPP) as indicated by the broken green arrow that goes from right to left from point 3 to point 2. Hence dwarf green market paradigms (DGM) are markets under permanent environmental market failure and they are separated from green market paradigms (GM) by the remaining environmental pollution production problem (REPOPP).

Notice then that the dwarf green market paradigms (DGM) at point 3 in Figure 6 above is not a free market created by the government, and hence the responsibility for any environmental market failures falls on the government, not on dwarf green market paradigm producers and consumers so when dealing with environmental market failures the government is in a deep conflict of interest because the dwarf green market paradigms they have set up are going from bad to worse and in the face of advocacy for correcting environmental market failures the government will now tend to or it should be expected to tend to disrespecting or making more difficult to exercise the right to protest, even legally. So advocacy in dwarf green market paradigms or no free markets should not be of the same nature as advocacy in free markets as here the government is in a deep conflict interest, and it should not be expected to monitor itself, to regulate itself or jail itself if markets tend towards collapse as they are dealing with their own environmental market failure: Advocacy here should keep in mind that if they legally pressure those without conflict of interest in no free markets, in this case dwarf green market paradigm producers and consumers, they have a better pressure point on governments without giving governments the reasons they need to make the right to protest against irresponsible environmental government action legally more difficult or in extreme cases give them the reasons they need to make the right to protest against irresponsible environmental government action even illegal.

The long term consequences of dwarf green market (DGM) implementation

Once dwarf green market paradigms(DGM) are set up and running such as the one at point 3 in Figure 7 below, we should expect that in the long term as they are at work the remaining environmental pollution production problem (REPOPP) attached to them will get worse and worse, a situation detailed in Figure 7 below:

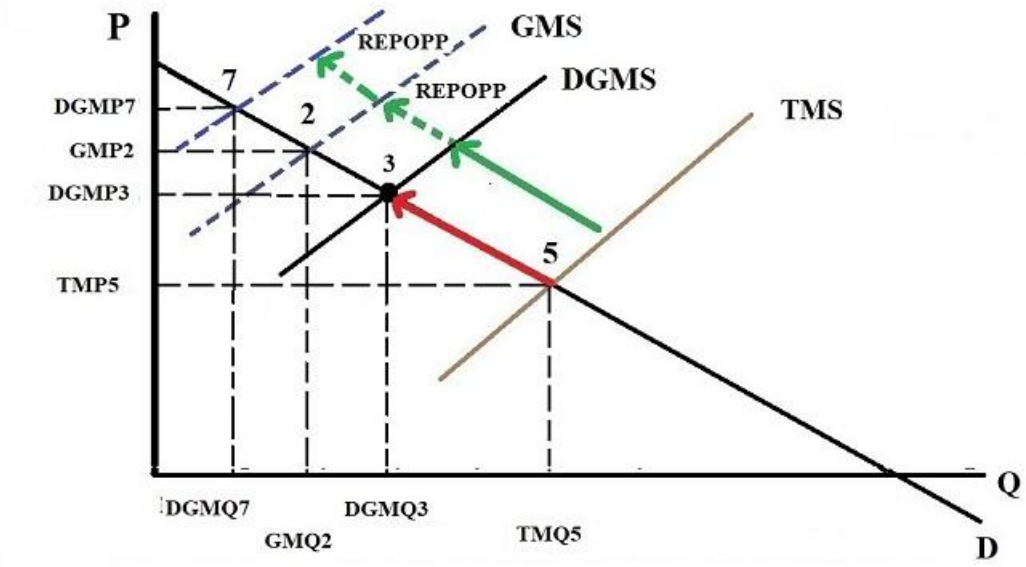

Figure 7 The long term consequences of dwarf green market paradigms once they are in place as sources of environmental pollution production problem accumulation

Figure 7 above can be used to point out the following aspects about the dwarf green market paradigm set up by the government at point 3: a) Internalizing partially the environmental pollution production problem (EPOPP) of the traditional market paradigm, the distance from point 5 to point 3, shift the traditional market paradigm from point 5 to point 3, creating a remaining environmental pollution production problem (REPOPP), the distance from point 3 to point 2; and b) In the long term, a dwarf green market paradigm permanently producing and consuming at point 3 will expand the remaining environmental pollution production problem associated with them by the distance from point 2 to point 7; and c) those remaining environmental pollution production problems will become the limits of dwarf green market paradigm contractions and the source of their collapse. In other words, in the long term the accumulation of remaining environmental pollution production problems will lead to the collapse of the dwarf green market paradigm or open the door for most likely backward paradigm evolution. Dwarf green market paradigms in the form of dwarf paradigms a la carbon taxes reflecting just environmental responsibility were at work in Canada as a country and in British Columbia as a province and just before the next raise in both the federal and provincial carbon

tax schedule they both were repealed in 2025, provincially(GBC 2015) and federally(CBC 2025) and the system went back to the polluter does not pay principle or back to environmental irresponsibility consistent with the expected backward evolution principle when avoiding tendencies towards market collapses or coming market collapses as the raising of dwarf green margins(DWGM) like the raising of dwarf environmental margins(DEM) becomes unsustainable.

The impossibility of voluntary dwarf green market (DGM) expansions and contractions as they are under permanent government intervention

As dwarf green market paradigms (DGM) are no free markets or are markets under permanent government intervention, voluntary contractions are not possible as they are not a profit making opportunity as the cost of reducing environmental pollution production beyond point 3 such as point 8 falls on corporations and consumers, and voluntary expansions are profit making opportunities such as point 9, but the government would not allow them as they would increase the environmental pollution production problem (EPOPP), a situation detailed in Figure 8 below:

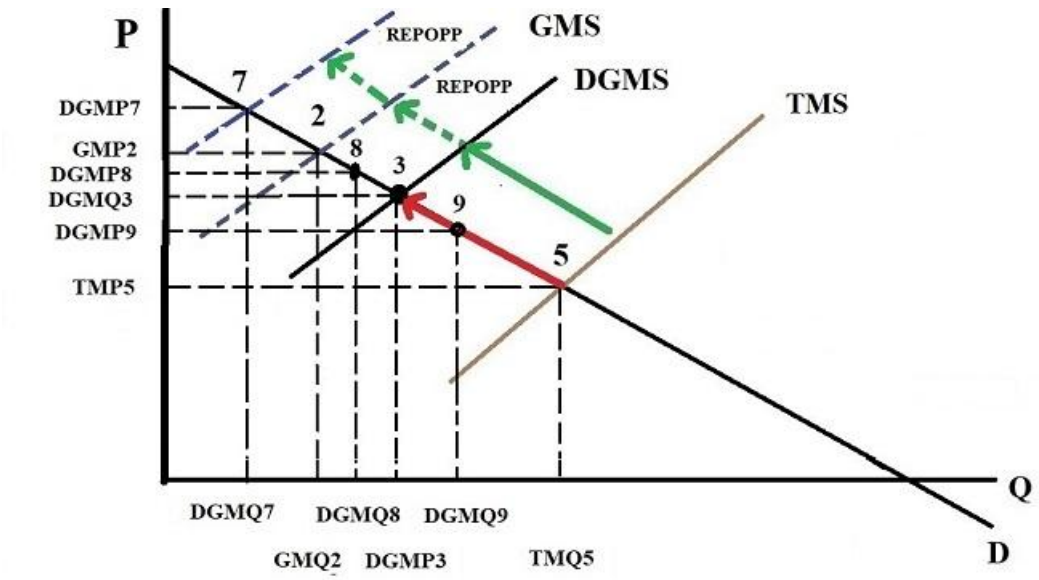

Figure 8 The impossibility of voluntary actions from dwarf green market paradigm producers and consumers when under permanent government intervention

Figure 8 above shows that the dwarf green market paradigm (DGM) will continue to stay at point 3 producing and consuming DGMQ3 and using the dwarf green market paradigm market price DGMP3, which includes the dwarf green market paradigm pollution reduction margin (EDM) the government assigned to contract production from point 5 to point 3 so that DGMP3-

TMP5 = EDM or DGMP3 = TMP5 + EDM. In other words, as long as the dwarf environmental margin assigned by the government (EDM) to contract the environmental pollution production problem is the same, dwarf green market producers and consumers will stay at DGMQ3, voluntarily increasing the environmental dwarf margin EDM and produce at point 8 to be more environmental pollution production reduction friendly is not a profit making opportunity so we should not expect that, reducing voluntarily the size of the environmental dwarf margin EDM and produced at point 9 is a profit making opportunity as the market could expand, but the government would not allow it as it would also expand the environmental pollution production problem EPOPP. And hence, voluntary contractions and expansions in dwarf green market paradigms DGM are not possible as the government determines where the market contraction has to be, which again shows that if the dwarf green market paradigm (DGM) tends from bad to worse and towards full unsustainability the responsibility for that environmental market failures falls on governments who set them up.

The nature of the limits to dwarf green market paradigms (DGM)

The contraction limits affecting dwarf green market paradigms (DGM) when governments are determined to implement a full dwarf green market paradigm contraction schedule can be appreciated based on the information in Figure 9 below:

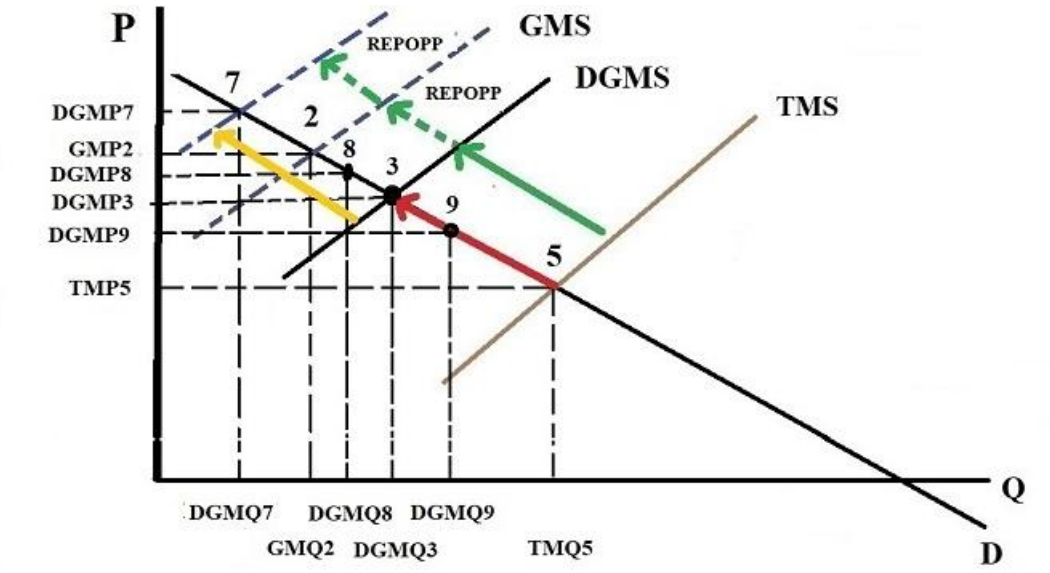

Figure 9 The nature of the limits to dwarf green market paradigm contractions

We can see in Figure 9 above that the government set the dwarf green market paradigm (DGM) at point 3 by setting up an environmental dwarf margin EDM that dwarf green market paradigm producers must pass to consumers so that production and consumption stays at

DGMQ3. The yellow arrow from right to left from point 3 to point 7 indicates the long term contraction schedule the government has established to reduce the environmental pollution production problem (EPOPP) step by step beyond point 3 towards point 7, but the accumulation of the remaining environmental pollution production problem REPOPP created at each contraction point towards point 7 becomes so bad that point 7 becomes the contraction unsustainability point for the government, and as contractions approach that point 7 the dwarf green market paradigm will be tending towards collapse as the cost of environmental pollution problem reduction due to the accumulation of the remaining environmental pollution production problem would be even higher that at the initial green market paradigm(GM) anchored point, point 2. In other words, government contraction schedules for dwarf green market paradigms have an unsustainability limit driven by the accumulation of remaining environmental pollution production problems(REPOPP) such as the one at point 7 in Figure 9 above.

Contrasting the working of green market paradigms, dwarf green market paradigms, and traditional market paradigms

As dwarf green market paradigms (DGM) are contraction based markets and green markets (GM) and traditional market paradigms (TM) are expansion based markets, they work in opposite directions and they have different limits in terms of contractions and expansions limits, as shown in Figure 10 below:

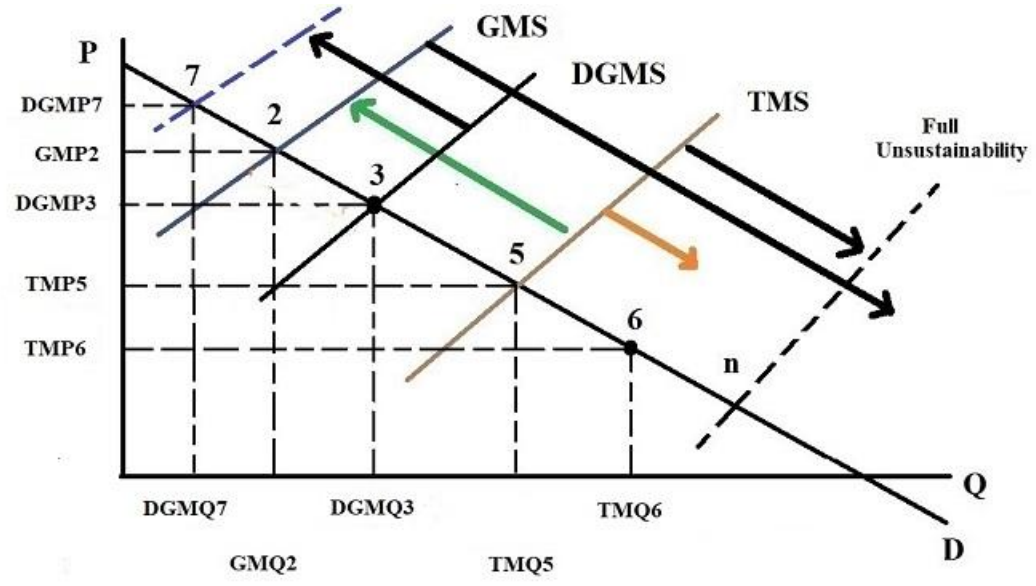

Figure 10 The working of green market paradigms(GM), dwarf green market paradigsm(DGM), and traditional market paradigms(TM)

Figure 10 above can be used to highlight the following aspects: a) Traditional market paradigms (TM) have environmental pollution production limits to growth as they tend to produce at the lowest traditional market price possible, the lowest economic cost possible, and the maximum environmental cost externalization possible, they tend closer and closer to full un sustainability, a journey that goes from point 5 to just before point "n"; b) Green market paradigms (GM) do not have environmental pollution production limits to growth as they tend to produce at the lowest green market paradigm price possible, the lowest green market paradigm cost possible, and full economic-environmental cost accounting; and 3) Dwarf green market paradigms(DGM) have a remaining environmental pollution production problem (REPOPP), which as they work and as they contract more and more, moving from right to left reducing the environmental pollution production problem by increasing incrementally the environmental dwarf margin EDM according to the contraction schedule planed by the government and hence, the market, as long as the environmental dwarf margin EDM is the same stays permanently producing and consuming at the same point while its remaining environmental pollution production problem accumulates from bad to worse. In other words, it can be said that both traditional market paradigms TM and dwarf green market paradigms DGM have limits, one has limits to growth and the other has limits to contractions while green market paradigms GM have no limits to expansions or contractions as both of them are optimal.

Food for thoughts

1) Are dwarf green market paradigms partial solutions to critical environmental sustainability problems? I think yes, what do you think?

2) Do choosing to manage the consequences of the traditional market paradigm's external market failure means that the root causes of the traditional market paradigm's environmental market failure are left untouched or assumed away? I think yes, what do you think?

3) Are distorted traditional paradigm market prices the root-cause of the external environmental market failure in traditional market paradigms? I think yes, what do you think?

4) Should we expect a critical environmental sustainability problem to go from bad to worse in the long-term under dwarf green market paradigm based government action? I think yes, what do you think?

5) Does the responsibility for dwarf green market paradigm environmental market failures or collapse falls on the governments that set them up or on corporations and consumers? I think on governments, what do you think?

6) When governments set up dwarf green market paradigms, do they place themselves in a deep conflict of interest when those markets tend towards unsustainability? I think yes, what do you think?

7) When governments oversee environmental market failures, be it free green market paradigms or traditional market paradigms, are they in conflict of interest? I think no, what do you think?

Conclusions

1) The dwarf green market paradigm-traditional market paradigm based sustainability framework was stated by placing the partial government solution to the real external environmental market failure of the traditional market paradigm and it can be used to show the implications of partially addressing a real external environmental market failure; 2) It was shown that setting up dwarf green market paradigms creates a remaining environmental pollution production problem, which accumulates through time; 3) It was described how voluntary dwarf green market paradigm contractions and expansions are not possible as these markets are not free markets, they are under permanent government intervention; 4) It was highlighted that when dwarf green market paradigms tend towards full unsustainability, the responsibility for environmental market failure is on the government side, not corporations and consumers, and advocacy for fixing environmental market failures should take that into account to avoid giving government under deep conflict of interest the reasons to make the right to protest against environmentally irresponsible government action legally more difficult or even illegal; 5) It was pointed out that the limits to dwarf green market paradigms contractions to address the environmental pollution production problem is made up by the accumulation of remaining environmental pollution production problem linked to partial environmental pollution problem internalization; and 6) It as shown that free markets like green market paradigms and traditional market paradigms tend to produce at the lowest cost possible, but only traditional market paradigm have environmental pollution production limits to growth while it was indicated that dwarf green market paradigm produce at the price that

reflect the current government environmental dwarf margin and that they have environmental contraction limits as there is a remaining environmental pollution production problem accumulation point where dwarf green market paradigms will tend towards collapse or open the door for possible backward paradigm evolution. In general, it was shown that going from traditional market paradigms to dwarf green market paradigms to patch an environmental pollution production problem shift the responsibility for market failures when things go from bad to worse to the governments that set them up, not to dwarf green market paradigm's producers/corporations and dwarf green market paradigm's consumers/shoppers.

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