SUSTAINABILITY THOUGHTS 139: HOW CAN THE 2012 ROAD TO TRANSITION FROM ENVIRONMENTAL POLLUTION BASED TRADITIONAL ECONOMIES TO THE ENVIRONMENTALLY CLEAN ECONOMIES THAT THE WORLD NEVER BUILT BE POINTED OUT?

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ABSTRACT

When the Brundtland Commission said in 1987 that the business-as-usual model of Adam Smith needed to address the social and environmental issues associated with it, this meant that there was a socio-environmental pollution problem separating the dirty traditional economy from the clean economy. When the UNCSD in 2012 gave priority to addressing the environmental issue only associated with the dirty traditional market model, this meant that there was an environmental pollution problem between the environmentally dirty traditional market and the environmentally clean market. This situation brought the need to think about how the transition from the environmentally dirty traditional market to the environmentally clean market could be framed step by step, but instead of thinking in terms of transition to the environmentally clean economy attention was given since 2012 to adopting environmental externality management-based markets or dwarf green markets. Whether mainstream thinkers in the sustainable development area failed in 2012 to see how the transition road from environmentally dirty traditional markets to environmentally clean markets could be built is not clear, but what it is clear is that there is no transition link from dwarf green markets to environmentally clean markets as dwarf green markets are still active environmental externality-based markets as the root cause of the environmental problem is not yet corrected. And this raises the question, how can the 2012 road to transition from environmental pollution based traditional economies to environmentally clean economies that the world never built be pointed out? What are the implications of this? Among the goals of this paper is to provide answers to those questions.

Key Words: Green markets, dwarf green markets, traditional market, dirty market, clean market, environmental pollution, transition to clean markets, dirty economies, clean economies, externality management markets, pollution reduction markets.

1. INTRODUCTION
a) The structure of dirty markets

A dirty market(DM) is a market that produces both extreme social and environmental pollution(PO) in the long term, a situation represented in Figure 1 below:

Figure 1 The structure of the dirty economy(DM)

Figure 1 above tells us that the byproduct of dirty markets(DM) in the long term is extreme social and environmental pollution(PO).

b) The structure of environmentally dirty markets

An environmentally dirty market(EDM) is a market that produces extreme environmental pollution(EPO) in the long term, a situation described in Figure 2 below:
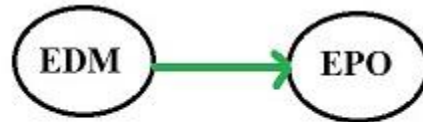

Figure 2 The structure of the environmentally dirty economy(EDM)

Figure 2 above indicates that the byproduct of environmentally dirty markets(EDM) in the long term is extreme environmental pollution(EPO).

c) The structure of environmentally clean markets

An environmentally clean market(ECLM) is a market where there is no environmental pollution(NEPO), a situation stated in Figure 3 below:

Figure 3 The structure of the environmentally clean market(ECLM)

Figure 3 above shows that there is no environmental pollution(NEPO) in the working of environmentally clean markets(ECLM) as they are full renewable energy based markets.

d) Linking the environmentally dirty market and the environmentally clean market

Since environmentally dirty markets(EDM) produce environmental pollution(EPO) and environmentally clean markets do not, then there is an environmental pollution problem separating dirty markets from clean markets, a situation summarized in Figure 4 below:

Figure 4 There is an environmental pollution problem(EPO) that separates the environmentally dirty market(EDM) and the environmentally clean market(ECLM)

Figure 4 above highlights that there is an environmental pollution problem(EPO) between environmentally dirty markets(EDM) and environmentally clean markets(ECLM) since only the environmentally dirty market produces environmental pollution as indicated by the continuous green arrow from EDM to EPO and by the broken green arrow between EPO and ECLM.

e) The building the road to transition from environmentally dirty markets to environmentally clean markets step by step

Building the transition road from environmentally dirty markets(EDM) to environmentally clean markets(ECLM) requires first the implementation of environmental pollution reduction markets(EPORM) to address the root cause of the environmental pollution problem(EPO), and then transition this pollution reduction markets(EPORM) from fully or dominant non-renewable energy based economies to fully or dominant renewable energy based economies closing that way the renewable energy technology gap(RETG), a situation pointed out in Figure 5 below:

Figure 5 The steps to take to construct the road from the environmentally dirty market(EDM) to the environmentally clean market(ECLM)

Figure 5 above points out the two steps required to be implemented, one after the other, to frame the transition from environmentally dirty markets(EDM) to environmentally clean markets(ECLM): i) First, to set up environmental pollution reduction markets(EPORM) by making pollution reduction a profitable business opportunity; and ii) to transition the environmental pollution reduction market(EPORM) to the environmentally clean market(ECLM) by closing the renewable energy technology gap(RETG) by increasingly substituting permanently non-renewable energy for renewable energy until we reach a full renewable energy based economy.

f) The road from environmentally dirty economies to environmentally clean economies

Hence the road from the environmentally dirty market(EDM) to the environmentally clean market has two steps: the placing of environmental pollution reduction markets(EPORM) between

them first, and then the transition of environmental pollution reduction markets from no use of renewable energy to permanent full use of renewable energy, as indicated in Figure 6 below:

Figure 6 The road from the environmentally dirty market(EDM) to the environmentally clean market(ECLM)

We can stress the following based on Figure 6 above: i) We can shift the environmentally dirty market(EDM) to the environmental pollution reduction market(EPORM) by internalizing the environmental pollution problem I[EPO] in the pricing mechanism of the environmentally dirty model(EDM); and ii) Once the environmental pollution reduction market(EPORM) is in place we close the renewable energy technology gap(RETG = RE/NRE) by increasingly and permanently substituting non-renewable energy(environmentally dirty energy source) for renewable energy(environmentally clean energy source) from no use of renewable energy(RETG = 0) to full use of renewable energy(RETG = ∞).

g) The need to understand the structure of the transition from environmental pollution based dirty traditional markets to the environmentally clean markets that never took place

When the Brundtland Commission(WCED 1987) said in 1987 that the business as usual model of Adam Smith(Smith 1776) needed to address the social and environmental issues associated with it, this meant that there was a socio-environmental pollution problem separating the dirty traditional economy from the clean economy. When the United Nations Conference on Sustainable Development(UNCSD 2012a; UNCSD 2012b) in 2012 gave priority to addressing the environmental issue only associated with the dirty traditional market model(TM), this meant that there was an environmental pollution problem between the environmentally dirty traditional market and the environmentally clean market.

This situation above brought relevance to the need to think about how to the transition from the environmentally dirty traditional market to the environmentally clean market could be framed step by step as indicated above in detail, but instead of thinking in terms of transition to the environmentally clean economy attention was given since 2012 to adopting environmental externality management based markets or dwarf green markets. Whether mainstream thinkers in the sustainable development area failed in 2012 to see how the transition road from environmentally dirty traditional markets to environmentally clean markets could be built is not clear, but what it is clear is that there is no transition link from dwarf green markets to environmentally clean markets as dwarf green markets are still active environmental externality based markets as the root cause of the environmental problem is not yet corrected. It has been pointed out that going dwarf green markets a la environmental externality management in 2012 meant starting to address the environmental crisis with the wrong foot(Muñoz 2016a) as only perfect green market thinking(Muñoz 2016b) could be used to fix the root cause of the pollution problem and to put that way a fast break to pollution generating activity that was taking place while at the same time creating the right conditions to transition to the environmentally clean economy.

Avoiding paradigm shift like the green market paradigm shift in 2012 and going dwarf green markets since then according to the Thomas Kuhn's scientific revolution loop can only happen under willful academic blindness(Muñoz 2022) as decision makers knew or should have known that going dwarf green markets is not a fix to the pollution problem, it is just a patch.

Therefore, there is a need to understand the structure of the 2012 transition from environmental pollution based dirty traditional markets to the environmentally clean markets that never took place. And this raises the question, how can the 2012 road to transition from environmental pollution based traditional economies to environmentally clean economies that the world never built be pointed out? What are the implications of this? Among the goals of this paper is to provide answers to those questions.

2.GOALS OF THIS PAPER

a) To point out that there is an environmental externality problem in between the environmentally dirty traditional market and the environmentally clean market; b) To stress the step by step approach to build the transition road from environmentally dirty traditional markets to environmentally clean markets; c) To highlight the structure of the road to transition from the environmentally dirty traditional market to the environmentally clean markets; and d) to share the structure of green market paradigm shift avoidance and its disconnection from environmentally clean markets.

3.METHODOLOGY

First the terminology used in this paper is shared. Second, the structure showing that there is an environmental externality problem between the environmentally dirty traditional market and the environmentally clean market is shared. Third, the structure detailing the step by step approach to build the transition road from environmentally dirty traditional markets to environmentally clean markets is given. Fourth, the structure of the road to transition from the environmentally dirty traditional market to the environmentally clean markets is highlighted. Fifth, the structure of green market paradigm shift avoidance and its disconnection from environmentally clean markets is provided. And finally, some food for thoughts and relevant conclusions are listed.

4.TERMINOLOGY

TM = The traditional market	GM = The green market
EDM = The environmentally dirty market	PO = Pollution
EPO = Environmental pollution	E[C] = Environmental cost externalization
I[c] = Environmental cost internalization	CLM = The clean market
EPORM = Environmental pollution reduction market	DM = The dirty market

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Operational concepts and paradigm Kuhn's loop transformations, relevant models, externalization and internalization rules

A) Operational concepts

1) Science, the *world based on the scientific truth, this world falls if invalidated.*

2) Ideology, *the world based on the non-scientific truth, this world will tend to persist even if invalidated.*

3) The theory-practice general consistency principle, *the world where the theory of the model must match the practice.*

4) The different model general inconsistency principle, *the world where the theory and practice of different models are inconsistent with each other.*

5) Academic facts, the *science based truth.*

6) Alternative academic facts, *the non-science based truth.*

7) Academic blindness, *the inability to see academic facts due to the existence of knowledge gaps, paradigm shift based or otherwise.*

8) Willful academic blindness, *the willingness to ignore academic facts and consensus.*

9) Sustainability, *the world where the interplay of sustainability theory and sustainability practice is aimed at fixing or correcting embedded externality problems.*

10) Sustainable development, *the world where the interplay of sustainable development theory and sustainable development practice is aimed at patching or managing embedded externality problems.*

11) Academic integrity, *the duty to respect and defend academic facts and consensus.*

12) Golden paradigm, *one that does not creates abnormalities.*

13) Flawed paradigm, *one that creates abnormalities.*

14) Kuhn's loop, *the science based mechanism that leads to paradigm shift through abnormality correction.*

15) Dirty economy, *a pollution based economy.*

16) Clean economy, *a pollution less based economy.*

17) Red Marxism, *capitalism need to be replaced as it is destroying societies.*

18) Green Marxism, *dwarf green capitalism must be replaced as it is destroying nature.*

19) The red socialism market, *the social justice and equality based market.*

20) The green socialism market, *the environmental justice and equality based market.*

21) Green capitalism, *capitalism supported by green markets.*

22) Dwarf green capitalism, *capitalism supported by dwarf green markets.*

23) Traditional market, *the market cleared by the traditional market price.*

24) Green market, *the market cleared by the green market price.*

25) Red market, *the market cleared by the red market price.*

B) Paradigm structures

1) A golden paradigm

If we have a dominant paradigm R and it is a golden paradigm GOM, then it produces no externalities or no abnormalities A

i) GOM = R

As it can be seen in expression i) above the golden model GOM does not produce abnormalities.

2) A flawed paradigm

If we have a dominant paradigm R and it is a flawed paradigm FLM, then it produces "n" externalities or abnormalities A so as A1,A2,….

ii) FLM = R(A1, A2,….An)

As it can be appreciated in expression ii) above the flawed model FLM produces "n" abnormalities.

C) The Thomas Kuhn's transformation loop(TKTL) under academic integrity

1) Impact on the golden paradigm

If we subject a golden paradigm GOM = R to the Thomas Kuhn's transformation loop(TKTL), the process will have no impact on it as it has no abnormalities A to correct, golden paradigm GOM remains a golden paradigm GOM

iii) TKTL(GOM) = TKTL(R) = R = GOM

The expression iii) above tells us that the golden model displays TKTL loop neutrality as it has no abnormalities to remove.

2) Impact on the flawed paradigm

If we subject a flawed paradigm FLM = **R(A1,A2,….An)** to the Thomas Kuhn's transformation loop(TKTL), the loop process will be active until all abnormalities are corrected and a golden paradigm GOM arises

iv) TKTL(FLM) = TKTL[R(A1,A2,….An) -------→R = GOM

The expression iv) above tells us that the TKTL loop process transforms flawed dominant paradigms FLM in the end into golden paradigms GOM by correcting the abnormalities A1…..An affecting them and shifting them in the process.

D) Relevant market structures

If we have the following: a = social abnormality, c = environmental abnormality, A = dominant society, C = dominant environment, and B = the dominant economy, then the structure of relevant markets can be stated as indicated below:

1) The traditional market as a golden model

i) TM = B

Under externality neutrality assumptions the traditional market TM in section i) above is a golden paradigm, it produces no abnormalities.

2) The traditional market under social abnormalities(a)

ii) TM = aB

Under no social externality neutrality assumptions, the traditional market TM in section ii) above produces social abnormalities "a". It is a flawed paradigm as it has social abnormalities to correct.

3) The traditional market under environmental abnormalities(c)

iii) TM = Bc

Under no environmental externality neutrality assumptions, the traditional market TM in section iii) above produces environmental abnormalities "c". It is a flawed paradigm as it has environmental externalities to correct.

4) The traditional market under socio-environmental abnormalities(ac)

iv) TM = aBc

Under no socio-environmental externality neutrality assumptions, the traditional market TM in section iv) above produces socio-environmental abnormalities "ac". It is a flawed paradigm as it has social and environmental externalities to correct.

5) The red market under environmental abnormalities(c)

v) RM = ABc

Under no environmental externality assumptions, the red market RM in section v) above produces environmental abnormalities. It is a flawed paradigm as it has environmental externalities

to correct. Notice that in the red market RM, both society(A) and economy(B) are in dominant form.

6) The green market under social abnormalities(a)

vi) GM = aBC

Under no social externality assumptions, the green market GM in section vi) above produces social abnormalities. It is a flawed paradigm as it has social externalities to correct. Notice that in the green market GM, both the economy(B) and the environment(C) are in dominant form.

7) The sustainability market has no abnormalities

vii) SM = ABC

The sustainability market SM in section vii) above produces no abnormalities as all components are in dominant form since all components are now endogenous to the model. It is a golden paradigm as it has no abnormalities to correct.

E) Abnormality externalization and internalization rules

If y, x, z are three abnormalities and Y, X, Z are the corrected variables and if E[ ] = externalization and I[ ] = internalization, then the following holds true:

a) E[Y] = y	**b) E[X] = x**	**c) E[Z] = z**
d) I[y] = Y	**e) I[x] = X**	**f) I[z] = Z**
g) I[E[Y]] = Y	**h) E[I[y]] = y**	**i) E[YX] = yx**

The environmental externality problem in between the environmentally dirty traditional market and the environmentally clean market

If we make the environmentally dirty market be the traditional market(EDM = TM) and we make the environmental pollution be the environmental externality(EPO = E[C]) in Figure 4 above, then we create the structure of the environmentally dirty traditional market(TM) disconnected from the environmentally clean market(ECLM) as indicated in Figure 7 below:

Figure 7 There is an environmental externality problem(E[C]) that separates the environmentally dirty traditional market(TM) and the environmentally clean market(ECLM)

We can appreciate in Figure 7 above that an environmental externality problem(E[C]) separates the environmentally dirty traditional market(TM) and the environmentally clean market(ECLM). In other words, only the environmentally dirty traditional markets TM produces externalities E[C] as indicated by the continuous green arrow from TM to E[C] since the environmentally clean market ECLM does not produce environmental externalities E[C] as shown by the broken green arrow from E[C] to ECLM.

The relevant steps in building the road to transition from environmentally dirty traditional markets to the environmentally clean markets

If we make the environmentally dirty market be the traditional market(EDM = TM) and we make the environmental pollution be the environmental externality(EPO = E[C]) in Figure 5 above, then we create the structure of the steps needed to build the road to transition from environmentally dirty traditional market(TM) to the environmentally clean market(ECLM) as shown in Figure 8 below:

Figure 8 The steps to take to construct the road from the environmentally dirty traditional market(TM) to the environmentally clean market(ECLM).

Figure 8 above shows the two steps to be taken to build the road to transition from environmentally dirty traditional markets TM to environmentally clean markets ECLM as indicated by the continuous green arrow, namely i) to first set up environmental pollution reduction markets EPORM; and then ii) to transition the environmental pollution reduction market EPORM to the environmentally clean market through the closing of the renewable energy technology gap.

The road to transition from the environmentally dirty traditional market to environmentally clean markets

If we make the environmentally dirty market be the traditional market(EDM = TM) and we make the environmental pollution reduction market be the green market(EPORM = GM) in Figure 6 above, then we arrive to the structure of the road to transition from environmentally dirty traditional market(TM) to the environmentally clean market(ECLM) as shown in Figure 9 below:

Figure 9 The road from the environmentally dirty traditional market(TM) to the
environmentally clean market(ECLM) THAT WAS NEVER BUILT

We can point out based on Figure 9 above that to transition the environmentally dirty traditional market TM to the environmentally clean market ECLM we need to set up first green markets GM and then close the renewable energy technology gap RETG to transition the green market GM towards the environmentally clean market ECLM. We can appreciate two things in Figure 9 above: a) a paradigm shift from environmentally dirty traditional markets TM to the green market GM(TM---$\rightarrow$GM) as the environmental externality E[C] produced by the traditional market is now internalized I[E(C)]]; and b) a paradigm transition from green markets GM towards environmentally clean markets ECLM as the renewable energy technology gap RETG is closed(RETG--$\rightarrow \infty$).   Finally, Figure 9 summarizes the road from environmentally dirty traditional markets TM to the environmentally clean markets that was never build since 2012 Rio +20 to today when addressing environmental pollution was made the priority development issue by the United Nations Conference on Sustainable Development.

The consequences of green market paradigm shift avoidance

At the UNCSD Conference in 2012, there was academic consensus to go the way of green markets(GM) to address environmental issues head on as mentioned in the introduction, but instead they decided to go dwarf green markets(DGM) a la environmental externality management, a situation shown in Figure 10 below:
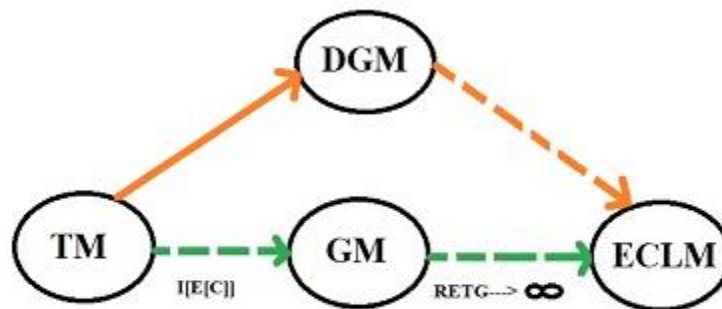

Figure 10 Structure of green market paradigm shift avoidance
Instead of going green markets(GM), green growth and green economy the
world went dwarf green markets(DGM) a la environmental externality
management

Figure 10 above shows the structure of green market paradigm shift avoidance as the environmentally dirty traditional market TM does not go the route of green markets GM as expected as indicated by the broken green arrow from TM to GM, but instead it goes the way of dwarf green markets DGM as shown by the continuous orange line from TM to DGM, a situation that took place soon after the 2012 Rio +20 conference and which is at work right now.

Four of the main consequences of green market paradigm shift avoidance and the going with dwarf green markets based on Figure 10 above are 1) The growth of knowledge in terms of perfect green market thinking and the science based evolution of markets is blocked as the environmental pollution problem is not internalized leaving the root cause of the pollution production problem embedded in the environmental pollution production based traditional market still uncorrected as indicated by the broken green arrow from TM to GM; 2) The incentive to close the renewable energy technology gap to transition to green markets is blocked as indicated by the broken green arrow from GM to ECLM; 3) As dwarf green markets DGM are not fixing the environmental externality E[C] produced by environmentally dirty traditional markets TM, they are only managing it; then as a long as these markets can make money by just managing the environmental pollution they have no incentive to do more than what the management requirements say; and hence, environmentally dirty traditional markets TM cannot transition to environmentally clean markets ECLM via dwarf green markets DGM as indicated by the broken orange arrow from DGM to ECLM as there is no incentive to close the renewable energy technology gap. No incentive in dwarf green markets DGM to close the renewable energy technology gap makes non-renewable energy sources more valuable for non-renewable energy sources owners, which turns non-renewable energy dependency in the process more severe; and this complicates the development choices of all countries involved in the green market paradigm shift avoidance process due to non-renewable energy access volatility whether through natural disasters or wars or other supply problems; and 4) the going dwarf green markets since 2012 has left dwarf green capitalism opened to the threat from green marxism ideas that claim that dwarf green capitalism has to be overtaken and replaced by green socialism to put a full stop to the destruction of nature as dwarf green capitalists are just pretending to be fully environmentally responsible while destroying the environment.

5. FOOD FOR THOUGHTS

1) Are dwarf green markets environmental pollution reduction markets? I think No, what do you think?; 2) Is dwarf green economics the same as green economics? I think No, what do you think; 3) Is climate change economics green economics? I think No, what do you think?; and 4) Are dwarf green markets clear by green market prices? I think No, what do you think?

6. CONCLUSIONS

First, it was pointed out that what separates the environmentally dirty traditional economy and the environmental clean economy is an environmental externality or pollution problem. Second, it was highlighted that to build the road to transition the environmentally dirty traditional economy to the environmentally clean economy first we need to set up environmental pollution reduction markets and then we need to close permanently as fast as possible the renewable energy technology gap to transition the environmental pollution reduction market towards the environmentally clean economy. And third, it was stressed that the road to transition from the environmentally dirty traditional markets to environmentally clean markets requires to first to set up green markets as the pollution reduction markets, and then close the renewable energy technology gap by increasingly substituting permanently non-renewable energy sources by renewable ones to lead the green economy towards the environmentally clean economy.

In general, it was shown that setting up pollution reduction markets like green markets, and then close the renewable energy technology gap are the two steps needed to transition the environmentally dirty traditional market towards the environmentally clean market, which is the road to transition from environmentally dirty traditional markets to environmentally clean markets that was never build in and since 2012.

REFERENCES

Muñoz, Lucio, 2016a. **Perfect Green Markets vrs Dwarf Green Markets: Did We Start Trying to Solve the Environmental Crisis in 2012 With the Wrong Green Foot? If Yes, How Can This Situation Be Corrected?. In:** *International Journal of Advanced Engineering and Management Research(IJAEMR),* Vol.1, Issue 6, Pp 389-406, August, India.

Muñoz, Lucio, 2016b. **Beyond Traditional Market Thinking: What is the Structure of the Perfect Green market?, In:** *International Journal of Science Social Studies Humanities and Management (IJSSSHM),* Vol. 2, No. 5., May, Ed. Dr. Maya Pant, India.

Muñoz, Lucio, 2022. **Sustainability thought 170: What happens to the Thomas Kuhn's paradigm evolution loop under willful academic blindness? What are the implications of this?,** In: *International Journal of Education Humanities and Social Science(IJEHSS)*, Vol. 5, No. 04, Pp. 251-260, ISSN: 2582-0745, India.

Smith, Adam, 1776. *The Wealth of Nations*, W. Strahan and T. Cadell, London, UK.

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 Commission on Environment and Development(WCED), 1987. *Our Common Future,* Oxford University Press, London, UK.