

SUSTAINABILITY THOUGHTS 193: DOES THE CURRENT MOVE FROM THE PERIOD OF GREEN MARKET PARADIGM SHIFT AVOIDANCE 1987-2022 TO FORMAL CIRCULAR ECONOMIC THINKING 2023-2024 MAKE SENSE IN TERMS OF LONG-TERM ENVIRONMENTAL SUSTAINABILITY? IF NOT, WHY NOT?

Lucio Muñoz*

* Independent Qualitative Comparative Researcher / Consultant, Vancouver, BC, Canada Email:

munoz@interchange.ubc.ca

ABSTRACT

It can be said that in the traditional market there was no need for reuse in theory as the externalities being produced are assumed away so markets can grow without producing them by assumption, a situation which the Brundtland Commission in 1987 documented as false as there are externalities produced, which have been accumulating since 1776 and that had led to the critical sustainability problems, they said could only then be fixed using thinking beyond traditional market thinking. Today those pollution production problems have not yet been addressed, yet the whole world, including the United Nations, is moving towards circular economic thinking, knowing since 1987 that the root cause of sustainability problems was not economic linearity, but critical problem cost externalization reflected in socially and/or environmentally distorted traditional market prices. Hence, going circular economic thinking means that we know now and accept that there is a real critical externality production problem linked to traditional market thinking, but now we just define it away as the circular economy will be able to grow as much as it wants without producing social and/or environmental pollution problems too but this time it takes place by defining the externality problem away, which is not possible. In other words, going from assuming away critical problem generation under traditional market thinking to defining them away under circular economic thinking cannot be a solution to the generation of sustainability problems as without correcting distorted market prices today/current situation you cannot expect to solve long term sustainability problems/future situation. And this means that the move from linear traditional market thinking to circular market thinking is a move inconsistent with the Thomas Kuhn's paradigm evolution loop as no abnormalities linking traditional market thinking to the socio-environmental pollution production problem have been removed yet making the circular market a pollution production market too. And this raises the question, does the current move from the period of green market paradigm shift avoidance 1987-2022 to formal circular economic thinking 2023-2024 make sense in terms of socio-environmental sustainability? If not, why not? What are the long-term sustainability implications of this? Among the goals of this paper is to provide answers to the questions above.

Keywords: Sustainable development, traditional market thinking, circular market thinking, green market, dwarf green market, green market paradigm shift avoidance, flawed development, optimal development, Thomas Kuhn's paradigm evolution loop, backward paradigm moves, paradigm double down, greenwashing, sustainability washing, formal greenwashing, formal sustainability washing.

green markets GM at point 3 as the environmental pollution problem EPOP1 is now internalized fully; and vii) There is an environmental sustainability gap(ESG) in dwarf green markets DGM at point 3a as the environmental pollution problem EPOP1 is just being managed externally a la environmental pollution production management as indicated by the broken arrow from point 3a /DGM to point 3/GM.

ii) Linking the green market paradigm shift avoidance period to the Thomas Kuhn's paradigm transformation loop

A consensus for paradigm change from traditional markets to green markets materialized formally in 2012 Rio + 20 Conference (UNCSD 2012a; UNCSD 2012b) and the United Nations was getting ready for it before hands with guides to the green economy (UNDESA 2012): A paradigm change was needed to remove environmental abnormalities from traditional economic thinking by internalizing environmental responsibility. It has been pointed out that under academic integrity and no green market paradigm shift knowledge gaps, the Thomas Kuhn's paradigm transformation loop and thinking removes the removing environmental abnormalities (Muñoz 2022a) transforming the traditional market into a green market. The need to make the environment the priority for once led then the United Nations Commission on Sustainable Development(UNCSD) to announce formally in 2012 a shift from green economies, green growth and green markets as the way forward, but later no green markets were set up to implement the vision of green market based development under green producers and green consumers guided by green micro-economics and green macroeconomics, and this green market paradigm shift avoidance action, implementing dwarf green markets instead of green markets, led to the flipping of traditional economic thinking(Muñoz 2019). The Thomas Kuhn's evolution loop can be linked to the green market paradigm shift period and to the green market paradigm shift avoidance period as it breaks when it goes dwarf green markets (Muñoz 2022b) as indicated in Figure 2 below:

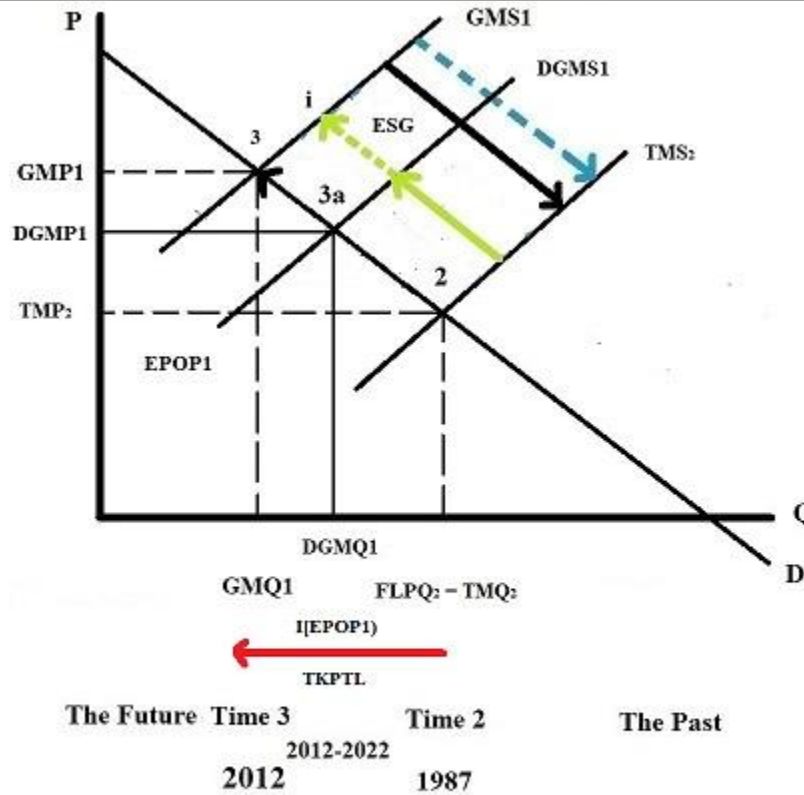


Figure 2 The Thomas Kuhn's paradigm transformation loop(TKPTL) converting the traditional market TM2 at point 2 into the green market GMI at point 3 by removing fully the environmental abnormalities under academic integrity and no green market paradigm shift knowledge gaps.

The red horizontal arrow in Figure 2 above going from right to left from point 2 to point 3 reflects the Thomas Kuhn's paradigm evolution loop at work under academic integrity and no green market paradigm shift knowledge gaps removing the environmental abnormalities embedded in the traditional market model (TM = Bc) through environmental responsibility internalization at point 2 to shift it to the structure of the green market model (GM = BC) at point 3. This transformation of distorted traditional markets at point 2 into green markets at point 3 under the Thomas Kuhn's paradigm transformation loop (TKPTL) under academic integrity can and no green market paradigm shift knowledge gaps be stated as follows:

$$I[c] = I[EPOP1]$$

$$TKPTL(TM2 = Bc) \text{ -----} \rightarrow GM = BC$$

The expression above tells us that subjecting traditional market thinking (TM2) at point 2 in Figure 2 above to the Thomas Kuhn's paradigm transformation loop(TKPTL) leads to the removal of environmental abnormalities embedded in it through externality internalization $I[c] = I[EPOP1]$ to transform it into a green market GM, where there are not environmental sustainability gaps (ESG = 0), which reflects the nature of the TKPTL red arrow going from right to left in Figure 2 above, from point 2 to point 3.

However, point 3a, the dwarf green market point, falls between point 2 and point 3, and hence the period 2012-2022 falls outside the paradigm evolution loop under academic integrity as environmental abnormalities embedded in the model have not yet fully been removed only the

externalities of the abnormalities are being managed. In other words, the existence of dwarf green markets DGM such as those at point 3a means that the Thomas Kuhn's paradigm evolution loops breaks when academic integrity breaks (Muñoz 2022b) as the end result of removing environmental abnormalities fully is green markets (GM), not dwarf green markets (DGM); and hence, going dwarf green markets DGM indicate green market paradigm shift avoidance, which gives rise to remaining environmental pollution production problems or environmental sustainability gap problems present between point 3a and point 3 as indicated by the broken green arrow between them.

iii) The need to understand in simple terms the nature of the move towards circular economic thinking as delinked from the socio-environmental problem the world has been trying to solve since 1987 and other relevant development related issues.

Based on the discussion above, it can be said that in the traditional market of Adam Smith (Smith 1776) there was no need for reuse in theory as the externalities being produced are assumed away so markets can grow without producing them by assumption, a situation which the Brundtland Commission in 1987 (WCED 1987) documented as false as there are externalities produced, which have been accumulating since 1776 and that had led to the critical sustainability problems they said could only then be fixed using thinking beyond traditional market thinking. Today those pollution production problems have not yet been addressed, yet the whole world, including the United Nations, is moving towards circular economic thinking, knowing since 1987 that the root cause of sustainability problems was not economic linearity, but critical problem cost externalization reflected in socially and/or environmentally distorted traditional market prices. For example, the European Union now has developed formal circular economic plans (EC 2020) for its members moving from linear to circular like if linearity, not pollution production was the problem affecting the traditional market, which does not make sense from the point of view of addressing environmental unsustainability head on. Hence, going circular economic thinking means that we know now and accept that there is a real critical externality production problem linked to traditional market thinking, but now we just define it away as the circular economy will be able to grow as much as it wants without producing social and/or environmental pollution problems too but this time it takes place by defining the externality problem away, which is not possible. In other words, going from assuming away critical problem generation under traditional market thinking to defining them away under circular economic thinking cannot be a solution to the generation of sustainability problems as without correcting distorted market prices today/current situation you cannot expect to solve long term sustainability problems/future situation. And this means that the move from linear traditional market thinking to circular market thinking is a move inconsistent with the Thomas Kuhn's paradigm evolution loop thinking (Kuhn 1970) as no abnormalities linking traditional market thinking to the socio-environmental pollution production problem have been removed yet making the circular market a pollution production market too. And this raises the question, does the current move from the period of green market paradigm shift avoidance 1987-2022 to formal circular economic thinking 2023-2024 make sense in terms of socio-environmental sustainability? If not, why not? What are the long-term sustainability implications of this? Among the goals of this paper is to provide answers to the questions above.

2. GOALS OF THIS PAPER

1) To highlight the structure of the move from the green market paradigm shift avoidance period to circular economic thinking; 2) To use this structure to point out several reasons why this move does not make sense in terms of long-term environmental sustainability and in terms of paradigm evolution a la Thomas Kuhn; and 3) To use this structure to stress that the only rational to justify going from linear to circular economic thinking is a deep double down paradigm move to keep the status quo pollution production market of Adam Smith’s running for as long as there is no full system collapse.

3. METHODOLOGY

First, the terminology and key operational concepts used in this paper are given. Second, the structure of the move from green market paradigm shift avoidance period 2012-2022 linked to Thomas Kuhn’s paradigm evolution thinking to the circular economy period 2023-2024 is presented. Third, the key reasons why the move from traditional market thinking to circular green market thinking does not make sense in terms of socio-environmental sustainability and the paradigm evolution loop are given. Fourth, some of the reasons why the move to circular economic thinking is simply a deep traditional market double-down are listed. And finally, some good food for thoughts and relevant conclusions are provided.

Terminology

TM = Traditional market	TMS = Traditional market supply
TMQ = Traditional market quantity	TMP = P = Traditional market price
GM = Green market	GMS = Green market supply
GMQ = Green market quantity	GMP = Green market price
DGM = Dwarf green market	DGMS = Dwarf green market supply
DGMQ = Dwarf green market quantity	DGMP = Dwarf green market price
SG = Sustainability gap	ESG = Environmental sustainability gap
EPOP = Environmental pollution problem	I [] = Cost internalization
TKPTL = Thomas Kuhn’s paradigm transformation loop	
Ai = Abnormality “i”	c = Environmental externality
GOP = Golden paradigm	FLP = Flawed paradigm

Operational concepts and relevant analytical tools

i) Concepts

- 1) **Traditional market**, the one cleared by the traditional market price.
- 2) **Green market**, the one cleared by the green market price.
- 3) **Dwarf green market**, the one cleared by the pollution management-based market price or dwarf green market price.
- 4) **Green margin**, the one that reflects the environmental cost associated with economic activity
- 5) **Dwarf green margin**, the one set by the pollution manager to be passed by producers to consumers to insert some environmental responsibility in the market.
- 6) **Golden paradigms**, the ones that have no abnormalities embedded in their market structure.
- 7) **Flawed paradigms**, the ones that have abnormalities embedded in their market structure.

8) The Thomas Kuhn's paradigm transformation loop, the tool that removes the abnormalities from flawed paradigms to transform them in golden paradigm enriching in the process the growth of knowledge by closing paradigm shift knowledge gaps created in the transformation process.

ii) Model structures

1) The model structure of the traditional market

As the traditional market (TM) assumes social (a) and environmental(c) externality neutrality to work and there is no reuse to become a traditional economy only market (B), its structure can be stated as follows:

$$\mathbf{TM = aBc}$$

The expression above shows the economy only matters (B) traditional market (TM) structure, which makes it a socio-environmental pollution (ac) production market as it expands. See if the environment issue(c) is made the only priority to be addressed, then it is an environmental pollution production market.

2) The model structure of the green market

As the green market (GM) assumes social (a) externality neutrality and the environmental issue is internalized ($I[c] = C$) to become a green economy only market (BC), its structure can be indicated as follows:

$$\mathbf{GM = aBC}$$

The expression above shows the green economy only matters (BC) green market (GM) structure. which makes it only a social pollution(a) production market as there are no environmental sustainability gaps ($ESG = c = 0$).

3) The model structure of the dwarf green market

As the dwarf green market (DGM) assumes social(a) externality neutrality and works under environmental externality management (M_C) to become a dwarf green economy only market (BM_C), it's structure can be indicated as follows:

$$\mathbf{DGM = aBM_C}$$

The expression above displays the dwarf green economy only matters (BM_C) dwarf green market (DGM) structure. which makes both a social pollution(a) production market and a partial environmental pollution production market as there is still a remaining environmental sustainability gap ($RESG$) at work affecting its stability here since $RESG = ESG - M_C > 0$.

4) The model structure of the circular traditional market

As the circular traditional market (CTM) assumes social (a) and environmental(c) externality neutrality while reuse takes place to become a circular economy only matters market (B_R), its structure can be stated as follows:

$$\mathbf{CTM = aB_Rc}$$

The expression above highlights the circular economy only matters (B_R) circular traditional market (CTM) structure, which makes it a socio-environmental pollution (ac) production market too as it expands. Notice that if the environment issue(c) is made the only priority to be addressed, then it is an environmental pollution production market too.

iii) Cost internalization and externalization rules

If k and l two types of cost externalization such as in model $M1 = klQ$; and K and L are two types of cost internalization such in model $M2 = KLQ$, then the following holds true:

$$1) I[k] = K$$

$$2) I[l] = L$$

$$3) I[kl] = KL$$

$$4) E[K] = k$$

$$5) E[L] = l$$

$$6) E[KL] = kl$$

7) I [0] = 0

7) E [0] = 0

8) I [E [0]] = 0

iv) The Thomas Kuhn’s paradigm transformation loop at work under academic integrity and no paradigm shift knowledge gaps

If we have two paradigms such as $M1 = kIQ$ and $M2 = KLQ$, then paradigm $M1$ is a flawed paradigms as it has abnormalities, and $M2$ is a golden paradigm as it has no abnormalities, then the Thomas Kuhn’s paradigm transformation loop works as follows:

I[kl]

TKPTL (M1 = kIQ)-----→ M2 = KLQ

The above means that the internalization of the abnormalities k and l indicated by $I[kl]$ transforms the flawed paradigm $M1$ in the end into a golden paradigm $M2$. In this case, the flawed paradigm is transformed into the golden paradigm after consensus for change is achieved under academic integrity and not paradigm shift knowledge gaps.

v) The Thomas Kuhn’s paradigm transformation loop at work under no academic integrity and/or paradigm shift knowledge gaps

Under no academic integrity and/or paradigm shift knowledge gaps the Thomas Kuhn’s paradigm evolution loop is violated to avoid a full shift or paradigm change from the flawed paradigm $M1$ to the golden paradigm $M2$ leading to two situations, one where paradigm shift avoidance leads to dwarf market thinking, a position below the golden paradigm; and another one where paradigm shift avoidance leads to deep paradigm double down, a position further away from the golden paradigm as it is a move to a deeper flawed paradigm, as indicated in general below:

1) The case of a move to flawed markets dwarf market structures

When there is consent for paradigm change and consciously or not the Thomas Kuhn’s paradigm transformation loop is violated partially by managing the externality instead of internalizing it to avoid that way the shift to the golden paradigm flipping the thinking supporting $M1$ fully as it no longer holds in $DM2$, then we have the violation that leads to dwarf market thinking.

I [M_L]

TKPTL (M1 = kIQ)-----→ DM2 = kM_LQ ≠ M2 = KLQ

The management of the abnormality “ l ” leads to the dwarf green market structure of $DM2$ as it brings it below the golden paradigm as it is still a flawed paradigm under remaining sustainability gap RSG_L . Hence, going to dwarf markets $DM2$ instead of golden markets $M2$ to avoid the consequences of the transformation $TKPTL$ is a violation of the Thomas Kuhn’s loop, but dwarf green markets $DM2$ are higher level markets than the original flawed paradigm $M1$ as they have some externality friendliness.

2) The case of going from flawed markets to deep paradigm double down

When there is consent for paradigm change and consciously or not the Thomas Kuhn’s paradigm transformation loop is violated fully by moving to another state without removing any abnormality to avoid paradigm shift to the golden paradigm all together, a state where you are simply defining your way out of the externality problem using circularity thinking while leaving the abnormalities still in place, which is simply a deep paradigm double down to keep the status quo paradigm $M1$ intact, but presented in a better sounding way, as situation simplified as stated in the expression below:

I [k = l = 0]

TKPTL (M1 = kIQ)-----→ CM2 = kIQ_R ≠ M2 = KLQ

The flawed model M1 driven by the dominant component Q is defined circular to bring in reuse Q_R without removing any of the abnormalities k and l driving the unsustainability of the flawed paradigm M1 in order to move from linear paradigm M1 thinking to circular paradigm CM2 thinking, where the circular model is affected by the same abnormalities affecting the linear model, making both models unsustainable in the long-term in terms of abnormalities “k” and “l”. Therefore, going to circular markets CM2 instead of golden markets M2 to avoid the consequences of the transformation TKPTL is a full violation of the Thomas Kuhn’s loop as no abnormalities are actually removed to go to the circular state, they are just assumed away, which means that the circular paradigm thinking CM2 is a worse version of the flawed paradigm M1 as it gives the illusion of externality friendliness when it is more externality unfriendly.

The structure of the formal move traditional linear market thinking to circular economic thinking 2023-2024

The move from linear traditional market thinking (TM) to circular market thinking (CTM) is a move to the right of the traditional market as now reuse is taking place and a move away from the Thomas Kuhn’s paradigm transformation loop (TKPTL) as indicated in Figure 3 below:

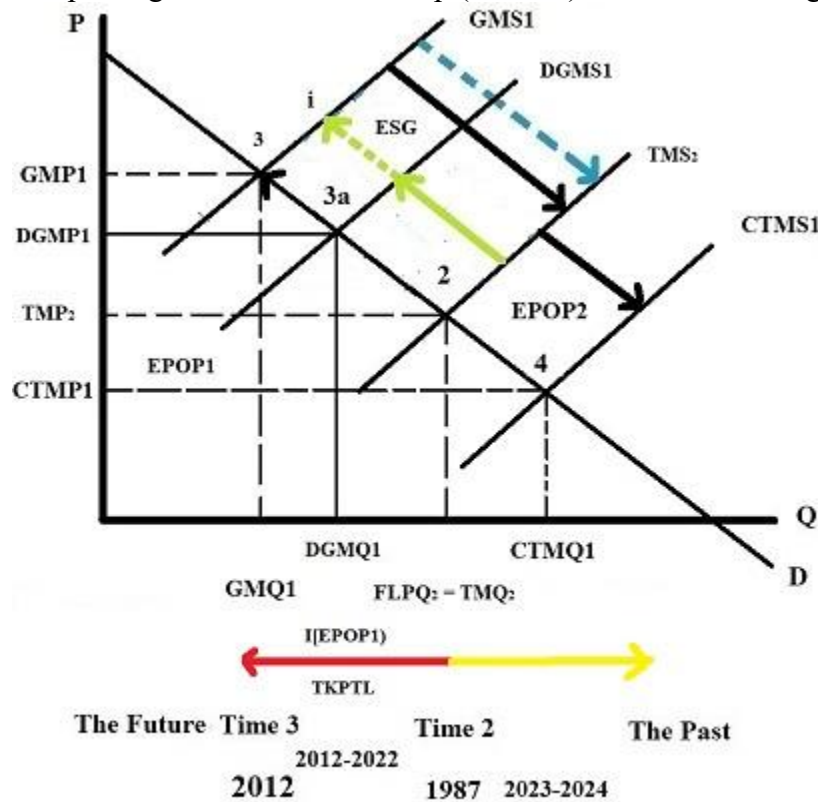


Figure 3 The structure of the move from traditional market thinking TM at point 2 to circular traditional market thinking CTM at point 4 and its consequences

We can see that there is a circular market at point 4 in Figure 3 above, where the circular traditional market supply CTMS1 cuts the demand curve. Notice that at point 4 consumption and production CTMQ1 is greater than that in traditional markets (TM) as $CTMQ1 > TMQ2$ as now there is reuse, which encourage more production and consumption and hence, more pollution.

Notice that the move from point 2/traditional market thinking to point 4/circular traditional market thinking as shown in Figure 3 above is a move: a) that is contrary to the Thomas Kuhn's paradigm transformation loop(TKPTL) as it goes in the opposite direction to the science based growth of knowledge a la Kuhn as the environmental abnormalities leading to the critical environmental problem embedded in the linear market thinking have not yet been removed from the circular economic thinking as indicated by the yellow arrow going from left/the future to the right/the past making it simply a deep paradigm double-down that expands the pollution problem; b) that increases the environmental pollution problem by the portion of EPOP2 as indicated by the black arrow from point 2 to point 4 to make it a total problem of EPOP1 + EPOP2; and c) that ignores the growth of knowledge that has taken place since 1987 following the call of the WCED 1987 to leave traditional economic thinking behind as you cannot solve a sustainability problem using the same distorted thinking that created the problem in the first place and highlighting the need for higher level market paradigms to solve the problem.

Why the move from linear economic thinking to circular economic thinking does not make sense from the sustainability point of view?

Based on Figure 3 above, the following aspects can be pointed out about the move from linear to circular economy that is currently underway and its sustainability implications: 1) It is a move from a linear pollution production market to a circular pollution production market; 2) It is a move from an environmentally distorted traditional market price to an environmentally distorted circular market price; 3) It is a move towards the past contrary to the Thomas Kuhn's paradigm transformation loop that search for a world without environmental abnormalities; 4) It is a move that makes the environmental market failure created by the traditional market permanent; 5) It is move contrary to the 1987 World Commission on Environment and Development called to move to models away from traditional economic thinking like sustainable development thinking that internalizing social and/or externality friendliness; 6) It is a move contrary to the 2012 United Nations Commission on Sustainable development/Rio +20, where higher level green market thinking was found to be needed to address the environmental issue head on as the priority issue by internalizing environmental responsibility in higher level market models, and hence, away from business as usual; 7) It is a move that expands the socio-environmental pollution problem(SEPOP) the world has been trying to solve since 1987 so it is not aimed at solving the socio-environmental sustainability crisis; 8) it is a move away from the goal of the clean economy by widening the environmental pollution problem present in linear market thinking at point 2 bringing it to point 4 separating traditional circular markets from the transition to clean market even more; 9) It is a move where the Thomas Kuhn's paradigm evolution loop is broken by paradigm shift avoidance forces under no academic integrity and/or paradigm shift knowledge gaps to go the way of deep traditional paradigm deep double-down; and 10) It is a move that not just undermines environmental responsibility, but it defines it away as reuse is not linked to the environmental externality problem created and still active even when you reuse.

Therefore, the current move from the period of green market paradigm shift avoidance 1987-2022 to formal circular economic thinking 2023-2024 that is now underway does not make sense in terms of long-term environmental sustainability as well as in terms of the way scientific paradigm moves are expected to behave a la Thomas Kuhn as it is a move from a traditional market to another traditional market, but circular, but with the same environmental distortions the world has been trying to fix with non-business as usual thinking since 1987.

Some of the reasons that may be behind or can explain the move to current move to circular economic thinking and its expected working as stated in Figure 3 above

The only way the move from linear traditional economic thinking to circular traditional market thinking makes sense or it can be justified is from the point of view of saving the status quo economic paradigm thinking and keep it as closed as the way it has always worked, which means: a) This move is a deep market paradigm double down aimed at repackaging distorted linear traditional market thinking with a nicer sounding name of circular traditional market thinking aimed at keeping the pollution production economy still running and keep making money for as long as there is no full system collapse; b) This move assumes that circular economies can expand forever and reuse forever without producing social and/or environmental externalities in the process, the same assumption under which the linear market thinking works, and which created the socio-environmental problem the WCED 1987 addressed; c) This move does not see the need to transition one day to externality free perfect markets such as clean markets; d) This move is not a science based move, but a politically based move aimed at sustainabilitywashing or greenwashing by presenting a circular economy move as sustainability friendly move or environmentally friendly move when it is not as the externality distortions that lead to unsustainability in general or environmental unsustainability in particular, have not yet been removed; and hence, they are still embedding in the pricing mechanism of circular economies; and e) therefore, this is a move aimed at avoiding the Thomas Kuhn's paradigm transformation loop(TKPTL) and at ignoring the need to move away from business as usual, circular or not, to have a change to solve the critical sustainability problems of the day.

In summary, the move from linear traditional market thinking to circular market thinking is simply a move from assuming socio-environmental externalities or environmental externalities away to defining them away as in both cases the distortions that have led to the socio-environmental sustainability problem the world have been trying to address since 1987(WCED 1987) are still in place, which makes it not a science based move, but a political market or policy move to save the pollution production market.

4. FOOD FOR THOUGHTS

1) Does the traditional market works under the same social and environmental externality neutrality assumptions the linear traditional market works? I think Yes, what do you think?; 2) Can you solve the socio-environmental crisis created by the linear traditional market by going circular economic thinking? I think No, what do you think?; 3) Are market prices in the circular economy distorted in social and/or environmental terms? I think Yes, what do you think?; and 4) Is circular economic thinking just traditional market thinking plus reuse? I think Yes, what do you think?

5. CONCLUSIONS

In general, first it was shown that the structure of the current move from the period of green market paradigm shift avoidance 1987-2022 to formal circular economic thinking 2023-2024 linked to the Thomas Kuhn's paradigm evolution loop can be used to isolate the weaknesses of the move from traditional economic thinking to the circular economic thinking in terms of environmental responsibility, of science-based paradigm evolution, and in terms of paradigm shift avoidance, which do not make sense from the sustainability thinking point of view. And second,

based on that structure it was pointed out that the move from traditional economic thinking to circular economic thinking only make sense among other things as a deep paradigm double down to save the status quo traditional market paradigm as the move is not environmentally friendly, the move is not consistent with Thomas Kuhn's paradigm transformation loop, and the move is not consistent with the evolution of economic thoughts since 1987 to 2012 to 2022 to address the environmental crisis as the priority crisis using thinking away from traditional economic thinking.

In particular, three key things that do not make sense with this move from linear traditional economic thinking to circular economic thinking after this traditional thinking was supposedly left behind since 1987 are: 1) The move to circular economic thinking is inconsistent with Kuhn's paradigm evolution loop in two ways, it does not remove the environmental abnormalities making its pricing mechanism distorted in environmental terms, and it is a backward paradigm move as it is a move to save past economic thinking known to be pollution production friendly; 2) The move to circular economic thinking expands the environmental pollution production problem attached to linear economic thinking as pollution production was the problem and it is the problem, not linearity; and 3) The move to the circular economy is a move from a linear pollution production market to a circular pollution production market that beside pollution production in the production and consumption side it has also pollution production in the reusing side. Finally, it was pointed out that the only way the move to circular economic thinking make sense is as a political move to save the status quo paradigm by going the way of deep traditional market double down a la circularity, as the move is not a science-based move or a move aimed at solving the sustainability crisis it creates as it is a move outside the Thomas Kuhn's paradigm transformation loop.

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