

**Sustainability thoughts 130: Can green economies and green growth exist without green markets? If not, why not? What is the current main development implication of this?**

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**Abstract:** All the talk prior to and during the 2012 Rio +20 conference was about moving away from business as always just as the Brundtland Commission asked in 1987; and shift towards a win-win environment-economy model, which meant that at the heart of this model there had to be a green market linking a new culture of green producers and green consumers, and this in turn would generate green growth that would drive green economy expansions. A three pillar development approach consistent with the theory-practice consistency principle and development thinking. It happened that suddenly after that 2012 Rio + 20 conference talk about using green markets as a way to fix the environmental sustainability gap affecting the traditional market model stopped; and the focus of development then went directly to promoting green growth and green economy thinking outside perfect green market thinking, making green growth and green economy thinking the two main pillar of development behind the current sustainable development goals agenda, an approach that violates the theory-practice consistency principle as without green markets there is no green growth, and therefore, there is no green economy; and hence, they can exist without green markets. Dropping green markets then meant that the theory-practice consistency principle was broken as green growth can only come out of green markets; and this decision to go without green markets makes the development approach being promoted and implemented after 2012 by major development players like OECD, the World Bank, the UN and its organizations and so on, a non-green market, non-science based approach as green growth appears to come out of somewhere other than from green markets, an idea that as indicated above violates theory-practice consistency principles, which creates a dilemma for those institutions. This is because green economies and green growth are then based on non-green markets, which leads to a model, component, and unseen component inconsistency in those markets. As market model consistency, market component consistency and unseen market component consistency matter when addressing sustainability problems, in this case, an environmental sustainability problem, this raises the questions: Can green economies and green growth exist without green markets? If not, why not?. If green growth does not come from green markets, where does it come from then? What is the current main development implication of this? Among the goals of this paper is to provide an answer to each of those questions.

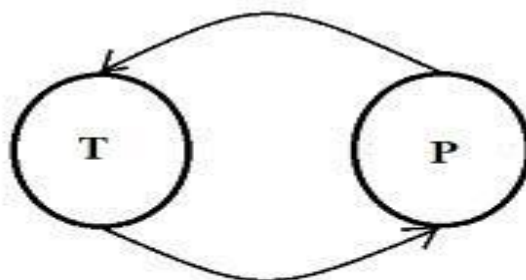
**Keywords:** Sustainability, sustainability gaps, traditional economy, traditional market, traditional growth, green economy, green market, green growth, paradigm shift, dwarf traditional market, dwarf green market, the theory-practice consistency principle

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## **Introduction**

### **a) The theory-practice consistency principle and perfect development thinking**

It can be said that perfect development thinking is based on the idea of matching theory to practice in a way that the nature of the theory(T) reflects the nature of the practice(P), respecting that way the theory-practice consistency principle(TPCP) leading to development model consistency, as indicated in Figure 1 below:



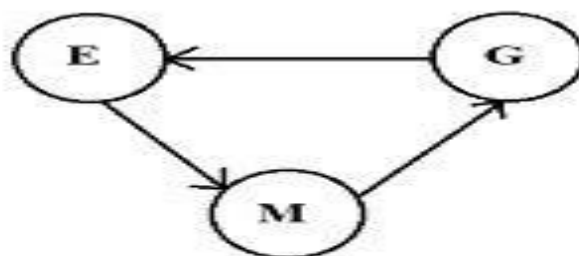
**Figure 1 The theory-practice consistency principle:  
The theory(T) must match the practice(P);  
the practice(P) must match the theory(T).**

Figure 1 above summarizes the theory-practice consistency principle (TPCP) that requires two things: 1) that the theory must match the practice as indicated by the arrow from T to P; and 2) that the practice must match the theory as indicated by the arrow from P to T. If the theory-practice consistency principle (TPCP) is respected we have a science based approach to development issues; and if the principle is violated we have a non-science based approach to development issues. It has been pointed out recently that sustainability theory is needed to address sustainability issues and that sustainable development theory is required to address sustainable development issues (Muñoz 2009) in order to respect the theory-practice consistency principle. And this means that we cannot use sustainability theory to address a sustainable development issue; and that we cannot use sustainable development theory to address a sustainability issue. If we use sustainable development theory to address a sustainability issue then we are using a non-science based approach to address that issue. It has been stressed recently that a science based approach to address environmental sustainability issues associated to development is the use of green market based development (Muñoz 2016a); and that a non-science based approach to the same issue is through environmental externality market based development or dwarf green markets, which require a flipping of traditional economic thinking (Muñoz 2019) to make sense, but growth in environmental externality management markets or dwarf green markets is not green growth as they are not green markets.

**Impossibility theorem I:** *If there is no theory-practice consistency, then there is no science based development.*

**b) The theory consistency principle and perfect market thinking**

It can be said that perfect market thinking is based on the idea of matching market theory to market practice in a way that the nature of the market theory (T) reflects the nature of the market practice (P), respecting that way the theory-practice consistency principle (TPCP) leading to market model consistency. And the existence of market theory (T) and market practice (P) consistency requires too the existence of market component consistency as shown in Figure 2 below:



**Figure 2 The world of perfect markets  
under the theory-practice  
consistency principle**

Figure 2 above tells us that the world of perfect markets has 3 consistent components as indicated by the continuous arrows linking them, the economy (E), the market (M), and growth (G), all of them of the same nature. For example, if the economy is a red socialism economy ( $E = K$ ), this economy is supported by red socialism markets ( $M = KM$ ), that generates red socialism growth ( $G = KG$ ) that expands the red socialism

economy ( $E = K$ ). The existence of model consistency and component consistency allows for the existence of market price consistency in all possible markets as it has been recently indicated in detail (Muñoz 2016b), including in the red socialism model used above as an example.

**Impossibility theorem II:** *If there is no market theory component consistency, then there are no science based markets.*

**c) The unseen component consistency principle and perfect market thinking**

It can be said that if market model and market component consistency exists, then there must be unseen component consistency as unseen components must be of the same nature as the components that can be seen, a situation summarized in Figure 3 below:

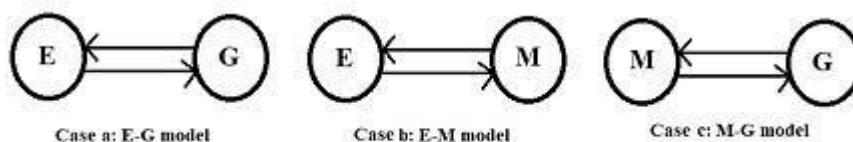


Figure 3 The theory-practice consistency principle and unseen, but expected consistent components

Figure 3 above indicates three cases of models when there is unseen component consistency as there is general model and model component consistency: 1) Case a tells us that if we have an economy and growth based model (E-G model) it must have a consistent market (M) component; 2) Case b says that if we have an economy and market based model (E-M model) it must have consistent growth (G) component; and 3) Case c indicates that if we have a market and growth based model (M-G model) it must have a consistent economy (E) component. For example, if we have a red socialism economy and red socialism market model like K-KM model, it must have and it can only have a consistent red socialism growth KG unseen component. The existence of unseen component consistency and component consistency allows for the linking of market structure to cost externalization and market pricing dynamics in all possible market models (Muñoz 2020a).

**Impossibility theorem III:** *If there are no science based markets, then there is no unseen market component consistency.*

**d) The impossibility of science based development outside the theory-practice consistency principle**

All the talk prior to and during the 2012 Rio +20 conference (UNCSD 2012a; UNCSD 2012b) was about moving away from business as always just as the Brundtland Commission asked in 1987 (WCED 1987); and shift towards a win-win environment-economy model to address head on the environmental sustainability problem associated with traditional economic development, which meant that at the heart of this model there had to be a green market linking a new culture of green producers and green consumers, and this in turn would generate green growth that would drive green economy expansions. That would have been a three pillar development approach consistent with the theory-practice consistency principle described above and consistent with perfect development thinking as we know that perfect green economy thinking, perfect green market thinking, and perfect green growth thinking are needed to implement a full fix to that environmental sustainability problem (Muñoz 2020b). It happened that suddenly after 2012 talk about using green markets as a way to fix to the environmental sustainability problem addressed at the 2012 Rio +20 conference stopped; and the focus of development then went directly to promoting green growth and green economy thinking outside perfect green market thinking, making green growth and green economy thinking the two main pillars of development behind the current sustainable development goals agenda, a situation that violates the theory-practice consistency principle; and a situation which the theory-practice consistency impossibility principle indicates cannot happen.

**e) The dilemma in believing that green economies and green growth can exist without green markets**

Hence, dropping green markets then created a huge science dilemma to major development players like OECD, the World Bank and UN Agencies promoting green economies and green growth as the theory-practice consistency principle clearly tells us green growth comes only from green markets; and if there are not green markets there cannot be green economies or green growth. Therefore, there is a dilemma embedded in thinking or assuming that green economies and green growth can exist outside green markets, raising the question, if green growth can only come from green markets, and there are no green markets so from where that green growth spoken by those institutions above comes from?. See the common link in titles like **Green Growth and**

*Sustainable Development Forum(OECD 2012)* or like *All on Board Making Inclusive Growth Happen(OECD 2014)* or like *What is green growth and how can it help deliver sustainable development?(OECD 2020)* or like *Low Carbon Green Growth Roadmap for Asia and the Pacific(UN 2012)* or like *Transforming our World: The 2030 Agenda for Sustainable Development(UN 2015)* or like *A guidebook to the Green Economy(UNDESA 2012)* or like *Inclusive Green Growth: The Pathway to Sustainable Development(WB 2012)* is the belief that green economies and green growth can exist without green markets to support sustainable development, an impossibility according to the theory-practice consistency principle as if growth in those markets exist it is not green growth as they are not green markets. So the discussion above then raises some relevant questions: Can green economies and green growth exist without green markets? If not, why not? If green growth does not come from green markets, where does it come from? What is the current main development implication of this? Among the goals of this paper is to provide an answer to each of those questions.

### Goals of this paper

a) To link traditional market thinking and the theory-practice consistency principle in order to highlight the traditional market theory-practice general impossibility principle; b) To link green market thinking and the theory-practice consistency principle in order to point out the green market theory-practice general impossibility principle; and c) To link the green market model shift, component shift, and unseen component shift and the theory-practice consistency principle in order to stress the green market theory-practice specific shift impossibility principles.

### The methodology

i) The terminology and operational concepts used in this paper are listed; ii) Traditional market thinking and the theory-practice consistency principle are linked; and this link is then broken to stress the nature of the traditional market theory-practice general impossibility principle; iii) Green market thinking and the theory-practice consistency principle are linked; and this link is then broken to point out the nature of the traditional market theory-practice general impossibility principle; iv) The model shift from traditional market and green market is linked to the theory practice model shift consistency principle; and this link is then broken to indicate the nature of the green market theory-practice model shift impossibility principle; v) The component shift from traditional market and green market is linked to the theory practice component shift consistency principle; and this link is then broken to highlight the nature of the green market theory-practice component shift impossibility principle; vi) The unseen component shift from traditional market and green market is linked to the theory practice unseen component shift consistency principle; and this link is then broken to show the nature of the green market theory-practice unseen component shift impossibility principle; vii) A summary, the implications, the dilemmas created by the implications, and the answers to the questions posted are shared; and viii) Some food for thoughts and relevant conclusions are provided.

### The terminology

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|   |                          |
|---|--------------------------|
| TMM = Traditional market model                              | GMM = Green market model |
| TM = Traditional market                                     | GM = Green market        |
| TE = Traditional economy                                    | GE = Green economy       |
| TG = Traditional growth                                     | GG = Green growth        |
| TPCP = Theory-practice consistency principle                |                          |
| TPCIP = Theory-practice consistency impossibility principle |                          |
| TPMCP = Theory-practice model consistency principle         |                          |
| TPCCP = Theory-practice component consistency principle     |                          |

TPUCCP = Theory-practice unseen component consistency principle  
TPMCIP = Theory- practice model consistency impossibility principle  
TPCCIP = Theory-practice component consistency impossibility principle  
TPUCCIP = Theory-practice unseen component consistency impossibility principle  
TPSCP = Theory-practice shift consistency principle  
TPSCIP = Theory-practice shift consistency impossibility principle  
TPMSCP = Theory-practice model shift consistency principle  
TPMSIP = Theory-practice model shift consistency impossibility principle  
TPCSCP = Theory-practice component shift consistency principle  
TPCSCIP = Theory-practice component shift consistency impossibility principle  
TPUCSCP = Theory-practice unseen component shift consistency principle  
TPUCSCIP = Theory-practice unseen component shift consistency impossibility principle

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### Operational concepts

- 1) **Traditional market**, *the economy only market*
- 2) **Green market**, *the environmentally friendly market*
- 3) **Traditional market price**, *the general market economic only price or the price that covers the cost of production at profit( $TMP = ECM + i = P$ ) or zero profit( $TMP = ECM = P$ ).*
- 4) **Green market price**, *the price that reflects both the economic and the environmental cost of production or the price that covers the cost of environmentally friendly production.*
- 5) **Cost externalization assumption neutrality**, *the assumption that production has minimal or no cost impact on external factors to a market model.*
- 6) **Full cost externalization**, *all costs associated with production are not reflected in the pricing mechanism of the market.*
- 7) **Partial cost externalization**; *some costs associated with production are not reflected in the pricing mechanism of the market.*
- 8) **No cost externalization**, *all costs associated with production are reflected in the pricing mechanism of the market.*
- 9) **Full cost internalization**, *all costs associated with production are reflected in the pricing mechanism of the market.*
- 10) **Partial cost internalization**; *some costs associated with production are reflected in the pricing mechanism of the market.*
- 11) **No cost internalization**, *all costs associated with production are not reflected in the pricing mechanism of the market.*
- 12) **Externalities**, *factors assumed exogenous to a model*
- 13) **Full externality assumption**, *only one component is the endogenous factor in the model; the others are exogenous factors.*
- 14) **Partial externality assumption**, *not all factors are endogenous factors at the same time in the model.*
- 15) **No externality assumption**, *all factors are endogenous factors at the same time in the model.*
- 16) **Economic externality**, *the economic costs associated with production not reflected in the pricing mechanism of the market.*



- 17) **Social externality**, *the social cost associated with production not reflected in the pricing mechanism of the market.*
- 18) **Environmental externality**, *the environmental cost associated with production not reflected in the pricing mechanism of the market.*
- 19) **Green or environmental margin**, *to cover the extra cost of making the business environmentally friendly.*
- 20) **Social margin**, *to cover the extra cost of making the business socially friendly.*
- 21) **Economic margin**, *to cover only the economic cost of production*
- 21) **Profit**, *the incentive to encourage economic activity*
- 23) **Circular market illusion**, *the idea that production activity can take place without producing relevant externalities.*
- 24) **Circular traditional economy illusion**, *the idea that production activity can take place without producing relevant social and/or environmental externalities.*
- 25) **Circular dwarf green economy**, *the idea that market prices can be manipulated externally to generate revenue to cover the cost of dealing with the externality they create to close the non-free market cycle production-consumption-environmental externality.*
- 26) **Circular green economy**, *the idea that market prices reflect the cost of making business environmentally friendly in order to cover the cost of dealing with the environmental externalities they create to close the free market cycle production-consumption-environmental externality.*
- 27) **Circular sustainability based economy**, *the idea that market prices reflect the cost of making business social and environmentally friendly in order to cover the cost of dealing with the social and environmental externalities they create to close the free market cycle production-consumption-socioenvironmental externality.*
- 28) **Circular externality management based market illusion**, *the idea that you can solve an externality problem by dealing with the consequences of that problem, not the cause.*
- 29) **Traditional economy**, *the economy under traditional markets.*
- 30) **Traditional growth**, *the growth from traditional economic expansions.*
- 31) **Green economy**, *the economy under green markets.*
- 32) **Green growth**, *the growth from green economic expansions.*

**Linking traditional market thinking (TMM) and the theory-practice consistency principle (TPCP)**

To meet the theory-practice consistency principle (TPCP) traditional market thinking (TMM) has to have traditional market model consistency, traditional market theory component consistency, and traditional market theory unseen component consistency at the same time as indicated by the continuous arrows in Figure 4 below in Part A, Part B, and Part C respectively:

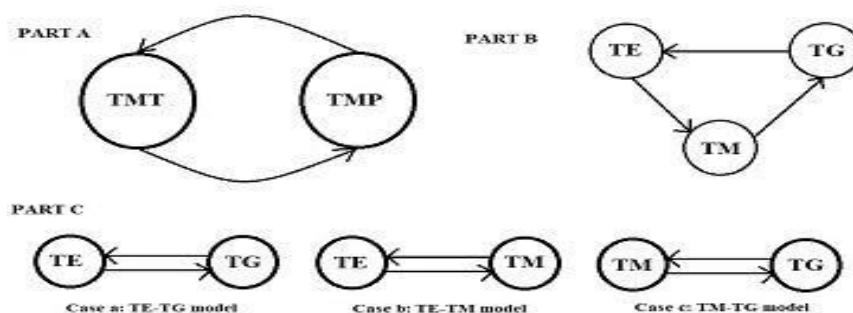


Figure 4 Traditional market thinking and the theory-practice consistency principle

Notice that Part A, Part B, and Part C in Figure 4 above are consistent with the structure of Figure 1, Figure 2, and Figure 3 in the introduction, respectively.

**a) Model consistency in the traditional market model(TMM)**

Traditional market model(TMM) consistency requires that the traditional market theory(TMT) must match the traditional market practice(TMP); and that the traditional market practice(TMP) must match the traditional market theory(TMT) as shown in Part A in Figure 4 above. In other words, the traditional market model consistency principle (TPMCP) requires traditional market theory and traditional market practice consistency.

**b) Model theory component consistency in the traditional market model (TMM)**

Traditional market model(TMM) theory component consistency requires that traditional markets(TM) lead to traditional growth(TG); that traditional growth(TG) drives traditional economies(TE); and that traditional economies(TE) promote traditional markets(TM), leading to component circularity consistency in the traditional market model(TMM) as indicated in Part B in Figure 4 above. In other words, the traditional model theory component consistency principle (TPCCP) requires traditional market model theory component consistency.

**c) Unseen model theory component consistency in the traditional market model (TMM)**

If there is model theory component consistency in the traditional market model (TMM), then there is unseen model component consistency in that market as indicated in the three different cases shown in Part C in Figure 4 above? For example, if we have a traditional economy and traditional growth model (TE-TG model), then there are traditional markets(TM) or if we have a traditional economy and traditional market model (TE-TM model), it means that there is traditional growth (TG) or if we have a traditional market and traditional growth model(TM-TG model), then it means that there is a traditional economy (TE). In other words, the traditional model unseen component consistency principle (TPUCCP) requires that unseen components are of the same nature as the components that can be seen as there is model theory component consistency in the traditional market.

**The traditional market theory-practice consistency impossibility principle (TPCIP)**

Outside the theory-practice consistency principle there is no traditional market model consistency, there is no traditional market theory component consistency, and there is no traditional market unseen theory component consistency as indicated by the broken arrows in part A, part B, and part C in Figure 5 below:

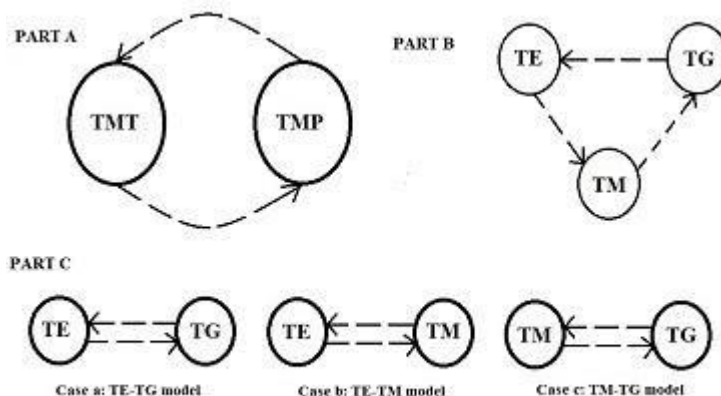


Figure 5 Traditional market thinking outside of the theory-practice consistency principle

**a) The traditional market model (TMM) consistency impossibility principle**

If the theory-practice consistency principle is violated as indicated by the broken arrows in part A in Figure 5 above, then there are no traditional market models (TMM). In other words, if markets exist outside the theory-practice consistency principle, then they are not traditional markets, but dwarf traditional markets. Hence, the traditional market model consistency impossibility principle (TPMCIP) tells us that traditional markets are not possible outside the theory-practice model consistency principle.

**b) The traditional market (TMM) component consistency impossibility principle**

If the traditional market model component consistency principle is violated as indicated by the broken arrows in part B in Figure 5 above, then market components may exist without having compatible components around as for example, having a traditional market supported by non-traditional market growth, which would be then a

dwarf traditional market, but not a traditional market. In other words, traditional market theory component consistency impossibility principle (TPCCIP) tells us that component consistency is not possible outside the theory-practice component consistency principle.

**c) The traditional market model (TMM) unseen component consistency impossibility principle**

If the component consistency principle is violated in the traditional market model(TMM), then the unseen component consistency principle is violated too so we cannot expect to find unseen component consistency as indicated by the broken arrows in part C in Figure 5 above. For example, a model traditional economy and traditional growth(TE-TG model) that violates the theory-practice consistency principle in terms of component consistency would be inconsistent with traditional markets(TM) or a model traditional economy and traditional market(TE-TM model) that violates the theory-practice consistency principle in terms of component consistency would be inconsistent with traditional growth(TG) or a model traditional market and traditional growth(TM-TG model) that violates the theory-practice consistency principle in terms of component consistency would be inconsistent with traditional economies(TE), but they would be consistent with dwarf traditional markets, dwarf traditional growth , and dwarf traditional economies if markets exist as all those would be non-traditional market components. In other words, the traditional market model unseen component consistency impossibility principle (TPUCCIP) tells us that unseen component consistency is not possible outside the theory-practice unseen component consistency principle.

**Linking green market thinking (GMM) and the theory-practice consistency principle (TPCP)**

To meet the theory-practice consistency principle(TPCP) green market model thinking(GMM) has to have green market model consistency, green market theory component consistency, and green market theory unseen component consistency at the same time as indicated by the continuous arrows in Figure 6 below in Part A, Part B, and Part C respectively:

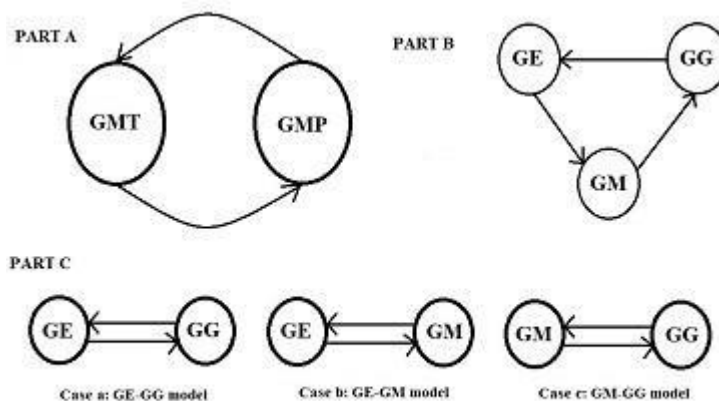


Figure 6 Green market thinking and the theory-practice consistency principle

Notice that Part A, Part B, and Part C in Figure 6 above are consistent with the structure of Figure 1, Figure 2, and Figure 3 in the introduction, respectively.

**a) Model consistency in the green market model (GMM)**

Green market model(GMM) consistency requires that the green market theory(GMT) must match the market practice(GMP); and that the green market practice(GMP) must match the green market theory(GMT) as shown in Part A in Figure 6 above. In other words, the green market model consistency principle (TPMCP) requires green market theory and green market practice consistency.

**b) Model theory component consistency in the green market model (GMM)**

Green market model(GMM) theory component consistency requires that green markets(GM) lead to green growth(GG); that green growth(GG) drives green economies(GE); and that green economies(GE) promote green markets(GM), leading to component circularity consistency in the green market model(GMM) as indicated in Part



B in Figure 6 above. In other words, the green market model theory component consistency principle (TPCCP) requires green market model theory component consistency.

**c) Unseen model theory component consistency in the green market model (GMM)**

If there is model theory component consistency in the green market model (GMM), then there is unseen model component consistency in that market as indicated in the three different cases shown in Part C in Figure 6 above.

For example, if we have a green economy and green growth model (GE-GG model), then there are green markets (GM) or if we have a green economy and green market model (GE-GM model), it means that there is green growth (GG) or if we have a green market and green growth model (GM-GG model), then it means that there is a green economy (GE). In other words, the green market unseen component consistency principle (TPUCCP) tells us that unseen components are of the same nature as the components that can be seen as there is model theory component consistency in the green market.

**The green market theory-practice consistency impossibility principle (TPCIP)**

Outside the theory-practice consistency principle there is no green market model consistency, there is no green market theory component consistency, and there is no green market unseen theory component consistency as indicated by the broken arrows in part A, part B, and part C in Figure 7 below:

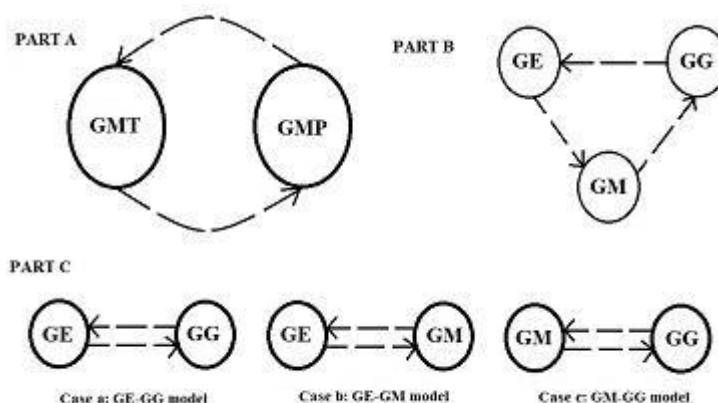


Figure 7 Green market thinking outside of the theory-practice consistency principle

**a) Green market model (GMM) consistency impossibility principle**

If the theory-practice consistency principle is violated as indicated by the broken arrows in part A in Figure 7 above, then there are no green markets. In other words, if markets exist outside the theory-practice consistency principle, then they are not green markets, but dwarf green markets. Therefore, green market model(GMM) consistency is not possible outside the theory-practice consistency principle as the green market model consistency impossibility principle(TPMCIP) tells us that there are no green markets outside the theory-practice model consistency principle.

**b) Green market model (GMM) component consistency impossibility principle**

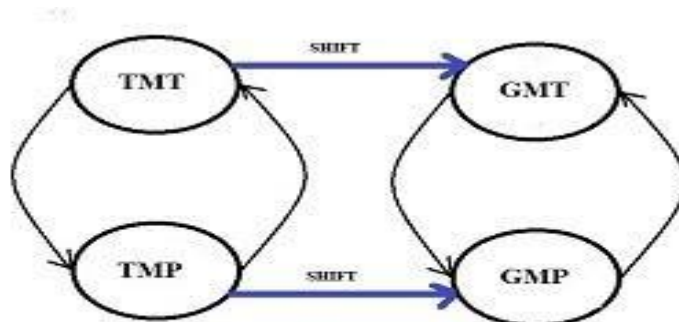
If the green market model(GMM) component consistency principle is violated as indicated by the broken arrows in part B in Figure 7 above, then market components may exist without having compatible components around as for example, having a green market supported by non-green market growth, which would be then a dwarf green market, but not a green market. In other words, green market theory component consistency is not possible outside the theory-practice consistency principle as the green market component consistency impossibility principle (TPCCIP) indicates that there is no component consistency outside the theory-practice component consistency principle.

**c) Green market unseen component consistency impossibility principle**

If the component consistency principle is violated in the green market model (GMM), then the unseen component consistency principle is violated too so we cannot expect to find unseen component consistency as indicated by the broken arrows in part C in Figure 7 above. For example, a model green economy and green growth(GE-GG model) that violates the theory-practice consistency principle in terms of component consistency would be inconsistent with green markets(GM) or a model green economy and green market(GE-GM model) that violates the theory-practice consistency principle in terms of component consistency would be inconsistent with green growth(GG) or a model green market and green growth(GM-GG model) that violates the theory-practice consistency principle in terms of component consistency would be inconsistent with green economies(GE), but they would be consistent with dwarf green markets, dwarf green growth, and dwarf green economy if markets exist as all those would be non-green market components. In other words, green market model (GMM) unseen component consistency is not possible outside the theory-practice consistency principle as the green market unseen component consistency impossibility principle (TPUCCIP) tells us that there is no unseen component consistency outside the theory-practice unseen component consistency principle.

**Linking the paradigm shift from traditional markets model (TMM) to green markets model (GMM) and the theory- practice shift consistency principle (TPMSCP)**

If the theory-practice consistency principle is respected both in the traditional market model (TMM) and in the green market model (GMM) at the same time, then a model shift from traditional markets(lower level sustainability model) to green markets(higher level sustainability model) can take place, a shift that is consistent with the theory practice shift consistency principle(TPSCP) in terms of models as shown by the continuous blue arrows between components of those models in Figure 8 below:

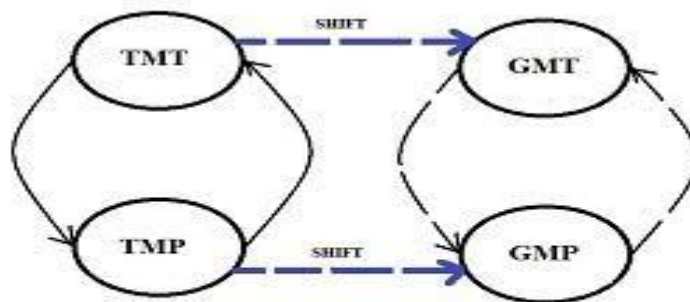


**Figure 8 Paradigm shift model consistency:**  
The shift from the traditional market to the green market maintains the theory-practice consistency principle

Figure 8 above summarizes the two types of shift that take place at the same time driven by the theory-practice shift consistency principle(TPSCP): i) The perfect traditional market model(TMM) and its traditional theory(TMT) shifts to the perfect green market model(GMM) and its green market theory(GMT); and ii) The traditional market practice(TMP) that validates traditional markets(TMM) shift to green market practice(GMP) that validates green markets(GMM). In other words, the theory- practice model shift consistency principle (TPMSCP) requires lower to higher level model shift consistency in theory and in practice.

**The paradigm shift to the green market model (GMM) and theory-practice model shift impossibility principle (TPMSCIP)**

If the theory-practice consistency principle is respected in the traditional market model(TMM), but not in the green market model(GMM), then a paradigm shift from traditional markets(lower level sustainability model) to green markets(higher level sustainability model) cannot take place as shown by the broken blue arrows between components in Figure 9 below:

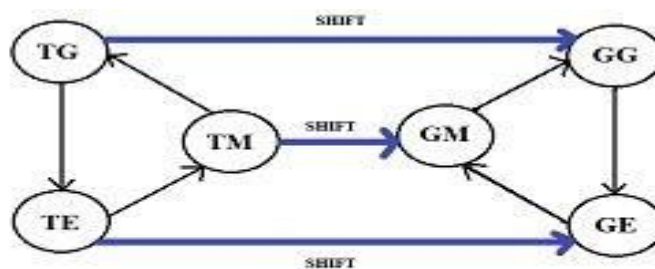


**Figure 9 Paradigm shift model inconsistency:**  
The shift from traditional markets(TM) to green markets(GM) can not take place under model inconsistency as it would then violate the model consistency principle

Figure 9 above summarizes the theory-practice shift consistency impossibility principle (TPSCIP) in terms of models where the shift to green markets cannot take place because of higher level green market model inconsistency. Figure 9 above also help us highlight two reasons why a model shift from traditional market models(TMM) to green market models(GMM) cannot take place under green market model inconsistency: i) as the green market theory(GMT) does not match the green market practice(GMP), a shift from traditional market theory(TMT) to green market theory(GMT) cannot take place, as even if we patch the traditional market theory(TMT) it would not match the green market practice(GMP); and ii) as the green market practice(GMP) does not match the green market theory(GMT), a shift from traditional market practice(TMP) to green market practice(GMP) cannot take place, as even if we patch the traditional market practice(TMP) it would not match the green market theory(GMT). In other words, the theory- practice model shift consistency impossibility principle (TPMSCIP) tells that lower model consistency cannot shift to higher level model consistency in theory and in practice when there is higher level model inconsistency such as model inconsistency in green market models (GMM).

**Linking the paradigm shift from traditional markets model (TMM) to green markets model (GMM) and the theory- practice component shift consistency principle (TPCSCP)**

If the theory-practice consistency principle is respected both in the traditional market model(TMM) and in the green market model(GMM) at the same time, then a component to component shift from traditional markets(lower level sustainability model) to green markets(higher level sustainability model) can take place, a component shift that is consistent with the theory practice shift consistency principle(IPSCP) in terms of components as shown by the continuous blue arrows between model components in Figure 10 below:



**Figure 10 Paradigm shift component consistency**  
When the shift from traditional markets(TM) to green markets(GM) takes place it maintains the component consistency principle intact

Figure 10 above indicates the three types of component shift that take place at the same time driven by the theory-practice shift consistency principle(IPSCP): i) The traditional market model structure(TM) shift to the green market model structure(GM); ii) Traditional growth(TG) shifts to green growth(GG); and the traditional economy(TE) shifts to the green economy(GE). In other words, the theory- practice component shift consistency principle (TPCSCP) requires lower to higher level component shift consistency

**The paradigm shift to the green market model (GMM) and theory-practice component shift impossibility principle (TPCSCIP)**

If the theory-practice consistency principle is respected in the traditional market model(TMM), but not in the green market model(GMM), then a paradigm shift from traditional markets(lower level sustainability model) to green markets(higher level sustainability model) cannot take place because of the existence of green market component inconsistency as shown by the broken blue arrows between model components in Figure 11 below:

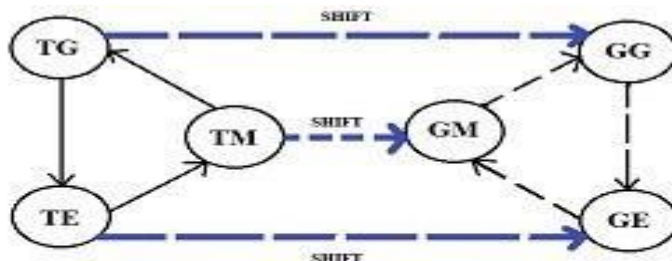


Figure 11 Paradigm shift component inconsistency  
The shift from traditional markets(TM) to green markets(GM) can not take place under component inconsistency as it then violates the component consistency principle.

Figure 11 above summarizes the theory-practice shift consistency impossibility principle (TPSCIP) in terms of components where the shift to green market model (GMM) components cannot take place because of higher level green market component inconsistency. Figure 11 above also helps us to see the reasons why a component to component shift from traditional market models(TMM) to green market models(GMM) cannot take place under green market model and component inconsistency: i) Traditional growth(TG) cannot shift to green growth(GG) under green market component inconsistency as even if we make TG = GG it will be delinked from the other two components, GM and GE; ii) Traditional economy(TE) cannot shift to green economy(GE) under green market component inconsistency as even if we make TE = GE it will be delinked from the other two components, GG and GM; and iii) Traditional market(TM) cannot shift to green market(GM) under green market component inconsistency as even if we make TM = GM it will be delinked from the other two components, GG and GE. In other words, the theory- practice component shift consistency impossibility principle (TPCSCIP) tells that lower model component consistency cannot shift to higher level component consistency when there is higher level model component inconsistency like green market component inconsistency.

**Linking the paradigm shift from traditional markets model (TMM) to green markets model (GMM) and the theory- practice unseen component shift consistency principle (TPUCSCP)**

If the theory-practice consistency principle is respected both in the traditional market model(TMM) and in the green market model(GMM) at the same time, then an unseen component shift from traditional markets(lower level sustainability model) to green markets(higher level sustainability model) can take place because there is green market component consistency respecting the theory-practice shift consistency principle(TPSCP) in terms of unseen components as shown by the continuous blue arrows between models in Figure 12 below:

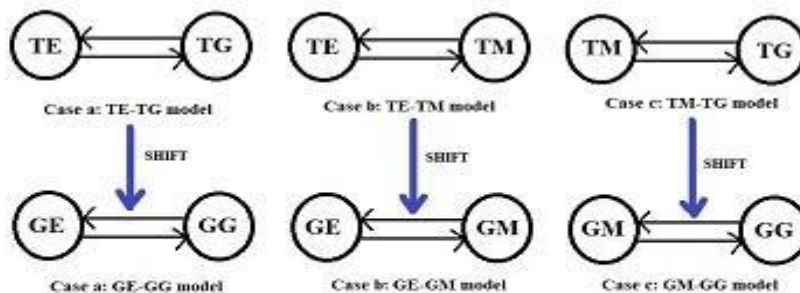


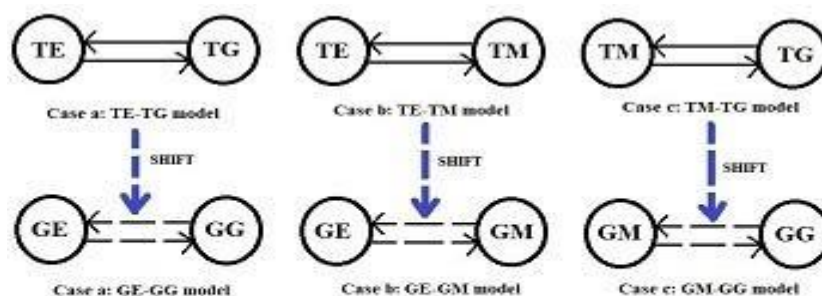
Figure 12 Paradigm shift unseen component consistency  
When the traditional market(TM) shifts to green markets(GM) the unseen component consistency principle is maintained



Figure 12 above indicates the three types of cases of unseen component shift that can take place driven by the theory-practice shift consistency principle (TPSCP) and according to the nature of the model shifting: i) If we shift from a traditional economy and traditional growth model (TE-TG) model to a green economy and green growth model (GE-GG model), then an unseen component shift from traditional market (TM) to green market (GM) takes place as indicated by the continuous arrows between GE and GG in case a in Figure 12 above; ii) If we shift from a traditional economy and traditional market model (TE-TM model) to a green economy and green market model (GE-GM model), then an unseen component shift from traditional growth (TG) to green growth (GG) takes place as indicated by the continuous arrows between GE and GM in case b in Figure 12 above; and iii) If we shift from a traditional market and traditional growth model (TM-TG model) to a green market and green growth model (GM-GG model), then an unseen component shift from traditional economy (TE) to green economy (GE) takes place as indicated by the continuous arrows between GM and GG in case c in Figure 12 above. In other words, the theory-practice unseen component shift consistency principle (TPUCSCP) requires lower to higher level unseen component shift consistency as there is lower level to higher level model component consistency.

**The paradigm shift to the green market model (GMM) and theory-practice unseen component shift impossibility principle (TPUCSCIP)**

If the theory-practice consistency principle is respected in the traditional market model (TMM), but not in the green market model (GMM), then unseen component shift from traditional markets (lower level sustainability model) to green markets (higher level sustainability model) cannot take place because of the existence of green market unseen component inconsistency as an unseen component shift that is inconsistent with the theory-practice unseen component consistency principle cannot take place as shown by the broken blue arrows between models in Figure 13 below:



**Figure 13** Paradigm shift unseen component inconsistency  
The traditional market (TM) can not shift to a green market (GM) in violation to the theory-practice consistency principle as that would lead to breaking the unseen component consistency principle

Figure 13 above summarizes the theory-practice shift consistency impossibility principle (TPSCIP) in terms of unseen components where the shift to unseen green market model (GMM) components cannot take place because of higher level green market unseen component inconsistency. Figure 13 above can also help us to see the reasons why a unseen component to unseen component shift from traditional markets (TMM) to green markets (GMM) cannot take place under green market model component inconsistency: i) The unseen traditional market (TM) component cannot shift to the unseen green market (GM) component under green economy (GE) and green growth (GG) inconsistency as indicated both by the broken arrows between GE and GG and by the broken blue arrow in case a in Figure 13 above; ii) The unseen traditional growth (TG) component cannot shift to the unseen green growth (GG) component under green economy (GE) and green market (GM) inconsistency as indicated by the broken arrows between GE and GM and by the broken blue arrow in case b in Figure 13 above; and iii) The unseen traditional economy (TE) component cannot shift to the unseen green economy (GE) component under green market (GM) and green growth (GG) inconsistency as indicated by the broken arrows between GM and GG and by the broken blue arrow in case c in Figure 13 above. In other words, the theory-practice unseen component shift consistency impossibility principle (TPUCSCIP) tells that lower model unseen component consistency cannot shift to higher level model unseen component consistency when there is higher level model component inconsistency.



### Summary:

Model consistency means that the theory matches the practice and that the practice matches the theory, be it a traditional market or be it a green market. Model consistency means that there is circular component consistency, be it a traditional market or be it a green market. Model and component consistency means that there is unseen component consistency, be it a traditional market or a green market. Model consistency in lower and higher level models at the same time means that full model shifts can take place, that component shifts can take place, and that unseen component shifts can take place. No model consistency means that there is no component consistency, and there is no unseen component consistency. No model consistency in higher level models means that shifts from lower to higher level models cannot take place; neither component shifts nor unseen component shift from lower level to higher level model can take place under those conditions.

### Implications:

The discussion above has the following main implications: 1) Traditional market models do not exist under traditional theory-practice model inconsistency; 2) Green markets models do not exist under green market model theory-practice inconsistency; 3) The traditional market model cannot shift to the green market model under green market model theory-practice inconsistency; 4) Traditional growth does not exist outside traditional markets; 5) Green growth does not exist outside green markets; 6) Traditional growth cannot shift to green growth under green market model and green market component theory-practice inconsistency; 7) Traditional economies do not exist outside traditional markets; 8) Green economies do not exist outside green markets; and 9) traditional economies cannot shift to green economies under green market model and green market component and unseen market component theory-practice inconsistency.

### **The dilemmas created by the development path followed after 2012 Rio +20 given the fact that green growth and green economies cannot exist outside green markets as indicated above**

The implications listed above creates a science problem for players like OECD and the World Bank and UN institutions because as mentioned in the introduction they have been promoting green economies and green growth outside green markets since 2012, including right now, an approach that violates the theory-practice consistency principle. If green growth and green economies cannot exist outside green markets, from which market is their green growth coming from? Can green growth come out of non-green markets or dwarf green markets? Those two questions create a dilemma for those organizations and institutions as the theory-practice consistency principle tells us that no green markets means no green growth as green growth cannot come from non-green markets or from dwarf green markets. That means that the promotion of markets that are not green markets as being green markets means we are promoting markets that are in full violation of the theory-practice consistency principle governing perfect green market thinking and perfect paradigm shifts from lower to higher level responsibility models.

In other words, without green markets, the so called “green economy and green growth agenda” being implemented locally and globally for the past 8 years (2012 to 2020) is not a science based agenda as it fully violates the theory-practice consistency principle. Hence, if green growth can only come from green market expansions as supported by the discussion above, and since there is not a single green market in place yet today, you wonder where the so called “green growth” promoting by OECD and the World Bank comes from. If dwarf green growth is assumed to be green growth by these organizations and institutions as apparently they have done and they are doing, this is a violation of reality, a violation of a science based reality that green growth can only come from green markets; and that without green markets, there is no green growth. Hence, the view that green growth can exist outside green markets is a non-science based approach that assumes that non-green growth is green, which raises issues of monitoring and evaluations to assess progress in the environmental part of development as an environmental sustainability issue is being addressed in full violation of the green market theory-practice consistency principle. In the long term, this non-science based approach may backfire as it may allow for a worsening of the environmental crisis to take place in front of our eyes, but we will not be able to see it, as pollution still takes place in these non-green markets, and there is no a direct link between the environmental cost of doing business and non-green markets and their pricing, but sadly the crash of these non-science based markets will be needed in the future to force us to formally take steps to creating the culture of green producers, green consumers, and green market pricing, the components needed to properly deal with the environmental sustainability issue head on once and for all, leading finally to a world under green markets.

### The answers to the questions posted in this paper in few words

i) Green economies and green growth cannot exist outside green markets; ii) If there are no green markets, those markets lead to dwarf green growth or non-green growth; they do not produce green growth; iii) The green growth and green economy ideas being promoted by OECD, World Bank and UN Agencies since 2012 appears to come from assuming that the non-green market growth that comes from environmentally patching the traditional market model is green growth, but assuming something does not make true or real; and iv) The current main implication of assuming that non-green growth is green growth is that we are approaching the solution of an environmental sustainability problem, a science based problem, with the wrong tools, non-science based tools; and using non-science based tools may backfire in the long-term as the use of dwarf green market thinking to address environmental sustainability issues instead of using perfect green market thinking is a violation of the theory practice consistency principle as shown above.

### Food for thoughts

1) Can green growth come out of a black hole? I do not think so, what do you think?; 2) Can green washing affect the success of the current environment and economic agenda, especially in the event of an environmental externality management market failure? I think yes, what do you think?; and 3) Can global and local science based environmental agendas be successfully implemented using non-science based environmental management markets? I think no, what do you think?

### Conclusions

1) It was shown that when the theory-practice consistency principle is respected across lower level and higher level models, then there is model consistency, model component consistency, and unseen model consistency in all models; and when this is true then model shift, component shifts and unseen component shifts can take place from lower level to higher level models; 2) It was stressed that that when there is no theory-practice consistency, the opposite is true; 3) It was indicated that one consequence of the theory-practice consistency shift impossibility principle is that there cannot be green economies and green growth outside of green markets, a fact that presents a science based dilemma to institutions like the OECD, the World Bank and UN agencies as they are promoting and implementing a development agenda based on green economies and green growth that apparently can exist outside green markets, a clear violation of the green market theory-practice consistency principle; 4) It was pointed out that using the wrong market tools to address the environmental sustainability issue at hand may sooner or later backfire as there is a delinked when using non-green market tools to address green market issues; and 5) It was highlighted over all that a) green economies and green growth do not exist outside green markets; b) that this leads to dilemmas like assuming that non-green growth is green grow in order to justify a non-green market development agenda promoted since 2012 as being green; and c) hence, non-green market tools lead to difficulties in monitoring and evaluating green market goals as we are then using non-green market tools and indicators to achieve green market goals, a violation of the green market theory-practice consistency principle.

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