

**Sustainability thought 158: How can the general responsible market structure-population dynamics-system stability framework be used to point out the embedded neutrality assumptions under which the UN/UNEP responsible consumption and production framework operates?**

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**Abstract**

It can be said that the responsible market structure-responsible population and responsible system stability framework allows for a systematic view of the system stability issue from root causality, to consequences, to responsible impacts on system stability, if the nature of root causality is responsible. In other words, this framework provides a full view of the system stability issue. On the other hand, if we look at the way the UN/UNEP is implementing the sustainable development goal SDG 12 we can see that they are following a sustainable consumption and sustainable production and system stability framework, where responsible consumption and responsible production have a responsible impact on system stability. In other words, they believe that irresponsible consumption and irresponsible production are the root causes of system instability such as environmental and/or social instability and that going the responsible way is the solution. If we look carefully at the UN/UNEP framework we can see that it says nothing about responsible market pricing so it is not a full market structure dynamics and system stability based framework; and also it says nothing about the link between market structure and the nature of the population those markets serve as responsible market structures are supposed to lead to responsible populations dynamics. In other words, this framework provides a partial view of the system stability issue as it has market price structure neutrality assumptions and population dynamics neutrality assumptions. Hence, the UN/UNEP framework needs the existence of specific embedded neutrality assumptions in order to work; and without those assumptions the framework would not work as then the nature of root causality and of consequences and of impacts on system stability would change, yet this situation seems unclear right now and needs some good food for thoughts on how those embedded assumptions can be seen and understood. And this raises important questions such as How can the general responsible market structure, responsible population dynamics and responsible system stability

framework be used to point out the embedded neutrality assumptions under which the UN/UNEP responsible consumption and production framework operates? What are the implications of eliminating these embedded assumptions? Among the goals of this paper is to provide an answer to those questions.

## Key words

Market structure, responsible market structure, market price, responsible market price, sustainable market price, production, responsible production, sustainable production, consumption, responsible consumption, sustainable consumption, population dynamics, responsible population dynamics, sustainable population behavior, overshoot, no overshoot, system stability, responsible system stability, sustainable system stability, global warming, responsible behavior, sustainable behavior.

## Introduction

### a) The responsible market structure, responsible population and responsible system stability framework

It can be said that the responsible market structure-responsible population and responsible system stability framework allows for a systematic view of the system stability issue from root causality, to consequences, to responsible impacts on system stability, if the nature of root causality is responsible. In other words, this framework as shared recently (Muñoz 2022) provides a full view of the system stability issue as shown in Figure 1 below:

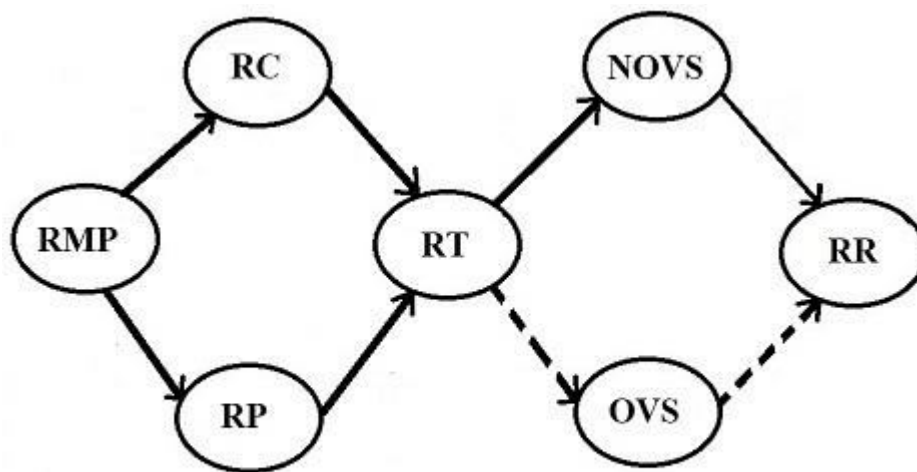
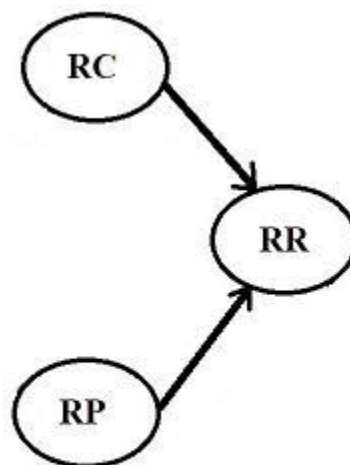


Figure 1 The general responsible market structure, responsible population dynamics and responsible system stability framework(RM-RT-RR framework)

We can point out the following about the general responsibility framework based on Figure 1 above: i) The root cause of the responsible impact on system stability is the responsible market price(RMP); ii) responsible consumption(RC) and responsible production(RP) are the consequences of responsible market pricing(RMP); iii) Responsible population dynamics(RT) is shaped by the responsible nature of the market structure; iv) Responsible populations(RT) do not overshoot(NOVS) as they live within the carrying capacity of the system RR. The idea that responsible markets and irresponsible markets are associated with different cost externalization behavior, and hence they have different impacts on sustainability has been recently shared(Muñoz 2020), idea that can be used to see how we can go from a world of irresponsible market pricing to responsible one.

**b) The UN/UNEP responsible consumption and responsible production and responsible system stability framework.**

On the other hand, if we look at the way the UN/UNEP is implementing the sustainable development goal SDG 12(UN 2015: UN 2020) we can see that they are following a sustainable consumption and sustainable production and system stability framework, where responsible consumption and responsible production have a responsible impact on system stability. In other words, they believe that irresponsible consumption and irresponsible production taking place under the traditional market idea of Adam Smith(Smith 1776) are the root causes of system instability such as environmental and/or social instability and that going the responsible way is the solution. The UN/UNEP responsible consumption and production framework can be summarized graphically as indicated in Figure 2 below:



**Figure 2** The UN/UNEP responsible consumption(RC) and responsible production(RP) and responsible system stability framework(RR)

We can stress based on Figure 2 above that the root cause of responsible system stability (RR) in the UN/UNEP approach is the existence of responsible consumption(RC) and responsible production(RP). Moreover, if we look carefully at the UN/UNEP framework in Figure 2 above we can see that it says nothing about responsible market pricing(RMP) so it is not a full market structure dynamics and system stability based framework; and also it says nothing about the link between market structure and the nature of the population those markets serve as responsible market structures(RMP) are supposed to lead to responsible populations dynamics(RT). You can appreciate the missing responsible market price(RMP) link and responsible population dynamics(RT) link by comparing Figure 2 with Figure 1 above. In other words, the UN/UNEP framework provides a partial view of the system stability issue as it has market price structure and population dynamics neutrality assumptions.

**c) The need to see and understand the embedded assumptions under which the UN/UNEP responsible consumption and production framework works.**

Hence, the UN/UNEP framework needs the existence of specific embedded neutrality assumptions in order to work; and without those assumptions the framework would not work as then the nature of root causality and of consequences and of impacts on system stability would change, yet this situation seems unclear right now and needs some good food for thoughts on how those embedded assumptions can be seen and understood. And this raises important questions such as How can the general responsible market structure, responsible population dynamics and responsible system stability framework be used to point out the embedded neutrality assumptions under which the UN/UNEP responsible consumption and production framework operates? What are the implications of eliminating these embedded assumptions? Among the goals of this paper is to provide an answer to those questions.

**Goals of this paper**

a) To highlight the embedded responsible market price and responsible population dynamic neutrality assumptions in the UN/UNEP responsible consumption and responsible production and system stability framework; and b) To point out that when the assumptions are eliminated the full UN/UNEP responsible framework has the same structure and implications of the responsible market structure, responsible population dynamics and responsible system stability framework.

**Methodology**

First, the terminology, some operational concepts and merging rules are shared. Second, the structure of the embedded responsible market price and responsible population dynamic

neutrality assumptions found in the UN/UNEP responsible consumption and production framework is shared. Third, the full UN/UNEP responsible consumption and production framework after internalizing assumptions is stressed and the main implications are highlighted. And finally, some food for thoughts and relevant conclusions are provided.

## Terminology

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M = Market structure dynamics	T = Population dynamics
R = System stability	MP = Market price
C = Consumption	P = Production
OVS = Overshoot	NOVS = No overshoot
A = Dominant / active component	a = Dominated / passive component
M-R framework	T-R framework
M-T-R framework	TM = Traditional market price
RM = Responsible market structure	RT = Responsible population dynamics
RR = Responsible system stability	RMP = Responsible market price
RC = Responsible consumption	RP = Responsible consumption
RMP-RT-RR responsible framework	UN/UNEP responsible framework

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## Operational concepts and merging rules

### i) Operational concepts

- 1) **Responsible market price**, *a price that reflects all the cost of production*
- 2) **Irresponsible market price**, *a price that does not reflect all the cost of production*
- 3) **Responsible population behavior**, *one that lives under the carrying capacity of the system so it does not overshoot*

**4) Irresponsible population behavior**, *one that goes over the carrying capacity of the system so it overshoots.*

**5) Responsible production**, *the one driven by a responsible market price*

**6) Irresponsible production**, *the one led by an irresponsible market price*

**7) Responsible consumption**, *the one driven by a responsible market price*

**8) Irresponsible consumption**, *the one led by an irresponsible market price*

**9) Right market price**, *a responsible market price*

**10) Distorted market price**, *an irresponsible market price*

## **ii) Merging rules**

### ***a) The case of frameworks***

Let's assume we have a stability system with 4 components A, B, C and D and 4 different frameworks:  $F1 = A-D$ ,  $F2 = B-D$ ,  $F3 = C-D$ , and  $F4 = A-B-D$ , where D is the stability issue and the other components are the root causes and/or consequences, then the following merging rules hold:

**1)  $F1.F2 = (A-D)(B-D) = A-B-D$  as  $DD = D$**

**2)  $F1.F3 = (A-D)(C-D) = A-C-D$  as  $DD = D$**

**3)  $F2.F3 = (B-D)(C-D) = B-C-D$  as  $DD = D$**

**4)  $F1.F4 = (A-D)(A-B-D) = A-B-D$  as  $AA = A$  and  $DD = D$**

**5)  $F2.F4 = (B-D)(A-B-D) = A-B-D$  as  $BB = B$  and  $DD = D$**

**6)  $F3.F4 = (C-D)(A-B-D) = A-B-C-D$  since  $DD = D$**

### ***b) The case of dominant component based systems***

Let's assume we have a development model with 3 components A, B, and C; and we have 4 possible dominant component based models:  $M1 = A$ ,  $M2 = B$ ,  $M3 = C$ , and  $M4 = BC$ , then the following merging rules hold:

**1)  $M1.M2 = (A)(B) = AB$**

**2)  $M1.M3 = (A)(C) = AC$**

**3)  $M1.M4 = (A)(BC) = ABC$**

$$4) M2.M3 = (B)(C) = BC$$

$$5) M2.M4 = (B)(BC) = BC$$

*c) The case of dominant and dominated component based systems*

Let's assume we have a development model with 3 components A, B. and C; and we have 4 possible dominant and dominated components based models:  $M1 = Abc$ ,  $M2 = aBc$ ,  $M3 = abC$ , and  $M4 = aBC$ , then the following merging rules hold:

$$1) M1.M2 = (Abc)(aBc) = ABc$$

$$2) M1.M3 = (Abc)(abC) = AbC$$

$$3) M1.M4 = (Abc)(aBC) = ABC$$

$$4) M2.M3 = (aBc)(abC) = aBC$$

$$5) M2.M4 = (aBb)(aBC) = aBC$$

**The assumptions embedded in the UN/UNEP responsible consumption and production and system stability framework**

If we internalize the responsible market structure-responsible population dynamics and responsible stability framework in Figure 1 in the introduction into the UN/UNEP responsible consumption and responsible consumption and responsible system stability framework in Figure 2 we can highlight the embedded assumptions as indicated in Figure 3 below:

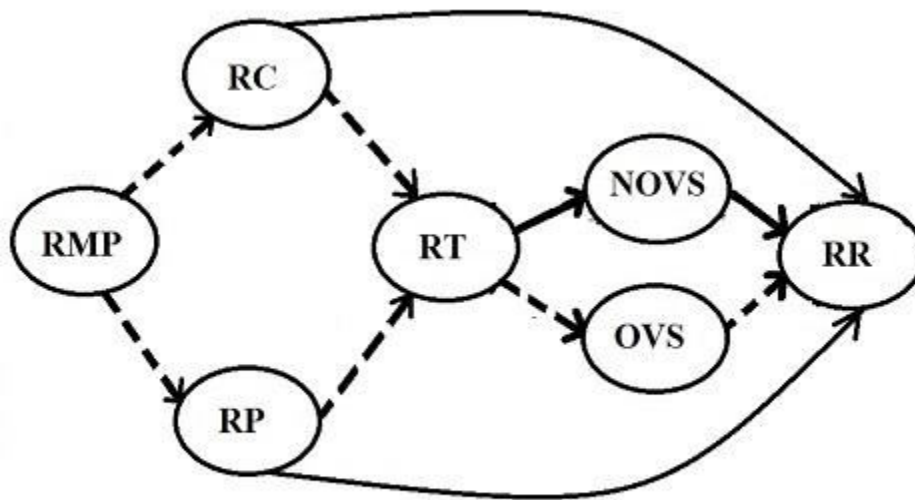


Figure 3 Pointing out the assumptions embedded in the UN/UNEP responsible consumption and production framework

We can appreciate based on Figure 3 above that i) there is responsible market price(RMP) neutrality assumption as responsible consumption(RC) and responsible production(RP) come out of nowhere as indicated by the broken arrows between RMP and both RC and RP; and ii) that there is a responsible population dynamics(RT) neutrality assumption as responsible consumption(RC) and responsible production(RP) impact responsibly system stability RR as if responsible populations do not exist as indicated by the broken arrows from both RC and RP to RT.

### **Implications of the partial UN/UNEP responsible consumption and production framework**

*1) Responsible consumption and responsible production exists without the need of responsible market pricing(RMP) and of responsible populations dynamics(RT);*

*2) The solution to irresponsible consumption and irresponsible production is to go the responsible way;*

*3) Hence, the UN/UNEP responsible framework works because of the existence of the two neutrality assumptions: the responsible market price neutrality assumption and the responsible population dynamics neutrality assumption.*

### **The full UN/UNEP responsible framework under no market price and population dynamics neutrality assumptions**

If we eliminate the neutrality assumptions as market prices and populations matter to system stability in Figure 3 above we arrive at the full UN/UNEP responsible market framework as summarized in Figure 4 below:



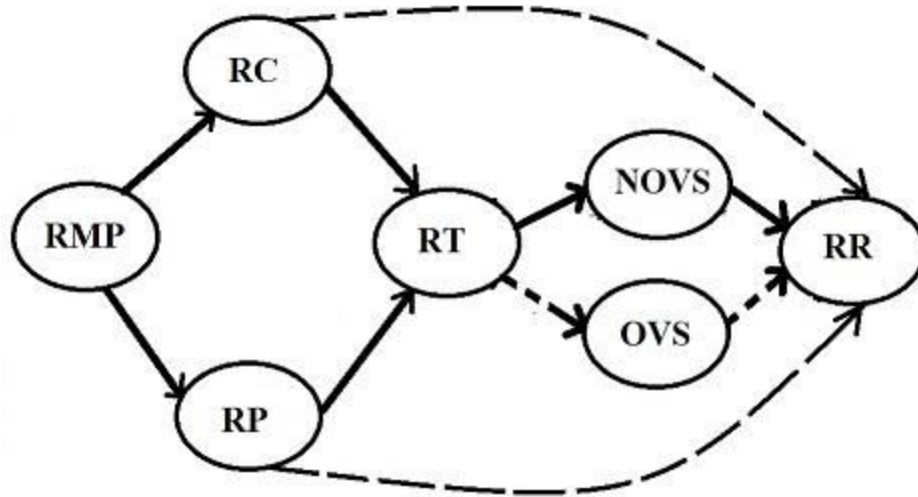


Figure 4 Eliminating the market price neutrality assumption(RMP) and the population dynamics neutrality assumption(RT) leads to the full UN/UNEP responsible market structure, responsible population dynamics and responsible system stability framework

We can see based in Figure 4 above that i) the full UN/UNEP responsible framework now has not neutrality assumptions as both the right market price structure(RMP) and the responsible population dynamics structure (RT) are now included as indicated by continuous arrows from RMP to both RC and RP; and by the continuous arrows from both RC and RP to RT; and ii) that the responsible nature of the market structure(RMP, RC, RP) shape the responsible nature of the population RT as well as the responsible nature of the impact on system stability RR through no overshooting(NOVS). It is important to highlight here that the nature of the full UN/UNEP responsible consumption and production framework in Figure 4 above is consistent with the nature of the responsible market structure-responsible population dynamics and responsible system stability framework found in Figure 1 in the introduction.

### **Implications of the full UN/UNEP responsible consumption and production framework**

*1) The root cause of responsible system stability RR is the responsible market price RMP;*

*2) The responsible nature of population dynamics RT is shaped by the responsible nature of the market structure;*

*3) Responsible populations RT do not overshoot;*

*4) Now that there are no responsible price neutrality assumptions and no responsible population dynamics neutrality assumptions, then the partial UN/UNEP responsible framework no longer works; and*

*5) Given the fact that today we have an overpopulation problem and we know that market prices are distorted in environmental terms, then a responsible solution based on*

*Figure 4 above for the full UN/UNEP responsible framework is to address the issue of irresponsible market prices by pricing markets responsibly to have a positive system stability impact on RR from now into the future as well as to address the current overpopulation problem, all done at the same time, and we do that starting with eliminating neutrality assumptions in Figure 3 above to move to the full UN/UNEP framework in Figure 4 above as shown.*

## **Food for thoughts**

a) Can we have positive stability impacts on system sustainability without responsible populations? I think No, what do you think?; b) Can we have responsible consumption and responsible production without responsible market pricing? I think No, what do you think?; and c) Is a responsible system stability framework consistent with the concept of cost internalization trends? I think Yes, what do you think?

## **Conclusions**

First, it was shown that contrasting the responsible market structure-responsible population dynamics and responsible system stability framework with the partial UN/UNEP responsible consumption, responsible production and responsible system stability framework allows us to highlight the two neutrality assumptions embedded in the partial UN/UNEP framework, namely responsible market pricing neutrality assumption, and responsible population dynamics neutrality assumption. Second. It was indicated that the partial UN/UNEP responsible framework works only if these two neutrality assumptions are present. Third, it was highlighted how the elimination of responsible market price neutrality assumptions and responsible population dynamics neutrality assumptions leads to the structure of the full UN/UNEP responsible framework. And fourth, it was pointed out that in the full UN/UNEP responsible framework, the root cause of responsible system stability is the responsible market price.

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