True sustainability thinking 103: Golden paradigms and flawed paradigms under the general critical problem-solving impossibility zone theory's eye: What happens to the critical problem at hand when golden paradigms are assumed to be flawed paradigms and vise a versa? What are the implications of this?

By

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Abstract

Golden paradigms and flawed paradigms can be seen as different ways of linking market behavior to critical problem solving possibilities, where one has responsible market impacts while the other has irresponsible market impacts on critical problem stability. If taken separately golden paradigms have the opposite possibility structure than the critical problem solving impossibility zone structure under which flawed paradigms operate, one with positive impacts and the other with negative impacts, respectively. Now imagine if we assume that the paradigm with actually positive impacts has negative impacts; and then we assume that the paradigm with actually negative impacts is a paradigm with positive impacts, there will be for sure consequences, but what is the nature of those consequences with respect to impact on the critical problem stability and system stability or collapse, especially when under paradigm expansion?. The main goals of this paper are two i) to link golden paradigm and flawed paradigm theory with the general critical problem solving impossibility zone theory to highlight implications; and 2) to point out what happen to system stability when we assumed that an actual golden paradigm is flawed and when we assumed that an actual flawed paradigm is golden and list relevant implications.

Key concepts

Irresponsible market, irresponsible critical development problem, responsible market, responsible critical development problem, impossibility zones, possibility points, flawed paradigms, golden paradigms, negative/irresponsible market expansions, positive / responsible market expansions

Introduction

a) The irresponsible market and the problem solving impossibility zone

The link between irresponsible market behavior and the problem solving impossibility zone that this irresponsible behavior creates has been recently pointed out recently (Muñoz 2025) and it can be summarized as shown in Figure 1 below:

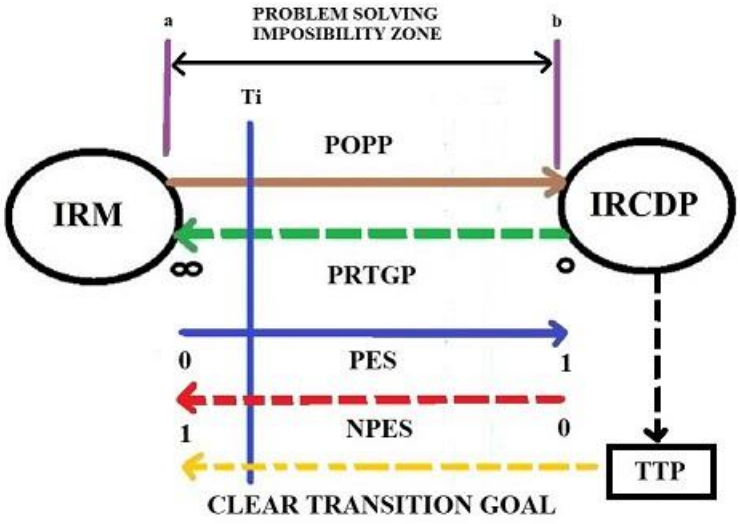

Figure 1 The critical development problem solving impossibility zone under irresponsible markets(IRM)

Figure 1 above shows that the pollution production problem (POPP) created by the irresponsible market (IRM) affects negatively the critical development problem at hand (IRCDP) and this create a problem solving impossibility zone that goes from point "a" to point "b" where no transition based pollution reduction tools like Ti can fully solve the pollution production problem (POPP). Notice that the irresponsible markets (IRM) run on polluting energy sources (PES) and when they expands, they expand the pollution production problem (POPP) that moves along with increasing use of polluting energy source (PES) as more polluting energy sources is needed to support irresponsible market expansions. Notice that the irresponsible market framework in Figure 1 above flourishes under a pollution reduction technology gap problem (PRTGP), under no supply of no-polluting energy sources (NPES), under no proper transition tool (TTP), and hence it does not have a clear transition goal as indicated by the broken arrows. In other words, under irresponsible market dynamics (IRM) there are no incentives to be responsible on your own as pollution reduction is not a good business opportunity, pollution externalization is. Notice that this type of irresponsible market in the form of traditional markets is what the Brundtland Commission was trying to fix in terms of socio-environmental externalities in 1987(WCED 1987) and the same irresponsible markets the United Nation Commission on Environment and Development was trying to face head on in terms of only environmental externalities in 2012 Rio + 20 (UNCSD 2012a; UNCSD 2012b).

Implication 1:

As irresponsible markets expand, the pollution production problem expands and no transition tools (Ti) located in the problem solving impossibility zone should be expected to fully correct the root-cause of the pollution production problem so a remaining pollution production problem will continue to exist as these no transition tools are used to manage the pollution production problem.

d) The responsible market and the world without impossibility zones

If we assume that there is a fully responsible market (FRM), where all costs are internalized then we should expect positive impacts on system stability as we would have a responsible critical development problem (RCDP) situation as no pollution production problem (POPP) is created or exist as indicated in Figure 2 below:

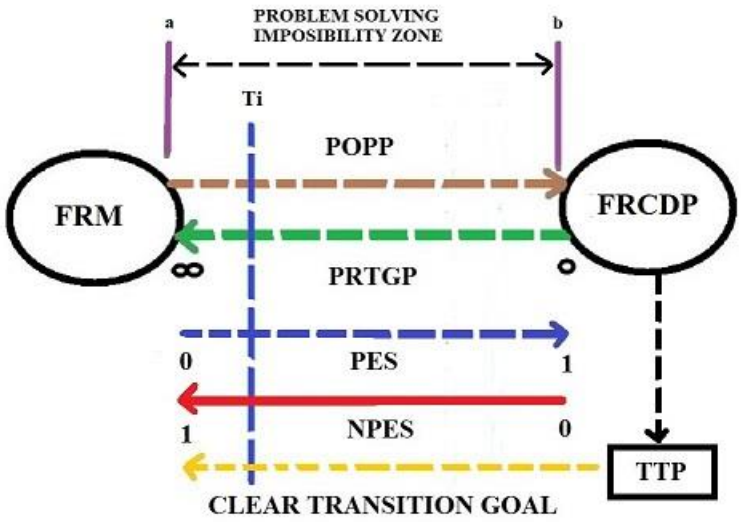

Figure 2 There is no critical problem solving impossibility zone when we have fully responsible markets as they work fully with no polluting energy sources (NPES)

Figure 2 above indicates that no pollution production problem (POPP) is created by the fully responsible market (FRM) and hence, it has a positive impact on the critical development problem at hand (IRCDP) as it does not create a problem solving impossibility zone that goes from point "a" to point "b" as shown by the broken arrow between point "a" and point "b" as point "a" is a problem solving point in this case as at point "a" the fully responsible paradigm (FRM) works fully on no polluting energy sources NPES as indicated by the red arrow going from right to left and since it does not create a pollution production problem (POPP) it does not have a remaining pollution production problem (RPOPP); and therefore, it does not need no transition tools like Ti to manage that problem as indicated by the broken lines.

Notice that the fully responsible markets (FRM) run on no polluting energy sources (NPES) and when they expands, they do not expand the pollution production problem as they expand in an optimal pollution productionless path so golden paradigms display responsible market expansions. See too that the fully responsible market framework in Figure 2 above

flourishes in an environment where you do not need to close a pollution reduction technology gap problem (PRTGP), where you do not need polluting energy sources PES, where you do not need proper transition tools TTP, you do not need a clear transition goal or you do not need no transition tools Ti to be clean as you are clean already, all this indicates by the broken arrows and broken vertical line. In other words, under fully responsible market dynamics (FRM) there are incentives to be responsible on your own as pollution reduction is now a good business opportunity, and the reason why there is no pollution production reduction technology gap problem. Notice that this type of fully responsible market idea was behind the call in 1987 to leave traditional market thinking behind a la sustainable development to address the socio-environmental pollution production crisis (WCED 1987) and behind the idea of going green market, green growth, and green economies in 2012 Rio + 20(UNCSD 2012a; UNCSD 2012b) to deal with the environmental pollution production crisis.

Implication 2:

As fully responsible markets (FRM) expand, no pollution production problem expands as it does not exist since no problem solving impossibility zone is created under fully responsible markets, and hence, there is no need to correct negative root-causes as fully responsible markets work under positive root-causes such as fully responsible conjunctural optimality.

c) Linking market responsibility to golden paradigm and flawed paradigm thinking

Golden paradigms and flawed paradigms can be seen as different ways of linking market behavior to critical problem solving possibilities, where one has responsible market impacts while the other has irresponsible market impacts on critical problem stability. If taken separately golden paradigms have the opposite possibility structure than the critical problem solving impossibility zone structure under which flawed paradigms operate, one with positive impacts and the other with negative impacts, respectively. Notice that Figure 1 above is led by an irresponsible market (IRM), which means it is led by a flawed paradigm (FLP), but keep in mind that irresponsibility can be fully and partial. Full irresponsibility is when only the costs of the dominant paradigm are accounted for at a profit, the rest is externalized. For the purpose of this paper, market irresponsibility in Figure 1 will be taken as full irresponsibility (FIRM = IRM). On the other hand, see that in Figure 2 above is led by a responsible market (RM), which means it is led by a golden paradigm (GOP), but keep in mind that responsibility can be full or partial, full market responsibility is when all costs are accounted for in the pricing mechanism of the market and partial market responsibility is when not all costs are accounted for. For the purpose of this paper, market responsibility in Figure 2 will be taken as full market responsibility (FRM = MR). For example, in the general sense, traditional markets, red socialism markets, and deep environmentalism based markets would be fully irresponsible markets, for different cost externalization reasons. Dwarf sustainability markets, dwarf green markets, and green markets are example of partially irresponsible or partially responsible markets for different cost externalization characteristics. And true sustainability markets, then, would be fully responsible

markets as they account for all cost associated with economic activity. Notice that the idea that for shifts from flawed paradigms to higher level golden paradigms to work they must be consistent with the Thomas Kuhn's scientific paradigm evolution loop and with the theory-practice consistency principle; other wise they should not be expected to work has been pointed out both analytically and graphically recently (Muñoz 2022) ; Muñoz 2024)

Now imagine that if we assume that the paradigm with actually positive impacts has negative impacts; and then we assume that the paradigm with actually negative impacts is a paradigm with positive impacts, there will be for sure consequences, but what is the nature of those consequences with respect to impact on the critical problem stability and system stability or collapse, especially when under paradigm expansion?. The main goals of this paper are two i) to link golden paradigm and flawed paradigm theory with the general critical problem solving impossibility zone theory to highlight implications; and 2) to point out what happen to system stability when we assumed that an actual golden paradigm is flawed and when we assumed that an actual flawed paradigm is golden and list relevant implications.

Goals of this paper

a) To state the irresponsible market led link to the irresponsible critical development problem in terms of flawed paradigm theory and list implications; b) To point out the fully responsible market led link to responsible critical development problem in terms of golden paradigm theory and to highlight implications; c) To indicate what happens when we assume that real golden paradigms are flawed paradigms as well as the implications of their expansion on critical problem stability and d) To highlight what happens when we assume that real flawed paradigms are golden paradigms as well as the implications of their expansion on critical problem stability.

Methodology

First, the terminology and operational concepts are listed. Second, the irresponsible market led link to the irresponsible critical development problem in terms of flawed paradigm theory is stated and its implications listed. Third, the fully responsible market led link to responsible critical development problem in terms of golden paradigm theory is indicated and its implications highlighted. Fourth, the structure and implications of assuming that real golden paradigms are flawed paradigms are shared. Fifth, the structure and implications of what happens when real golden paradigms that are assumed to be flawed paradigms expand are given. Sixth, the structure and implications of assuming that real flawed paradigms are golden paradigms are mentioned. Seventh, the structure and implications of what happens when real flawed paradigms

that are assumed to be golden paradigms expand are pointed out. And finally, some food for thoughts and conclusions are provided.

Terminology

M = Market CDP = Critical development problem

FLP = Flawed paradigm GOP = Golden paradigm

REM = Responsible market dynamics IRM = Irresponsible market dynamics

RCDP = Responsible critical development problem dynamics

IRCDP = Irresponsible critical development problem dynamics

POPP = Pollution production problem

PRTGP = Pollution reduction technology gap problem

TTP = Transition tool problem PES = Polluting energy source

NPES = No polluting energy source PTT = Proper transition tool

CM = Clean market CMi = Clean market “i”

PTTi = Proper transition tool “i” T1 = No transition-based tool “1”

Ti = No transition-based tools “i” POPPi = Pollution production problem “i”

PRTGPi = Pollution reduction technology gap “i”

PESi = Polluting energy source “i” NPESi = No polluting energy source “i”

RETG = Renewable energy technology gap RE = Renewable energy

NRE = Non-renewable energy ECLM = Environmentally clean market

DM = Dirty market SD = Sustainable development

DGM = Dwarf green market CTM = Circular traditional market

Operational concepts

a) Clean market, a pollution-less market.

b) Dirty market, a pollution production market.

c) Problem solving impossibility zone, the place where no full solution to the pollution production problem exists.

4) Problem solving possibility point, the only place where the conditions for a full solution to the pollution production problem exist.

d) Pollution production problem, the issue that separates dirty economies from clean economies.

e) Anthropocentric clean economy, a pollutionless economy led by responsible human behavior.

f) Anthropocentric dirty economy, a pollution production economy led by irresponsible human behavior.

g) Anthropocentric problem-solving impossibility zone, the place where no full solution to the anthropocentric pollution production problem exists.

h) Anthropocentric problem-solving possibility point, the only place where the conditions for a full solution to the anthropocentric pollution production problem exist.

i) Anthropocentric pollution production problem, the issue that separates anthropocentric dirty economies from anthropocentric clean economies.

j) Anthropocentric environmental problem-solving impossibility zone, the place where no full solution to the anthropocentric environmental pollution production problem exists.

k) Anthropocentric environmental problem-solving possibility point, the only place where the conditions for a full solution to the anthropocentric environmental pollution production problem exist.

l) Anthropocentric environmental pollution production problem, the issue that separates anthropocentric environmentally dirty economies from anthropocentric environmentally clean economies.

o) Flawed paradigm, the one that produces abnormalities while working and expanding.

p) Golden paradigm, the one that produces no abnormalities while working and expanding.

The critical problem impossibility zone theory in terms of flawed paradigms

We can restate the irresponsible market framework (IRM) in Figure 1 above if we make the irresponsible market (IRM) be the flawed paradigm (FLP) so that FLP = IRM as highlighted in Figure 3 below:

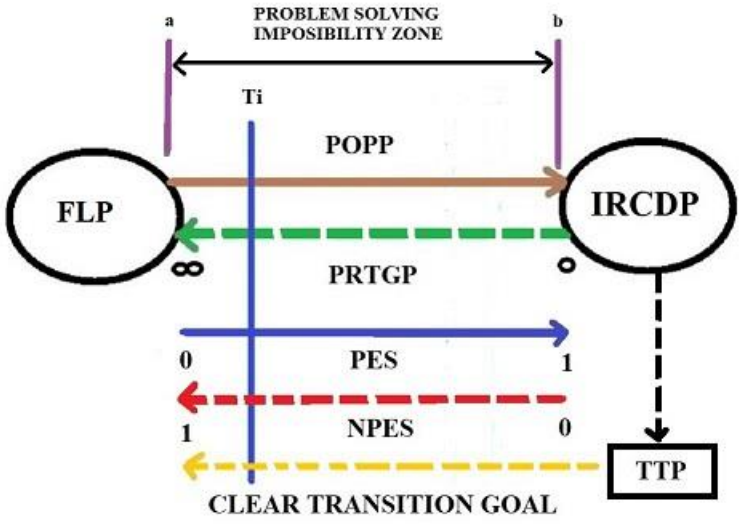

Figure 3 The critical development problem solving impossibility zone flawed paradigms (FLP)

Figure 3 above highlights the structure of the critical problem solving impossibility zone theory (CPSIZ) created by the flawed paradigm (FLP) going from point "a" to point "b". Notice that the flawed paradigms run on polluting energy sources (PES) as indicated by the blue arrow and as soon as the flawed market is installed and it starts using polluting energy sources the pollution production problem (POPP) begins as indicated by the brown arrow going from point "a" to point "b", and at point "b" the pollution production problem (POPP) is at its maximum because polluting energy (PES) use is at its maximum. While the critical problem solving impossibility zone (CPSIZ) is active notice that the flawed paradigm is working in an environment where they do not see the need for stating a clear transition goal to pollutionless markets, and hence, they are not concerned about closing the pollution reduction technology gap problem (PRTGP), they are not worried about having a supply of no polluting energy sources (NPES) available to permanently substitute polluting energy sources (PES), which means they are not in a hurry to set up proper transition tools towards clean markets (CLM) as shown by all broken arrows in Figure 3 above. If we assume that the flawed paradigm is placed at point Ti or that there is a no transition tool Ti at that point as shown in Figure 3 above, then the pollution production problem (POPP) at that point is the distance between point "a" to the point where Ti vertical line cuts the pollution production problem POPP arrow; and the remaining pollution production problem (RPOPP) is the distance from Ti to point "b".

Implication 3:

As flawed markets expand, the pollution production problem expands and no transition tools located in the problem solving impossibility zone should be expected to fully correct the root-cause of the pollution production problem so a remaining pollution production problem will continue to exist as these no transition tools are used to manage the pollution production problem or as the flawed market paradigm expands. See that the flawed market cannot expand forever, and if not corrected, operating at the point of maximum externalization in the long term should be expected to lead to market collapse. As the flawed paradigm creates this critical problem solving impossibility zone, no no-transition tool can solve its pollution production problem fully as these tools are operating under a permanent market failure. Hence, flawed markets cannot expand forever, they can collapse, and they do create a critical problem solving impossibility zones.

The critical problem impossibility zone theory in terms of golden paradigms

We can restate the responsible market framework (RM) in Figure 2 above if we make the responsible market (RM) be the golden paradigm (GOP) so that GOP = RM as shown in Figure 4 below:

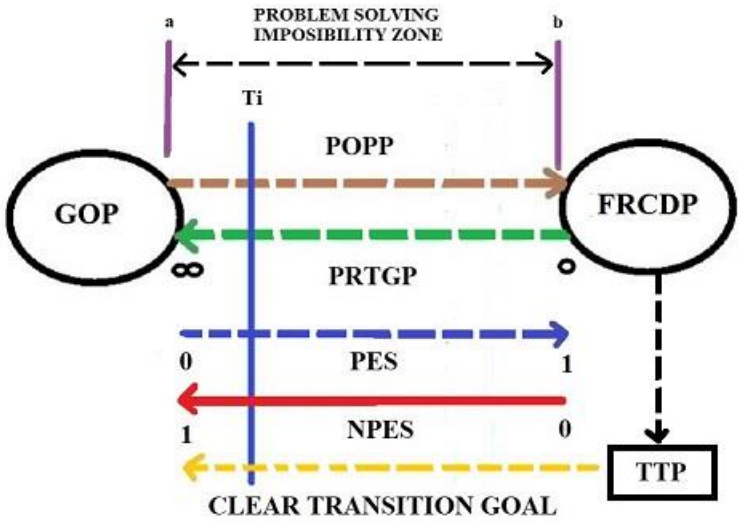

Figure 4 There is no critical problem solving impossibility zone when under golden paradigms as they work fully with no polluting sources of energy or they do not create abnormalities

Figure 4 above shows the broken the structure of the critical problem solving impossibility theory zone (CPSIZ) as golden paradigms (GOP) do not create them. Notice that golden paradigms run on no polluting energy sources (NPES) as indicated by the red arrow and as soon as the golden market is installed and start using no polluting energy sources, then there is no longer a the pollution production problem (POPP) as indicated by the broken brown arrow going from point “a” to point “b”, and see that at all points “a”, Ti, and “b” are pollution free

points, which means that in golden paradigms (GOP) there are no longer a remaining pollution production problems(RPOPP).

Since the critical problem solving impossibility zone (CPSIZ) is passive here or does not exist, then the golden paradigm works in an environment where there is no need for stating a clear transition goal to pollutionless markets as they are clean markets already, and therefore, they are not concerned about closing the pollution production reduction technology gap problem (PRTGP) as no pollution problem to be reduced exist, they are not worried about having a supply of polluting energy sources (PES) as they are not needed in a clean economy, which means that there is no need to set up proper transition tools towards clean markets (CLM) as they are pollutionless markets as shown by all broken arrows in Figure 4 above. If we assume that the golden paradigm is placed at point Ti or that there is a golden market expansion to point Ti as shown in Figure 4 above, then you can see that there is no longer a pollution production problem (POPP) at that point as indicated by the broken arrow from point “a” to point “b”, and therefore, there is no longer a remaining pollution production problem (RPOPP) as shown by the broken arrow from Ti to point “b”.

Implication 4:

As golden markets (GOP) expand, no pollution production problem expands as it does not exist since no problem solving impossibility zone is created under golden paradigm thinking, and hence, there is no need to correct negative root-causes as golden markets work under positive root-causes such as golden conjunctural optimality. Hence, golden markets can expand forever, they cannot collapse, and they do not create critical problem solving impossibility zones.

The case of assuming that golden paradigms are flawed paradigms

When we assume that golden paradigms (GOP) are flawed paradigms (FLP) so that GOP = FLP by assumption, then we add distortions as when we should be expecting optimal outcomes or positive impacts we are expecting non-optimal outcomes or negative impacts, as shown in Figure 5 below:

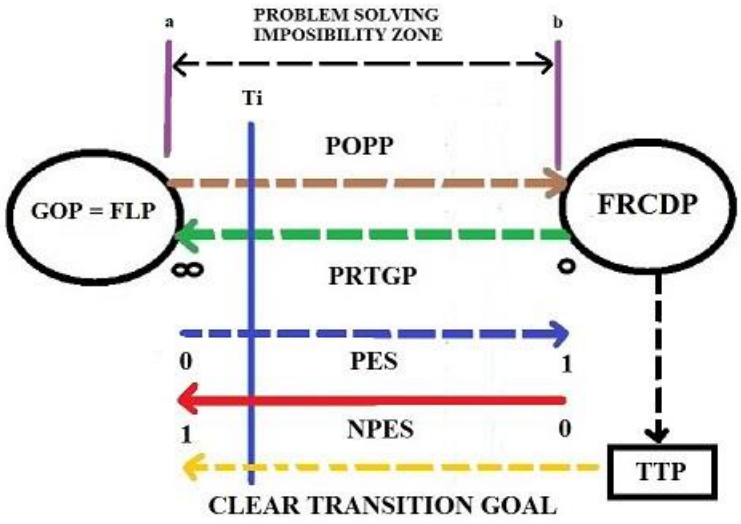

Figure 5 Here is what happens when we assumed that golden paradigms (GOP) are flawed paradigms (FLP)

Figure 5 above describes a situation when in reality we have a golden paradigm (GOP), which we should expect will have a positive or optimal impact on fully responsible critical development problem (FRCDP), but we are expecting negative ones as we assumed that the golden paradigm (GOP) is a flawed paradigm (FLP). As actual optimal policies are taken as non-optimal policies by assumption this may side track the implementation of golden paradigms (GOP) in practice. For example, the expansion of the golden paradigm to point Ti is an optimal expansion, but if expecting by assumption a negative outcome the golden paradigm will be discarded as a bad option to address critical development problems when in fact is the ideal one to support optimal development thinking.

Implication 5:

When assuming that golden paradigms are flawed paradigms there is a mix up of expectations, we are expecting negative outcomes when we should expect positive ones, and through time the golden paradigm will show our assumptions were wrong by the accumulation of positive outcomes under golden conjunctural causality. In the meantime, this assumption will lead to the discouragement or avoidance of optimal paradigm or optimal market thinking as mistakenly we are expecting them to lead to negative impacts on the critical problem at hand.

What happens when golden paradigms when assumed flawed expand?

Time will tell that assuming a golden paradigm (GOP) is a flawed paradigm (FLP) is wrong by the continuous expansion of golden paradigms without producing pollution problems (POPP) as the system will be optimality resilient as depicted in Figure 6 below:

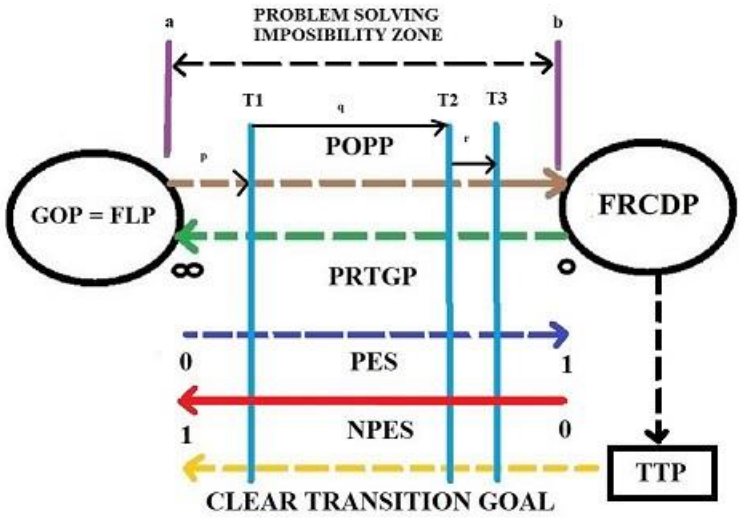

Figure 6 When assuming that a golden paradigm (GOP) is a flawed paradigm (FLP) we are proving wrong later as the results are fully responsible impacts on the critical problem (FRCDP)

Figure 6 indicates that expansion "p", expansion "q" and expansion "r", are all optimal expansions as they do not create pollution production problems (POPP) as indicated by the broken POPP arrow, and hence the assumption that golden paradigms (GOP) are flawed paradigms (FLP) will be shown to be wrong in the long run.

Implication 6:

Assuming that golden paradigms are flawed paradigms may discourage the use of golden paradigms in practice, however if they are implemented even though they are assumed to be flawed they will prove in the long terms that the assumption was wrong by the accumulation of positive impacts on system stability.

The case of assuming that flawed paradigms are golden paradigms

When we assume that flawed paradigms (FLP) are golden paradigms (GOP) so that FLP = GOP by assumption, then we add distortions again as when we should be expecting negative outcomes or negative impacts we are expecting optimal outcomes or positive impacts, as shown in Figure 7 below:

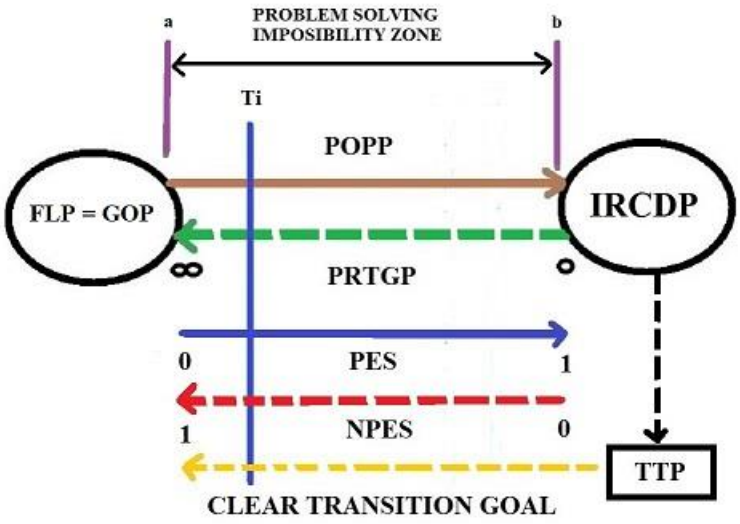

Figure 7 Here is what happens when we assume that flawed paradigms (FLP) are golden paradigms (GOP) so that FLP = GOP

Figure 7 above shows a situation when in reality we have a flawed paradigm (FLP), which we should expect will have a negative or non-optimal impact on irresponsible critical development problem (IRCDP) but we are expecting positive ones or optimal ones as we assumed that the flawed paradigm (FLP) is a golden paradigm (GOP). As optimal policies by assumption are taken as optimal policies when they are not this may promote the use or implementation of flawed paradigms (FLP) in practice as we assumed them to be optimal when they are not.

For example, the expansions of the flawed paradigm to point Ti is a non-optimal expansion as it creates a pollution production problem yet it is taken an optimal expansion by assumption, but if expecting by assumption a positive outcome when we should be expected a negative one the flawed paradigm will be promoted and replicated as a good option to address critical development problems when in fact is the wrong one or distorted one to support optimal development thinking as we are in reality creating critical problems in front of our eyes in the long term, but the optimality assumption help to present flawed markets as optimal market when they are not.

Implication 7:

When assuming that flawed paradigms are golden paradigms there is a mix up of expectations, we are expecting positive outcomes when we should expect negative ones, and through time the flawed paradigm will show our assumptions were wrong by the accumulation of negative outcomes under independent choice/independent preference causality. In the meantime, this assumption will lead to the promotion and implementation of flawed paradigm or non-optimal market thinking as mistakenly we are expecting them to lead to positive impacts on the critical problem at hand when we should be expecting the opposite.

What happens when flawed paradigms when assumed golden expand?

Time will tell that assuming a flawed paradigm (FLP) is a golden paradigm (GOP) is wrong by the continuous expansion of flawed paradigms producing pollution problems (POPP) or negative impacts in the process as the system will be non-optimality driven as depicted in Figure 8 below:

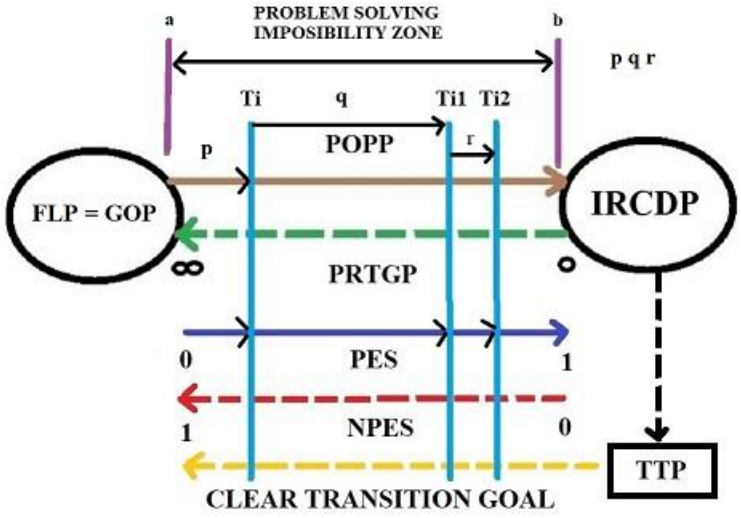

Figure 8 When we assumed that flawed paradigsm (FLP) are golden paradigms (GOP) the system may collapse in front of our eyes as we are expecting responsible or optimal outcomes

Figure 8 above shows that expansion "p", expansion "q" and expansion "r" are all non-optimal expansions as they do create pollution production problems (POPP) as indicated by the continuous POPP arrow, and hence the assumption that flawed paradigms (FLP) are golden paradigms (GOP) will be shown to be wrong in the long run.

Implication 8:

Assuming that flawed paradigms are golden paradigms may promote the wide use of flawed paradigms in practice, however if they are implemented assuming them to be golden paradigms they will prove in the long term that the assumption was wrong by the accumulation of negative impacts on system stability and the creation of critical pollution production problems that affects their own sustainability.

Food for thoughts

1) Can golden paradigm be classified as true golden paradigm and dwarf golden paradigms? I think yes, what do you think? 2) Are true sustainability markets true golden paradigms? I think yes, what do you think? 3) Are dwarf sustainability markets specific types of

dwarf golden paradigms? I think yes, what do you think? 4) Are green markets a specific type of dwarf sustainability markets? I think yes, what do you think? 5) If we assume that a critical problem is not there, can that lead to system collapse? I think yes, what do you think?

Conclusions

First, it was shown that flawed paradigms have the seeds that grow into pollution production problems through time as they expand, creating the critical problem solving impossibility zone in the process, and as the pollution production accumulates through time it can lead to system collapse unless the root-cause creating the pollution problem is corrected fully as if corrected partially the system may still collapse. Second, it was highlighted that golden paradigms have the seeds that grow into a pollution production free world as they do not create a critical problem impossibility zone, and as pollutionless expansions take place the system expands optimally. Third, it was stressed that when assuming that golden paradigms are flawed paradigms we mixed contradictory expectations, we expect by assumption negative impacts when we should be expecting positive impacts, but in the long term as golden markets expand optimally the assumption that golden paradigms are flawed paradigms will be shown to be false and the golden paradigm rule will be acknowledge and replicated as it does not lead to system collapse, but to market expansion sustainability. Fourth, it was indicated that when assuming that flawed paradigms are golden paradigms we mixed contradictory expectations too, we expect by assumption positive impacts when we should be expecting negative impacts, but in the long term as flawed markets expand non-optimally the assumption that flawed paradigms are golden paradigms will be shown to be false and the flawed paradigm rule will be acknowledge and corrected fully or partially and replicated to avoid system collapse. A full correction would lead to a golden paradigm or a true sustainability paradigm; and a partial correction would lead to dwarf golden paradigms or dwarf sustainability paradigms, but keep in mind, partial corrections still have the remaining pollution production seed that will grow more toxic through time and may lead to system collapse in the long term specially if the remaining pollution production problem grows way faster than pollution management targets.

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