

Review analysis on challenges, opportunities, and implementation strategies for the success of green public procurement, the context of Bhutan

Hari Kumar Suberi

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Abstract

This article explores the descriptive research review on Green Public Procurement Bhutan and enquires systemic challenges on procurement practices and potential opportunities that tend to influence the development of sustainable consumption and production practice, which is based on the project experience that are documented in the project research reports. The research article adopts partially the design methodology and is defined by analysis phase of analysis-projection-synthesis approach to enquire the procurement system, which will define the normative value of procurement system. From this article it was identified that the systemic transformation is pre-requisite for sustainable public procurement deployment, which will require life style transformation. Therefore, extensive stakeholder negotiation is a key aspect for the success of procurement system transformation and will require multi-methodological worldview to enquire the current system. The challenges, opportunities and implementation strategies are context dependent, which can be seen in the contextual scenario case, potential for further research endeavor.

Keywords: *Green public procurement, sustainable development, system variable, system negotiation, Gross National Happiness*

Background

Country: Bhutan is a landlocked country sandwiched between China in the north and India in the south. With only 735,553 people, the total population in 2017 is spread across the total land area of 38,394 square kilometer (NSB, 2018). The national economy is based on fragile mountain ecosystem services, where currently more than 70% of the land is under forest cover (NSB, 2018). The major GDP contributing sector is hydropower and tourism. Currently 1,615 MW of hydro generation is harnessed from the total potential of 25,000 MW, where 70% of the generation is exported to India (DGPC, 2018). Similarly tourism sector development is influenced by high value low volume tourism (TCB, 2019). Rest of the consumable product including that of agriculture is mostly imported, which places Bhutan to remain increasingly non-resilient

in terms of economic progress owing to landlocked nature and fragile mountain ecosystem, although average GDP growth rate is seen to be 8% from the national population and economic projection (GNHC, 2018). The national development vision is guided by the philosophy of Gross National Happiness (GNHC, 2015). Therefore, sustainable consumption and production becomes a critical Sustainable Development Goal (SDG) for Bhutan among others.

EU Switch Asia Research project: Bhutan received autonomous project research grant for 3.5 years under the project research theme titled as Green Public Procurements (GPP) from EU Switch Asia in 2014, which is lead by International Institute for Sustainable Development (IISD, 2017). The project consortium is a mixture of national and international partner. They are; International Institute for Sustainable Development (IISD), The Collaborating Centre on Sustainable Consumption and Production (CSCP) (CSCP, n.d.), Royal Society for Protection of Nature (RSPN) (RSPN, n.d.), Bhutan Chamber of Commerce and Industry (BCCI) (BCCI, n.d.), and Royal Institute of Management (RIM) (RIM, 2017). The project addressed 8 different work packages covering various procurement activities such as high level stakeholder networking, capacity development training program, knowledge platform development and curricula development on the Green Public Procurement (Suberi, 2017). At the end of the project more than 70 public procurers are trained from almost all the ministries and GPP curriculum is designed to be used by RIM (Suberi, 2017). The detail project document can be found in the GPP knowledge platform (RIM, 2017).

Procurement and public procurement

The term procurement can be simply defined as an acquisition of product and services, which is imbedded in the economy and legal proceeding defined by set of contextual rules. They are required to follow the basic principles of efficiency, transparency, and fairness (Khan, 2018). The formalistic definition of procurement is evolutionary and therefore it is hard to define them clearly as it is contextual. The history reveals that the procurement is a documentation function for *material man* (Usifoh, 2018), which involved inventory data base record. However, the role of procurement became vital since the time that triggered the experience of oil crises in early 1970, where business strategy depended on procurement as enabling procedure (Usifoh, 2018). Today it has taken different turn and it is often referred to as public procurement (Khan, 2018; OECD, 2020), as strategic public supply chain management process. The public procurement is now formalized as government goods and service acquisition procedure (Khan, 2018). Therefore it has to be noted in the very beginning that the procurement can be simply defined as formalistic process of buying goods and services, which when

used for government function is called as public procurement. The idea of the formalistic approach of procurement practice has now been shifted to an innovation potential that address impact oriented economic progress such as energy saving potential, and food system and healthy diets which are emerging new area of research (FAO, 2021a, 2021b; UNEP, 2022). Therefore procurement seems to appear a key market mover in sustainable development strategies. A common man is part of procurement process in anyway, which we will discuss in detail later that will define why life style change requirement is fundamental for sustainable public procurement. Formalization of product and service acquisition has now been shifted to legal binding process such as contract and negotiation between procurer and supplier. Therefore, we can define procurement as acquisition process involving, consumer, supplier, middle man, contract, negotiation and set of regulation defining their functional role.

Emergence of sustainable public procurement

The identification of de-growth strategy in the limits to growth report of club of Rome is perhaps the cause for systemic goal re-orientation, which we may reference today leading to the ideation of sustainable development vision (Meadows, Donella H.; Dennis, L. Meadows; Randers, Jorgen; Behrens, 1972). The basic principles and values defined in de-growth strategy only became strategic function as formal goal of UN in 2015, where 8 millennium development goals MDGs (UN, 2005) is replaced by 17 sustainable development goals SDGs (UN, 2015). Therefore the acquisition of product and services for agenda 2030 will require the alignment of development approaches to the new 17 SDGs, which are humanitarian and global normative values. When we closely review the de-growth strategy, it clearly reveals that the consumerism trend is a major systemic failure, which needed leaf frog strategy defined in the SDGs. Therefore integration of economy, environment and society is inevitable for successful transformation of human life style to control the system growth and to protect human wellbeing, which is recognized as a great challenge of 21st century. Based on this normative systemic value proposition, procurement practice is identified as cross-cutting system change lever. For example the research on enabling the value for money, which is based on the principles of circular economy, is already well established norms and values for procurement practice (Ahn, 2020; EU, n.d.; Oshani Perera, 2007). The beginning of circularity principles and their value addition potentials is also the beginning of sustainable procurement ideation, which is also defined as specific goal in UN SDGs as sustainable production and consumption (UN, 2020a). Although numerous publications and project are already implemented, the systemic transformation seems to be clearly missing, which is the most required value re-

orientation for the success of de-growth strategy formalization. Therefore we can conclude from various literature sources that the ideation of sustainable public procurement is well defined in 1972 limit to growth development model (Meadows, Donella H.; Dennis, L. Meadows; Randers, Jorgen; Behrens, 1972), which is only formalized later as SDGs (UN, 2015). The current sustainable public procurement is the result of specific goal defined in SDGs, which will require lifestyle transformation and that can only happen if systemic transformation is well addressed.

Procurement in Bhutan

Bhutan's national policies and plans are based on the value orientation, defined under the philosophy of Gross National Happiness (GNHC, 2015). The procurement process is guided by the national procurement rules and regulation 2015 (MoF, 2015). The process is theoretically based on quality and is heavily influenced by cost, which is currently practiced by government agency. Although the procurement rules and regulation specify the supplier qualification, procedural fairness, transparency, and formal bidding procedure, the success potential of the supplier is influenced by lowest cost and is often the influencing factor for acquisition of goods, work and services. We may see digitalization of the process as system transformation such as, the introduction of electronic procurement system (MoF, 2020). However the lowest cost condition is still prevailing practice for procurement of goods, work and services although the system digitalization has optimized the operational cost for the procurement process. It has to be noted that digitalization has the potential to shift the psychology of the market and not the actual system transformation. It needed systemic re-orientation to achieve the SDGs, which is a common future for all. Bhutan's approach to sustainable development goals are theoretically aligned to 3G model (Gross National Happiness, Gross Domestic Product and Greenhouse Gas Emission) (Dorji Yangka, 2018). However the operational condition is very uniquely positioned due to globalization, where all three model concepts require integrated values and the procurement practice is a cross-cutting strategy.

Green public procurement in Bhutan

Green public procurement Bhutan (GPPB) is a cross-sectoral strategy to enable industrial competitiveness, which is EU funded research project for 3.5 years addressing operational research practice involving NGO, research institution, private sector and public sector organization (Lama & Casier, 2017). The project explored the potential synergies between public procurer and supplier which are based on the principles of circular economy defined by life cycle assessment as methodological tool to optimize procurement efficacy in terms of public policy. The basic consideration of

life cycle approach is simplified into hot spot identification and assessment to enable industrial efficiency (GPPB, 2017). The concept of hot spot assessment is a process by which stakeholder negotiates the life cycle of goods, services and work to find out potential optimization possibilities in a workshop environment. The primary concern of GPPB in Bhutan is therefore to identify life cycle cost of goods, services and work, and to recommend the supplier, procurer and decision maker on the choice. This approach enabled the identification of value for money concept (ADB, 2018). For example the comparative assessment of different light bulb over its operational life showed unique result in the hot spot analysis, where the LED bulb with high initial cost is relatively cheap when life cycle cost is internalized. Thus public procurer who influences the market demand for sustainable goods, services and works is strongly emphasized during tendering process (GPPB, 2015f).

The GPPB project published 6 research reports such as, Identification of pilot tender and project from target sectors in Bhutan (GPPB, 2015c), assessment of supplier pre-qualification requirements in Bhutan (GPPB, 2015b), market assessment of green goods, services and works in Bhutan (GPPB, 2015f), legal analysis of the public procurement framework in Bhutan (GPPB, 2015d), mapping of institutional arrangements and procedures for public procurement in Bhutan (GPPB, 2015e), and quantitative mapping of public procurement in Bhutan (GPPB, 2015g), which made 10 policy recommendation to the public sector as research project final outcome. They are summarized (1 to 10) from the GPPB project recommendation (GPPB, 2015a, 2015b, 2015d, 2015f, 2015g, 2015c, 2017);

1. Awareness creation among the stakeholder
2. Capacity development for green growth
3. Enable incentives mechanism for sustainable goods
4. Preferential treatment for domestic goods and service
5. Optimize and value, small and cottage industry growth
6. Encourage life cycle cost valuation for national economic value addition
7. Deploy green procurement in major threat sectors like infrastructure
8. Capitalize donor network for green growth
9. Encourage brand Bhutan goods and service
10. Top-down decision on green growth among the procurer and supplier

Based on these major recommendations, GPPB is established as optional procurement research support for the growth of green goods, work and services that can be integrated in the existing procurement process. To understand the conceptual framework and the scientific debate regarding the potential future of procurement practice, those (1-10) recommendations can be further addressed through systemic

and transformative value proposition, where the recommended result can be fully conceptualized as procurement system variable list. This can be an additional contribution to scientific argument on a normative basis rather than numerical deduction of what has already been done. Therefore, data reporting is secondary in context to the system transformation, where statistical data often interprets misleading result as in the case of procurement practice there are complex data possibilities. For that purpose interdisciplinary is core value, which can be adequately addressed through analysis, projection and synthesis (Jonas, 2018) that will fulfill the contextual scenario case, which is negotiable rather than deductible. Therefore procurement, public procurement, green public procurement and sustainable public procurement are normative endeavor and are value based ideological stand for systemic research, which will require completely different approach to align system and the theoretical model design. For the context of Bhutan, it clearly reflects the lack of systemic policy addressing the transformative process although well-established 3G model development is national vision (Dorji Yangka, 2018). Therefore, for the procurement system transformation, strong policy directives are necessary, which is fully aligned to national vision and other influencing policies. This is reasonably true in global context even if the UN SDGs goal has fully addressed the sustainable consumption and production as specific goal (UN, 2020a). Many countries are still facing the challenge concerning, what exactly define the sustainable consumption and production relative to the existing market, which is fundamental prerequisite for procurement practice. GPPB in Bhutan faces exactly the same challenges. For example eco-labeling (EU, n.d.) has become product brand accompanied with high cost rather than systemic transition, which cannot be easily integrated in the existing procurement practice that is based on least cost strategy. Therefore, the GPPB values are well established ideology for public sector but operational context is fully influenced by conventional practice. The eco-labeled product and services still face the challenge of consumer acceptability and it is fully manipulated by the market force that it is hard to distinguish the brand from quality to brand value and therefore loosely transparent.

Methodology adopted

The scientific assessment of artifacts is heavily influenced by the ontological and epistemological perspective (Ingtho, 2013; Niiniluoto et al., 2004). Often time these fundamental scientific values are over looked in interdisciplinary research approach which involves human agency as a key influence factor. On these basic characteristics and wickedness of planning and decision making that tend to qualify the research is these days seen as deficiency for system analysis. For example the Vester examines

a system with the stakeholder engagement and exposition of the complexity called in his sensitivity model (Model, 2014; Frederic Vester, 2007). The trend is further elaborated in design methodology that shifts the research paradigm to systemic overview capturing the holistic worldview. The analysis-projection-synthesis that address multi-methodological method enquires system exposing the hidden network of influence factors enabling the user centric decision field (Jonas, 2018). Therefore, the conventional approach of cause and effect hypothesis formulation is not only narrowing the current complex worldview, it further simplifies the research to the need of the researcher. Thus this study adopts review of the procurement as a system involving holistic world view.

The analysis-projection-synthesis is a process of formulating an artifact personified as an organism defined by set of variables, which orient the actual image of the system. Therefore, the basic research can only be performed if roughly correct system image is known according to Vester (Model, 2014). Therefore, procurement as a system is observed based on the actual case study report that was implemented as a research project in Bhutan which fulfilled the analysis phase of analysis-projection-synthesis in this review article. More specifically the software driven system observation defined by the identified variables are analyzed to image roughly correct system image of procurement as a system. Thus, part of the system analysis is developed using Vester sensitivity model to create an argument that exposes the challenges, opportunities and implementation strategies for procurement system transformation contextualized to Bhutan. Therefore, this review suggested that systemic negotiation is methodologically an option to expose the hidden challenges for the procurement as a sustainable system and critical market mover. To understand further gaps and systemic failure the current method needs to be extended to scenario logic that define the conditional logic projecting future image for strategy formulation. Therefore, the current review serves as a baseline study where further stakeholder negotiation is needed. This is the key and major limitation in this review paper that could not capture the actual expert view for transformation process mainly due to time factor and unavailability of expert and resources for review analysis.

Challenges

The procurement practice is a systemic challenge rather than that of specific problem justification, which will require systemic transformation. System theory shows that the system transformation is influenced by the network of influencing effect (Frederic Vester, 2007) defined by system defining global variables, which is defined as planning complexity. On the other hand planning is defined as wicked problem (Rittel & Webber,

1973), which is irreducible system complexity (Jonas, 2018). The procurement practice obeys exactly the same theoretical concept, which can be treated as normative value proposition rather than isolated procurer and supplier business acquisition. Be it conventional procurement practice, green public procurement, and the latest one the sustainable public procurement, they all faces the similar challenge of planning and policy defining the enabling condition for procurement system transition. The procurement challenge is an ideological and is heavily influenced by consumer psychology. Even if the clear cost benefit is deduced based on the life cycle costing methodology, the planning wickedness and network of influencing effect continue to create the system transition barrier. This can only be defined by system influencing variable list.

For procurement system study, the variable set that influence the functioning of system is negotiable and in the case of Bhutan this has been well negotiated during the execution of 3.5 years of project enlisted in the documented project record (GPPB, 2015b, 2015d, 2015f, 2015a, 2015g, 2015c, 2015e, 2017). The 10-project recommendation can now be used as potential global system variables for further research and to identify the qualifying attributes for procurement policy concept for sustainable development goal re-orientation and for future procurement practice. From the list of 10 recommendations, the following can be used as system defining variable list for sustainable public procurement practice that define the operational context (1-6). However, the next stage extended study will require stakeholder participation to define such variable and to consider the list for system analysis. For the moment it is limited to six variables in the following list as this is a baseline case contextualized to Bhutanese economy and market trend.

1. Awareness creation
2. Capacity development
3. Enabling condition
4. Preferential treatment
5. Value optimization
6. life cycle cost

The procurement system transition challenges can also be found from the above listed neutral global variable that define the operational context of procurement practice and their influencing effect. The context of procurement of goods, services and work as a system artifact is question of how strong emphasis is made on those variable lists (1-6) and it is critical for psychology playing field for the procurer and supplier decision support, the epistemological perspective. The fundamental values such as transparency, fairness and efficiency (Khan, 2018) are much more abstract in context

to systemic approach, which require communication with the involved stakeholders. The communication is a strategy that will define scientific arguments on how the global variable list (1-6) influences each aspect depending on the context and normative values. Figure 1 shows the initial phase of variable positioning and their normative values negotiation process, which will of-course require real time communication with the supplier and procurer in free and fair condition.

Cross impact assessment of the variable	Awareness creation	Capacity development	Enabling condition	Preferential treatment	Value optimization	life cycle cost	Active sum	P-Values
	Awareness creation	0	1	1	2	2	3	9
Capacity development	2	0	3	2	2	3	12	36
Enabling condition	1	1	0	3	2	3	10	80
Preferential treatment	0	1	2	0	0	1	4	36
Value optimization	1	0	2	0	0	2	5	45
life cycle cost	1	0	0	2	3	0	6	72
Passive sum	5	3	8	9	9	12		
Q-Values	1.8	1.2	1.3	0.4	0.6	0.5		

Influencing strength

- 0: Any changes in the input variable has No impact on the output variable
- 1: Any changes in the input variable has Weak impact on the output variable
- 2: Any changes in the input variable has Moderate impact on the output variable
- 3: Any changes in the input variable has Strong impact on the output variable

Figure 1: Cross impact assessment, the normative values for scientific negotiation

Figure 1 represents the simplified version of procurement system variable cross-impact analysis (Model, 2014; F Vester, 2007; Frederic Vester, 2007) negotiation result, which is purely based on the observer's justification from the project experience in Bhutan. The influencing strength and normative deduction is negotiable with existing data set involving the expert group communication often called as Delphi technique.

The major challenges concerning procurement system transformation can be clearly seen from the variable's influencing strength and the functioning of the process, which will require robust communication involving procurer and supplier. The influencing effect is contextual and cannot be formalized as general procurement practice that will need much deeper understanding of the context visualization. Therefore procurement system model can be developed based on the cross impact analysis negotiation result for the systemic policy re-alignment. Based on the cross impact analysis shown in figure 1, a basic procurement system test model is developed as an effect system in figure 2, which is an alternative way to reduce system influencing effect by only considering the strong and moderate influencing effect. We can call the effect system as procurement system test model for policy negotiation, which generates multiple research question and problems for system visualization and their projection in future from each network link.

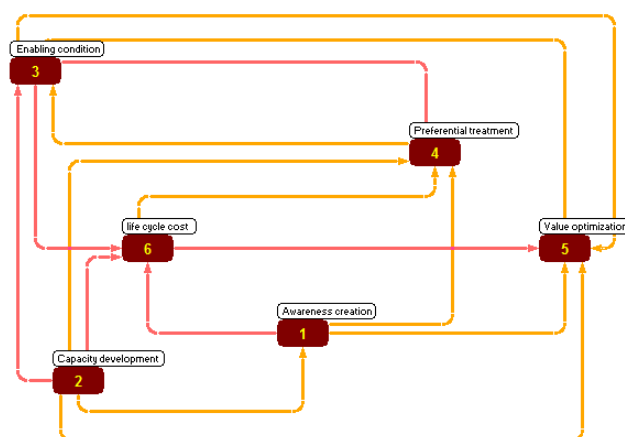


Figure 2: Variable effect system

Figure 2 represent procurement system influencing effect, which can be further researched to quantify the influencing effect (the red line indicate strong effect and yellow line indicate moderate effect) that results into research hypothesis, which may be used as guiding research problem for procurement system quantification. Therefore figure 1 and figure 2 representing roughly the correct procurement system test model can now be used as guiding research paradigm, which is subject to systemic negotiation with the involved stakeholders in iterative process. The current variable list and system model is based on the project experience, which will require much deeper stakeholder consultation concerning the possible variable list influencing the procurement system's future. It can therefore be concluded that the vision for sustainable consumption and production is strongly influenced by procurement system image projection in future, which is only possible after transparent system negotiation.

Opportunities

The procurement system transformation is an opportunity that enables sustainable consumption and production, which is a desirable future for achieving sustainable development vision. Identifying opportunities for sustainable consumption is on the other hand influenced by lifestyle change requirement, which is heavily influenced by the market force that tends to shape human psychology, which will play central role for sustainable transition. Therefore there is no single cause and effect influencing factor that will enable procurement system transformation. Procurement practice is complex human consumerism behavior that influences the gross supply chain orientation. Therefore opportunity identification process requires systemic inquires which is fully influenced by the variable defining the system and not just public procurement.

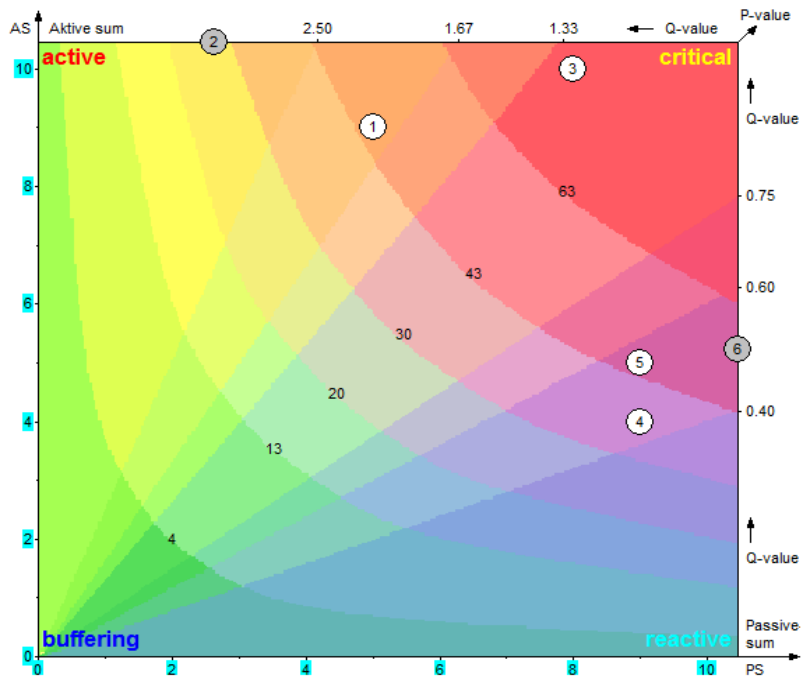


Figure 3: Procurement system image

In the current case, the context of Bhutan indicates 6 critical global variable list (Awareness creation, Capacity development, Enabling condition, Preferential treatment, Value optimization, Life cycle cost) defining the procurement system, which seem to appear as an opportunity identifier variable for sustainable consumption and production future image visualization as shown in figure 3. The system image in figure 3 is uniquely defined strategic plot in Vester Sensitivity model (Model, 2014; F Vester, 2007; Frederic Vester, 2007), which is based on cross-impact analysis of figure 1 with a strategic plot to show two dimensional variable distribution indicating systemic role played by the variable for procurement system image formation. Note that the variable definition and cross impact analysis is negotiable and iterative process with the involved stakeholder (here the procurer and supplier) for potential opportunity mapping.

The two dimensional Vester Strategic field (refer to figure 3) contains 50 uniquely defined strategic areas, which is based on logical conclusion resulting from more than 30 years of project experience by Vester (F Vester, 2007). It is recommended to refer to system theories and the art of interconnected system thinking by Vester for more detail (Model, 2014; F Vester, 2007; Frederic Vester, 2007) regarding the steps applied to arrive to the image plot in figure 3, as methodological detail is beyond the scope of this research paper. The strategic areas have four extreme positions such as, buffering, reactive, critical and active based on the analyzed deduction of active sum

and passive sum plot on the two-dimensional field, which defines the role played by the variables in the system. For example, the variable occupying critical region is system leveraging variable and are very sensitive if not carefully planned. Similarly, the buffering region defines sluggishness of the variable, active region indicates system change lever, reactive region indicates system indicator. It is important to note here that the placement of the variable in the strategic filed is the result of stakeholder negotiation process, which can be communicated in real time environment as comprehensive justification that result from the intensive argument while enquiring the system under investigation. Since procurement system influences many different global variables lists directly impacting the quality of life the enquiry of system cannot be reduced simply to product eco label, which is well established business goal in sustainable consumption and production ideological belief for market transformation and it is still incomplete in that sense. However procurement system transformation is fully influenced by complex network of influencing variable list, which will give rise to contextual scenario case and therefore multiple opportunities may be defined based on the functional role of product rather than product brand that is defined by eco-label concept (EU, n.d., 2020). The argument here is regarding how the variable influences the market force, which is less known in a research practice that are mostly based on statistical data trying to define the functioning of the system. Therefore, conclusion can also be drawn from this normative value mapping of the procurement system that the opportunity identification is a complex process, which depends on multiple alternatives defined by different variable's influencing strength on human psychology and consumerism trend. The first negotiation result from the project experience in the case of Bhutan is summarized in table 1, which can be further researched as contextual case scenarios for procurement system enquiry. The result indicates two critical conclusions. The first result shows that the procurement opportunities cannot be simply reduced to product or service label, which is fully influenced by the variable defining the success potential of those opportunities. The second conclusion can be made from the variable position in the strategic filed that *capacity development* is system change lever and *enabling condition* is system leverage potential. The interconnectedness of the variables in the procurement practice strongly suggests market re-orientation that will enable procurement system transformation defined by enabling policy support, which will require participatory approach involving both procurer and supplier and the demand and supply chain reorientation of existing market.

Table 1: Variable strategic position in the procurement system image plot

Sl.no	Variable	Discription
1	Awareness creation	Highly effective but critical component whose development should be carefully observed, especially if modified in order to give the development a new direction.
2	Capacity development	Slightly critical, highly active switch lever. Therefore its effects should be canalized if interventions are made here.
3	Enabling condition	The strong influence of this component on the rest of the system can be extremely strengthened as well as collaps by strong positive feedback. Beware of oversteering!
4	Preferential treatment	The already strong reaction of this slightly critical component to changes in the system even if caused by itself makes it unsuitable for well directed interventions.
5	Value optimization	Changing these components is especially dangerous if connected to clusters of variables situated in the same section. Interventions then easily go out of hand.
6	life cycle cost	Highly critical-reactive section. Here interventions can lead to completely new constellations whose consequences can no longer be corrected or reversed by the same means

The market re-orientation potential rest on design of service centric business, where public procurement plays critical role for market re-orientation. For example, the major threat area in Bhutan is mobility (transport and logistics) system development trend, which can be re-oriented to mobility as service industry. Similarly agricultural supply chain market can be enabled through regional value addition concept defined by circular economy theories (Tom Lahti, 2018). Thus, sustainable procurement practice will enable policy alternative, which can be optimized to prioritize acquisition of sustainable goods, services and work. However, the opportunities are heavily influenced by normative value proposition that can only be clearly visible if complete system is fully addressed. Therefore, sustainable public procurement opportunity capitalization will strongly depend on identification of critical system leveraging variable, which is contextual, depending on specific supply chain market. Therefore, the procurement system opportunities identification depends on invisible network of effect that influences the development of procurement behavior, which is often underestimated in most research finding.

Implementation strategies

The implementation strategy depends on the identified opportunities and can fully influence the procurement system re-orientation potential, which can be projected from the procurement system variable that are potential system change lever and target variables as shown in figure 3 and table 1. The two example variables realized from the case of GPPB project in Bhutan are *capacity development* and *life cycle cost* (refer figure 3 and table1). However, this variable only shows the potential system change lever and system indicator, which is still complex owing to complex market behavior involving multi-stakeholder participatory process in the logistic supply chain. Therefore, the future of any system is uncertain and is subject to irreducible complexity, which will need scenario based planning (Schwartz, 1991). The transition of the conventional procurement system to more sustainable system is a complex process altogether, which will require contextual scenario identification. The strategic decision and policy can only be realized from the normative value based scenario field, which can be realized from Quattro Stagioni logic (Wilkinson, 2020).

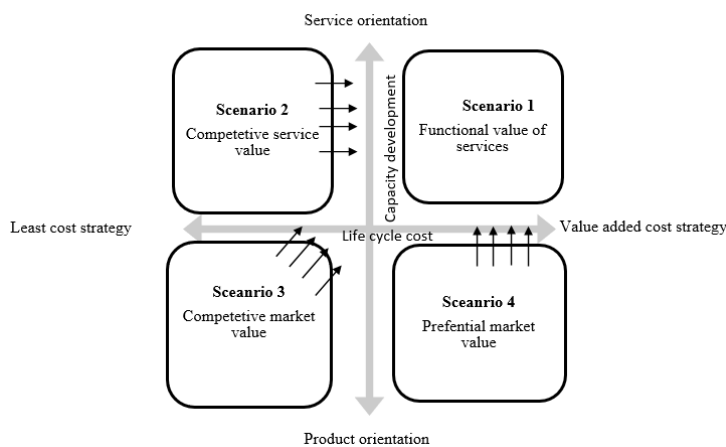


Figure 4: Quattro Stagioni plot of system change lever and target variable

Figure 4 shows Quattro Stagioni logic (Wilkinson, 2020) for strategy formulation defined by scenario field in four quadrants, which is normative value proposition of the variable defining the potential future scenario. Procurement system implementation strategy can be visualized from scenario field shown in figure 4. The procurement system global variable, *capacity development* and *life cycle cost* is visualized in the Quattro Stagioni logic (Wilkinson, 2020), which will generate possible scenario case that can address the context dependent strategy. The scenario field is normative and can be further researched to qualify and quantify on a contextual basis. Because of the complexity involved in procurement system, the context identification is critical for policy

decision. In the current state of sustainable public procurement practice, which is relatively new to procurer and supplier, only the possible range for selected variable can be projected. For example, the variable *capacity development* can have any strategic role for market re-orientation such as, product supply as main goal and to shift the market value from product sale to the sale of services. Similarly, the *life cycle cost* has two possibilities such as incentivizing sustainable goods, services and work and value addition by providing more alternative business growth for sustainable goods, services and work. An innovation potential can now be visualized from the four scenarios defined by the quadrants formed by the variable's normative value range. The contextual scenario is an ambitious goal and can be referenced to the current approach of sustainable procurement practice, which will require optional future consideration. That is to say the production process transformation or the market value re-orientation. The strategy adopted in the current procurement practice can be seen as comparative case of scenario 3 and scenario 4, which mostly deals with eco-label and production process change. The much greater success potential for procurement practice can be visualized from the market re-orientation for the supply of service. The corporate social responsibility and product responsibility (UN, 2015, 2020a, 2020b) will become new market supply chain concept, which tend to influence the procurement process. The desirable supply chain for market re-orientation can be releasable in scenario 4, which has the possibilities to integrate all sustainable goods, services and product up scaling. However, this strategy is at the moment a concept and theoretical scenario that will have to be thoroughly communicated with the involved stakeholder (supplier and procurer).

The context of Bhutan from the above scenarios is valuable, where the procurement of services can be seen as major market mover. For example, the national economy is 100% import dependent for all forms of consumable product, which can be internalized as procurement of industrial services to support the growth of small- and large-scale industry. Due to availability of cheap and clean energy source (DGPC, 2018), foreign direct investment (FDI) potential for small scale industry is an opportunities for the investor. Hence it can be concluded that the value-added cost strategy is a market mover.

Conclusion

A clear conclusion can be drawn from the GPPB project experience in Bhutan that the sustainable production and consumption is a management challenge rather than the economic value proposition. Therefore, major reforms are needed in decision making process on what kind of supply chain market is appropriate for procurement practice.

For that purpose, capacity development regarding life cycle cost assessment for the procurer and industrial process optimization for the supplier are critical for the growth of alternative market. On the other hand, system digitalization cannot be misunderstood with the sustainable consumption and production practice, which is often time referred to as success stories for sustainable public procurement practice. Deployment of robust policy addressing sustainable consumption and production practice is therefore fundamental criteria for success of sustainable procurement practice. In the case of Bhutan GPPB is still a conceptual research result, which will strongly require government support to enable the concept development.

The case study of Bhutan also shows that the procurement system is a complex system, which is context dependent and is defined by multiple parameters (in this paper referred to as system variables). The study of procurement practice needs interdisciplinary approach for which a clear research methodology is prerequisite. The systemic approach such as normative value proposition of variable's network of influencing effect is therefore recommended method for understanding the contextual case for procurement system study in the initial phase of concept formulation. Therefore, the conclusion cannot be made from the statistical evidences of procurement and supply chain market, which are fully dominated by conventional practice even if the idea of eco-label concept are widespread. For procurement practice eco-label is a brand value and the determining factor is still the least cost strategy. Therefore, more detail research is needed especially on policy choice and procurement system transformation.

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About the author

Hari Kumar Suberi graduated in 2007 from College of Science and Technology (CST) in Electrical Engineering department and he worked as broadcast engineer in BBSC for 5 years after graduation. He holds dual Master's degree in MSc. in International Co-operation Policy from Ritsumeikan Asia Pacific University (APU) Japan and Master of Engineering in International Material Flow Management from Environmental Campus Birkenfeld (UCB), Trier University of Applied Science, Germany. He is currently working as a fulltime contract faculty with Electrical Engineering Department teaching Master of Renewable Energy study after his PhD in Sustainable Development from Institute for Transformation Design (ITD), Braunschweig Germany and UCB Trier. He is a freelance national consultant addressing technical and non-technical aspect of energy, environment and sustainable development and therefore his research interest is interdisciplinary that concerns regional value addition concepts and theories through design and material flow management methodologies. He was a senior researcher in the GPPB project in RIM.