

Impacts of Participants' Values on Sustainability of Construction Projects

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ABSTRACT

This paper examines the processes through which the values relating to construction projects, with particular reference to sustainability, are determined and operationalised. Those values are fundamental in governing the performance of both the project, as a product in occupation and use, and project management, as processes of realisation of the project involving design and construction. The values determine what performance variables are considered and their relative importance which, within the applicable parameters, controls and constraints, yield the performance targets for the project – against which realised performance will be evaluated. Those values are derived from the value structures of the project participants and so, must be elicited and collated under the influence of the evolving membership and power-structure of the project temporary multi-organisation (TMO). The TMO, as a shifting, multi-goal, power-based coalition promotes fluctuations in the values employed to drive the project as it develops and so, makes evaluation of performance highly problematic. Given that the values are human-determined, they are grounded in culture and so, understanding culture, as an operative construct in the project value system, enables the concepts and practices relating to the sustainability of construction projects to be understood and developed.

Key words: Culture, Greening, Performance, Projects, Sustainability, Values

INTRODUCTION

Sustainability is, arguably, the topic discussed most in connection with construction activities today, confirming the rightful place of that subject as of paramount importance. Its importance is not only in relation to construction but to all human activities – indeed, to all activities, human or otherwise. And, not just for the local, current population but for all current and future generations. It is the most global of issues.

A major problem, however, is that 'sustainability' is no more than a label used in discussion in a great number of instances – what is really being debated is not

sustainability but a related but much less demanding topic – ‘greening’. Whilst ‘greening’ is worthwhile, it is only a move towards the potential achievement of sustainability and, on many occasions, only a very small step!

The report of the World Commission on Environment and Development (1987) (the Brundtland Report) defines sustainable development as being, “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”. Whilst such a definition is laudable in express intent, it raises problems over implementation, not least due to embedded definitional and, consequential, measurement problems.

The issue of the extent of (true) knowledge of resources, inter-relationships, future developments and the entire gamut of needs of persons and all other life-forms is absolutely central to the determination of actions regarding current deployments and uses which, totally and inevitable, affect all possibilities for the future – both short-term and long-term. As it is amply evident that humanity does not have anywhere near that level of knowledge, maximum caution in our actions over consumption of resources, pollution, decimation of species etc. seems to be the only sensible path. The problem is that pursuit of such a path generates huge value conflicts.

At the 1992 United Nations Conference on Environment and Development (The Earth Summit) in Rio de Janeiro, participating countries agreed an action plan for the 21st century - AGENDA 21 - which recognised that humans depend on the Earth to sustain life, that there are linkages between human activity and environmental issues if such developments are to be sustainable. Chapter 7 of Agenda 21 specifies the overall objective of human settlement to be “...to improve the social, economic and environmental quality of human settlements ...”. Such statements invoke the notions of different **forms** of sustainability – social, economic, environmental etc. This paper argues that such an approach is highly dangerous and detrimental to the underlying concept of sustainability.

Science, at present, asserts that everything is comprised of matter and energy and that they are related by the relationship:

$$E = mc^2$$

Thus, it seems appropriate to investigate sustainability in terms of those fundamentals and without temporal limits, although a ‘black hole’ awaits us all. Regarding planet Earth, it is but one component of the universe and, as a sub-system, gains energy from and loses energy to its environment – at present, increased energy gain and energy entrapment, caused by atmospheric pollution resulting from human activities, are significant sustainability issues for Earth and the life which it supports.

Our values underpin our behaviour. The values are grounded in our fundamental beliefs of what is right and what is wrong and are used to express relative worths of objects and actions. Thus, values are subjective and may be highly individual, although, through social systems and institutions etc., commonality of beliefs and values emerge. Especially in relation to sustainability, awareness of the issues involved is likely to have significant impact on value systems – notably what values feature in peoples’ hierarchies and the positionings within those hierarchies.

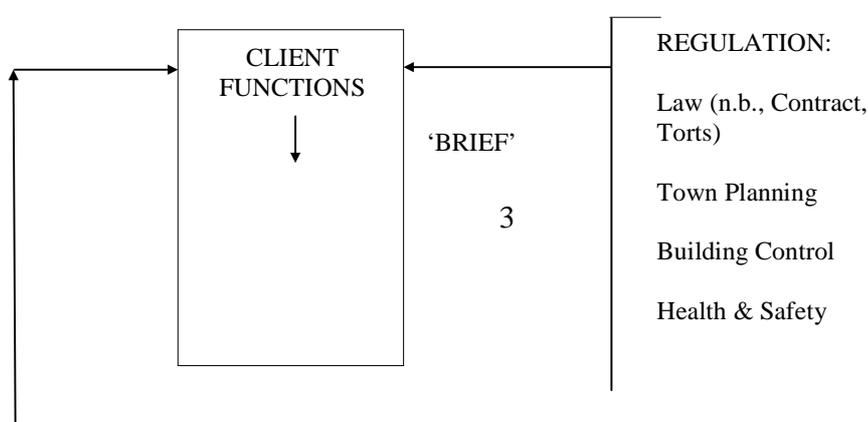
“The current economic growth in developed countries entails high rates of consumption of natural resources that nature is unable to restore, and great amounts of residues that cannot be absorbed” (González-Benito and González-Benito, 2005). We suggest that the situation is applicable to all countries, not only ‘developed’ ones. The questions concern what can we do and what are we prepared to do to identify and addresses the issues involved?

Thus, this paper endeavours to be provocative in order to stimulate more fundamental (and meaningful) ways of examining issues of sustainability, with regard to the realities of the construction industry, and to foster the development of an agenda for holistic, process-based research into construction sustainability.

ORGANISATIONS IN CONSTRUCTION

A generic systems-based model of the functional organisation for the realisation of a construction project is shown as figure 1. For all but the smallest projects, each main function is a composite in which each primary component is executed by at least one specialist, separate organisation. Construction includes main (management) contractor, subcontractors, suppliers, and plant hire organisations. Design includes architects, structural/civil engineers, services engineers, and quantity surveyors. Client includes commissioner, owner, occupier, user, and financier. As projects increase in size and complexities, so more specialist participants are involved, increasingly drawn from a variety of countries.

Given the ever-increasing diversity of specialist organisations which are required to provide inputs to the realisation of construction projects, realisations occur through the operations of temporary multi organisations (TMOs). Those TMOs constitute constantly-changing conglomerates of individuals and organisations which have differing values and objectives and which operate through fluid power structures (see, e.g., Cherns and Bryant, 1984).



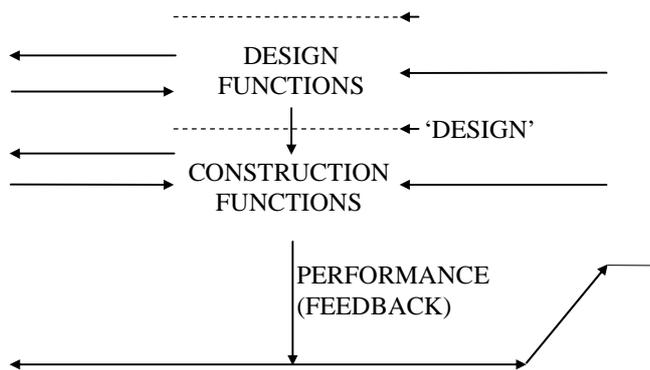


Figure 1: The Project Realisation Process

Note:

- (1) Performance leads to satisfaction of participants and, hence, (perspectives of) project success.
- (2) Performance-Satisfaction-Success also produces feedforward in the ‘cycling’ of project data and information to aid realisations of future projects through participants’ perception-memory-recall filtering (‘experiences’).

That TMO organisational form is argued to be generic throughout the world’s construction projects, almost irrespective of the (formal) procurement approach adopted. Complexity varies between projects, as do the underpinning values of the participants (especially internationally) and, hence, so do the outcomes.

Lawrence and Lorsch (1967) investigate certain major issues in their analysis of complex processes with resultant attention to the essentials of integration of (increasingly) independent activities in modern businesses. Whilst that remains a feature of research into processes and practices of design, construction, and their relationships, it seems to have remained fairly peripheral as does holistic examination of realisation of construction projects, despite attention to ‘partnering’ etc. – which tends to adopt a simplistic and command approach to integration and ‘team’ formation.

Buenger *et al.* (1996) note the increased transaction costs due to information requirements for interdependent working, including the cross-boundary coordination requirements.

Thus, the very commonly articulated main objective for project participants, ‘to satisfy the client’ seems far too simplistic for meaningful application. First, we must determine ‘who is the client’? Then, the criteria, constraints and project parameters must be identified and quantified, accurately and both absolutely and relatively to determine what will engender satisfaction in the (identified) client at hand-over of the realised project. As the number of client functionaries extends,

so the complexity and difficulties of that exercise grow geometrically. Thus, it is hardly surprising that, in practice, simplistic solutions are pursued.

Bennett, Flanagan, Lansley, Gray and Atkin (1988) determined a 'wish list' of generic client requirements regarding performance of construction projects which, filtered by Latham (1994), have led to the five drivers for change in construction, as expressed in the Egan report (1998). Those drivers are: committed leadership, focus on the customer, integrated processes and teams, quality-driven agenda, and commitment to people. Not a lot about sustainability but, rather, a lot about wealth enhancement for the clients.

However, given the research into briefing (Kelly, MacPherson and Male, 1992; Atkin and Flanagan, 1995; Green and Simister, 1999) and the levels of (dis-)satisfaction reported for realised construction projects (usually from the commissioning client and, sometimes users/owners) (see, e.g. Latham, 1994; Egan, 1998) even the simplistic approaches are not simple to follow and get right! Major problems appear to be embedded in identifying requirements and constraints, communicating them, understanding them and assessing their applications and consequences in the construction environment. Essentially, a significant proportion of the problem is translation because the (commissioning) client world is different from the construction world; indeed, at the next level of detail, each (main) project participant operates in their own 'world' of values, meanings, structures, processes, etc. In systems terms, these are boundary-spanning issues.

Essentially, the teamwork required for project realisation within the TMO, and expressly so under formal joint-venturing and partnering arrangements, requires two social processes to operate – bonding between participants within the organisation – and bonding with new participants – to yield a coherent and cohesive whole, which, then, is likely to behave and perform as an in-group. The commonality of values, objectives and processes of the ingroup, while likely to enhance its own performance may, conversely, be detrimental to any participants who remain outside and so, have negative performance elements which reduce aggregate performance gains for the project as a whole. That leads to the desire for extensive inclusion of participants.

There remains debate within the field of organisational behaviour over whether an organisation can have a 'personality' and behaviour which is different from those of its representative-agents, either individually or as a collective; currently, the consensus suggests that it can. So, corporate visions, missions, goals, targets, etc., and morals and ethical behavioural standards are separate from those of the members (and stakeholders). One consequence is that members may perceive, and act on, a plurality of objectives and behavioural ethics under which individuals usually perceive their own morals and behaviour to be superior to those of peers and organisations (Ferrell and Weaver, 1978). At least the (perceptions of a) duality of standards between the individual and the

organisation is enhanced by the separation of the legal identity of many organisations from its members (notably, owners) and by indemnities given by organisations for behaviour of members (see, e.g., the discussion of 'personal shielding' in Fellows, Liu and Storey, 2004).

VALUES IN CONSTRUCTION

Rokeach (1972) defines a value as signifying enduring beliefs in particular ways of behaving or preferences for states in the future. Thus, a value has positive connotations in that it provides worth to the individual(s) and leads to the concept of values constituting desirable attributes. Such notions underpin the labour theory of value as espoused by David Ricardo and Karl Marx in that if we adopt the egalitarian basis that each and every human has an equal ownership stake in the world and its resources, then only the application of (socially necessary) labour (power) contributes value to the artefact produced.

Schwartz and Bilsky (1987) advance "...five features that are common to most...definitions of values...(a) concepts or beliefs, (b) about desirable end states or behaviors, (c) that transcend specific situations, (d) Guide selection or evaluation of behaviour and events, and (e) are ordered by relative importance." Thus, values are, often, depicted (n.b., Schein, 2004) as constituting the layer of culture which is intermediate between the fundamental beliefs and the manifestations of behaviour, language, symbols, heroes etc. They note a variety of motivational domains of values and so, support the perspective of congruence between people's values and those expressed for tasks/projects having a positive effect on performance. Finally, they distinguish between values which relate to terminal situations (outcomes – as in the functioning of a project in use) and instrumental values (processes – as in project realisations which consume less resources and produce less pollution).

Cultural dimensions have been developed for examining national culture and form a basic underpinning of organisational cultures (and climate) and so, the context for organisational behaviour. Hofstede (1980) isolates four dimensions of national culture: Power Distance, Individualism/Collectivism, Masculinity/Femininity, Uncertainty Avoidance, and, later, adds Long-Termism/Short-Termism (Hofstede, 1994) following studies in Asia which detected important impacts of 'Confucian Dynamism' (The Chinese Culture Connection, 1987). For organisational cultures, Hofstede employs the six dimensions of: Process – Results Orientation, Job – Employee Orientation, Professional – Parochial, Open – Closed System, Tight – Loose Control, and Pragmatic – Normative. These dimensions of culture may be viewed as 'competing values dimensions'.

In the context of organisational effectiveness, investigations of values and their behavioural consequences has led to the postulation and testing of competing values models. Quinn and Rohrbaugh (1983) advanced a three dimensional

model of competing values: control and flexibility, internal focus and external focus, and ends orientation and means orientation; however, that model is criticised by Buenger, Daft, Conlon and Austin (1996) due to its "...potential negative consequences of overemphasising certain values and excluding others".

Economics employs two basic concepts of value. Use value is the subjective determination of the usefulness (utility) of an artefact and is contingent upon situations. Exchange value is the (money) market price of an item as expressed in a transaction. Logically, under alternative forms of rationality and market mechanisms, use value underpins exchange value and those relationships for potential sellers and buyers determine whether transactions occur and, via bargaining and market operations, at what money amounts any transactions do occur.

If values give rise to objectified end states and to behaviour (processes) perceived conducive to their achievement, then, those end states may be regarded as the primary (behavioural) drivers with the processes acting as facilitators/parameters – with the parametric components founded in morals and manifested in ethics. Many disciplines employ basic assumptions of rationality of human behaviour, whether complete or bounded. Economics is underpinned by the belief that '*rational homus economicus*' has the objective of utility (satisfaction / profit) maximisation for self (whether individual or collective). That leads, e.g., Williamson (1985) to assert that, usually, people behave opportunistically – self-seeking with guile.

In endeavours to increase utility in the provision of artefacts, the techniques of value engineering (VE) and value management (VM) have developed formally. Here, the concept of value tends to relate utility to expenditure, commonly as expressed as value being function for cost ('value for money'). That leads to the three level categorisation of value as 'essential/primary', 'secondary/supplementary', and 'unnecessary', with each function being described by one verb and one noun only – to ensure conciseness. Costs are measured against each value item as the monetary expenditure for its provision. Thus, the concern of any VE/VM exercise is to maximise the surplus of values over costs (which may involve equity and monetary valuation issues).

A common, but, often, unrecognised example of VE/VM in construction is cost planning by consultant quantity surveyors during the design of new projects. Although in many such cases the focus may be on minimisation of the initial capital cost for the commissioning client (and/or ensuring the cost will not exceed some pre-determined budget amount), value considerations and full project life evaluations are attempted increasingly. Here, as in many other cases, it is important to be aware that it is a forecasting exercise and so, subject to the errors, risks and uncertainties inherent in forecasting. Further, that it is

stochastic processes which are being forecast (see, e.g., Reugg and Marshall, 1990)!

As in any decision chain, early decisions have most effect with, normally, effects declining geometrically through the project realisation (initiation, design and construction) period. Usually, projects are not realised by a team but by a conglomerate of individuals (and individuals representing organisations) who have diverse interests and objectives and varying types and amounts of power and influence. Hence, the appropriateness of characterising the realisation of a construction project to be via a TMO.

For a project TMO, membership increases incrementally as the realisation process proceeds (and, changes further, during occupation and use, adaptation etc, and final disposal). Given the functionally diverse specialisations of the evolving members, the values which are brought to bear on the project design and construction are numerous and diverse. Many values will be expressed in some way but many other will remain implicit – left to be intuited from behaviour of the participants. (People are not always aware of their own values until issues which impinge upon them, most obviously as threats to them, arise.)

Thus, it is apparent that, even if participants' values are determined at the initial stages of a project and an accurate hierarchy is communicated and accepted, that value structure is likely to be 'threatened' subsequently as the TMO power structure changes, membership evolves, and participants' appreciation of project management and project performances develop. The result is that the values applicable to determination of desired performance change, so generating differences in the basis for performance evaluations. Further, early value structures may have been fixed by early decisions and project realisation processes such that subsequent amendment may incur huge costs financially and otherwise.

Usually, a trade-off, or zero-sum-game, model of performance is assumed; that dictates that the values which generate the desired performance attributes must follow the trade-off model too. However, a non-zero-sum-game ('win-win') is also a possible model (see, e.g., Womack, Jones and Roos, 1990), as epitomised in the 'continuous improvement' philosophy.

Intuitively, from a generic point of view, we might expect that positive perspectives on sustainability would be stronger amongst people with a more collectivist and longer term orientation in their culture. However, Hofstede's dimensions of national culture are not without criticisms (e.g., McSweeney, 2002) and advocated amendments/refinements. Chen, Meindl and Hunt (1997) suggests that the collectivist construct (on the individualism – collectivism dimension) is, now, inadequately sensitive such that collectivism comprises two components – horizontal and vertical. They relate those components to individualism, as Hofstede's (1980) dimension, as, "...individualism (low concern

for collectivity and low concern for in-group others) at one end of the spectrum of the two dimensions with vertical collectivism (high concern for the collectivity) and horizontal collectivity (high concern for in-group others) at the other two ends. They assert that, “Because the vertical scale items refer to work situations and the horizontal scale items primarily refer to non-work situations, one may speculate that the Chinese are becoming ‘organizational individualists’ even though they are still cultural collectivists in other domains...”.

Especially for wealthier countries, Hofstede (2001; 357) reports a negative correlation (99%) between long term orientation and individualism.

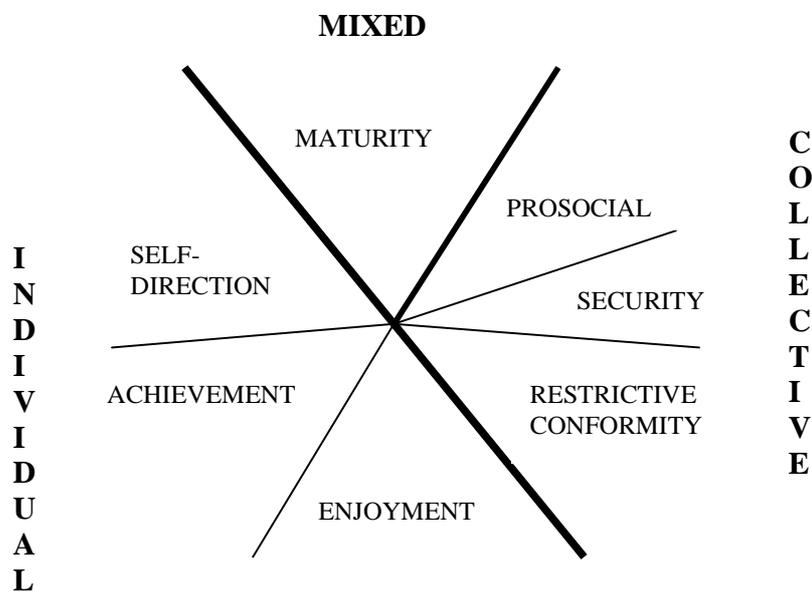


Figure 2: Hypothesised structure of value-based motivational domains (following Schwartz and Bilsky, 1987, 1990).

Notes (Schwartz and Bilsky, 1990):

Prosocial: active protection or enhancement of the welfare of others.

Security: safety, harmony and stability of society, of groups with whom one identifies, of relationships, and of self.

Restrictive Conformity: restraint of actions and impulses likely to harm others and to violate sanctioned norms.

Enjoyment: pleasure, sensuous and emotional gratification.

Achievement: personal success through demonstrated competence.

Self-direction: independent thought and action – choosing, creating, exploring.

Maturity: appreciation, understanding and acceptance of oneself, others and the surrounding world.

Following further research regarding the cross cultural applicability of their model of motivations underpinned by values, Schwartz and Bilsky (1990) noted that “The cross cultural evidence clearly supports the universal existence of the seven basic motivational domains tested” (see figure 2). Their studies indicate that “...the discrimination between values as serving the individual’s own interests or those of the collectivity is universally meaningful” (Schwartz and Bilsky, 1990). That perspective is critical to issues of sustainability as it seems abundantly clear that behaviour founded in individualistic values cannot foster sustainability – a collectivist approach is essential.

SUSTAINABILITY AND CONSTRUCTION PROJECTS

It is abundantly evident – from definitions adopted, from pollution, and from depletion of resources – that sustainability is the most global of issues. Given evidence of the ‘state’ of this planet with respect to its resources and potential for sustaining life, the issues of sustainability are collective and long term. Thus, construction should not be considered alone but as a part of the holistic global system. Short term and local initiatives may yield valuable contributions and indications but, without global measures, can provide only incremental/marginal contributions towards any solution. Thus, greening initiatives fall into such incremental categories – often to the extent that the consequence of green initiatives is a (marginal) reduction in the rate of arriving at the unsustainable apocalypse!

The UK government has sought to articulate the principles of sustainable development to comprise (DETR, 1999):

- Maintaining high and stable levels of economic growth and employment
- Prudent use of natural resources
- Effective protection of the environment
- Social progress that meets the needs of everyone

These, unarguably desirable, principles have been developed into principles for sustainable construction (DETR, 2001):

- Constructing projects that are more cost-effective to produce and run as they have been constructed with less and yield more
- Constructing projects that contribute positively to the surrounding environment, using materials and systems that are easily replenished and perform better over their full life cycle
- Promoting high standards of living for people.

The International Centre for Sustainable Cities (ICSC) defines a sustainable city as “A sustainable city enhances and integrates the economic, social, cultural and environmental well-being of current and future generations” (ICSC, 2005). A sustainable community is one which “continues to thrive from generation to generation because it has...

- A healthy and diverse ecological system that continually performs life sustaining functions and provides other resources for humans and other species
- A social foundation that provides for the health of all community members, respects cultural diversity, is equitable in its actions, and considers the needs of future generations
- A healthy and diverse economy that adapts to change, provides long-term security to residents, and recognizes social and ecological limits”

(Sustainable Community Roundtable, 2005).

A particular concern over endeavouring to produce sustainable construction, sustainable developments,....communities,....cities,...etc. is fragmentation – one of the enduring problems of construction project management performance. Whilst the specialisation aspects of fragmentation are, for many reasons, desirable, the resulting separation necessitates conscious coordination and cooperation to integrate the individual, specialist activities to integrate them to achieve a synergistic whole – it is that integration which gives rise to the problems (see, e.g., Tavistock, 1966; Lawrence and Lorsch, 1967; Latham, 1994). A similar situation occurs in practices relating to sustainability – different groups have different perspectives, agendas and definitions (economics, sociology, ecology, biology, town planning, developers, constructors, etc.) – with the result that what fulfils sustainability from one perspective may fail miserably from another.

The consequence for construction and development practice is that legislation is piecemeal and addresses ‘greening’ rather than sustainability!

There is a widespread tendency for analyses of projects’ likely consequences to reduce all inputs and outputs to financial measures. Such quantifications tend to obscure resource complexities and interdependencies and, further, employ simplistic trade-offs. At the micro level, the analyses have strong internal foci (as in cost planning); it is only when more macro analyses are employed that ‘externalities’ are included (as in planning applications, cost-benefit analyses). Although such quantification techniques include identification of ‘externalities’ (size and incidence), the methods are subject to well-known pricing problems including the use of ‘shadow prices’ and issues of equity over whose evaluations should be used. Economics concerns use of scarce resources – whilst currency as a measurement scale may be convenient, it is the real resources which are represented which constitute the essence of analyses.

One important aspect of sustainability is efficiency – to achieve maximum useful output(s) from minimum inputs; that, necessarily, involves minimising ‘waste’. Given that efficiency is a paramount operating objective for businesses, if not all organisations and individuals, its pursuit is natural. However, the meaning of efficiency and the processes involved require value judgements and so, create issues of sustainability, most obviously, over the incidences of ‘externalities’.

DISCUSSION

González-Benito and González-Benito (2005) find that motivations of companies to obtain ISO 14001 certification can be categorised as ethical (response to perceived ecological responsibility), competitive (desire to secure advantage over other firms in the market), and relational (desire to achieve legitimisation and improved relationships with stakeholders). The initiation of certification tends to be triggered by ethical and competitive factors – in particular, operational considerations. In Hong Kong, for example, contractors must have ISO certification to maintain a place on the list of contractors eligible to tender for government projects.

Such motivations for environmental certification are reinforced iteratively by environmental protection legislation and influences of institutions which both encourage ethical, including environmental protection behaviour, and discourage the reverse via social, leading to economic, sanctions. In such mutually reinforcing systems, detected transgressors may be subject to both legal consequences (fines, etc.), social sanctions (loss of reputation and trust), and, consequent economic detriments (loss of market share etc.) resulting in reduced financial performance (lower profitability). Of course, the effects of such measures depend on thresholds of acceptability, likelihood of detection and sanctions – thereby constituting the ‘normal’ decision components for determining whether to ‘cheat’.

All the aspects of sanctions depend upon the values of society, especially as perceived and acted upon by legislators and those who are influential in social institutions.

Sharp Paine (2003: 58) reports the results of several studies of behaviour in organisations in the USA in which “...about one in three employees...said they had witnessed misconduct either often or occasionally in the previous year....three out of four employees ...said that they had observed violations of law or company standards during the previous 12 months....Depending on the issues presented, the percentage willing to misreport some aspect of their company’s finances ranged from 14 percent to 47 percent”. Those findings, assuming generalisability in USA (and, potentially, elsewhere – in societies of similar cultures and institutions), strongly indicates that there are many more transgressions of law, behavioural codes and standards than are detected and acted upon and, further, that, because codes and legislation are breached commonly, a great deal of information on corporate performance is unreliable.

It is helpful to consider those findings in the context of perceptions of own and others ethical standards of behaviour (Ferrell and Weaver, 1978) in which others are viewed as adopting lower standards. Given ‘personal shielding’ of own behaviour, it is quite logical for transgressors to place the blame on ‘the

organisation' by arguing that they would not have transgressed but did so only at the (perceived) behest of the organisation (or their superior in it). Such blaming and common, reluctance to take responsibility for one's own actions has been addressed in safety and other legislation by the use of 'joint and several liability' – so that both the individual transgressor and the organisation carry the responsibility.

For global considerations, the information published by Transparency International (e.g., Transparency International, 2006) indicates the forms and extents of corruption in many countries and the perpetration of corruption by organisations from various countries. Those findings suggest that, for many (representatives of) organisations, the business values which they practice are both context and consequence dependent. So, we may espouse support for sustainability but are we prepared and able to put such support into practice; and do we have sufficient knowledge to do so well?

CONCLUSIONS

In every country, construction is a major net consumer of non-renewable resources both for realisation of projects and for their (useful) operation. Many of the resources embodied in projects are discarded at the end of the economically-useful life and so, contribute to global resource wastage and depletion. The current confusion wherein 'greening' is passed off as 'sustainability' is unhelpful. Only a real understanding and value shift, supported (at least, initially) by strong and enforced legislation is likely to get to grips with the problem.

Currently, especially speculative, development remains a process which is highly capitalist in nature and so, pursues immediate, individual gain (wealth). The consequent procedures and, largely, competitive requirements in the construction supply chain lead to a 'concreting' of the problems and hamper changes to longer term, environmentally-protective approaches. That situation receives extensive legitimising support for the body of legislation requiring market (price) competitive work allocation systems to be used.

However, at the same time, partnering is receiving extensive advocacy – in which the virtues of long term perspectives and collaboration are advanced. Such dichotomies, often, lead to suspicions and so, detract from commitment, rigorous, and thorough examination of the operations. It may be difficult for practitioners, especially, to separate propaganda from research findings in such circumstances – for their practices, if not in their beliefs.

Thus, at the level of the individual project, it is understandable that the values applied for project realisation are unstable and that sustainability is pursued by participants to comply with legislation, to assist 'marketing', and because it is ethical.

Thus, it is suggested that short-term and individual orientation is the antithesis of sustainability. Such cultural dimensions are strong amongst Western, developed societies which, according to (e.g.) Williamson (1985) also constitute, virtually by definition, the 'hot-bed' of opportunistic behaviour. Thus, it is amply evident that Western, developed economies/cultures/societies are antithetical to sustainability. However, evidence is mixed, if we consider national legislation and international action: Sweden, Australia pursue sustainability, UK is rather (too) neutral, USA is a barrier. China, however, a long term oriented society is a huge polluter and consumer of non-renewable resources. So, wealth and economic development do not, overtly, indicate causal underpinnings, whilst examination of the value underpinning cultures may prove more useful.

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