



Social Marketing: The Key for Reduction of CO₂ Emissions and Sustainability in Transportation

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The traditional approaches of handling transportation problem is inadequate to reduce the carbon oxide (CO₂) emission and keeping sustainability in transportation sector. The reason is that, it does not involve public for changing their complex psychological behaviour toward transportation. Therefore new technique and processes required which must be customer orientated and useful for reduction of CO₂ emission and keeping sustainability in transportation. For that reason social marketing is a best approach to be used for policy planning in transportation. Therefore, the current research aims is to motivate policy maker to use social marketing approach for policy planning in transportation. This research also provide the detail understanding of social marketing and its component that is use for changing the complex socio-psychological process of human being and demonstrates its advantages over traditional approaches. It also provide alternative use of transportation instead of private vehicles.

Keywords: Social marketing, Carbon dioxide, Sustainability

INTRODUCTION

The report on greenhouse gas (GHG) reduction planning show that, the earth still confronts the challenge of accelerating carbon dioxide (CO₂) emissions from road transportation (OECD/ITF, 2008). It is mostly due to the intensive use of private car. Evidence shows that existing policy performs in the transportation sector are definitely not effective enough. That is the reason public still prefer to drive their private vehicles and they are not shifting towards more

environmentally friendly substitutes. A comprehensive transportation policy is needed, which do not only to face local transportation issues, but also confront the issues which are associated with transportation such as CO₂ emission, traffic jam, noise and accidents etc (Joyce 2008). Traditional and existing policies having different approaches, such as technical solutions, economical tools, making different rules and providing informative tools, which can all be

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described as an effort to resolve transportation issue but cannot provide sustainable solution for transportation. Because they are missing the key indicator which is the complex socio-psychological processes that exist behind the travel selections of people. So changing of that complex psychological process is necessary for reduction of CO₂ emission and sustainability in transportation. Furthermore current research in socio-psychological research has discovered that the movements of human creatures reliant on their attitudes and social environment (Gupta & Ogden, 2006; Kollmuss & Agyeman, 2002; Nilsson & Kuller, 2000). Despite the important of dealing with the complex psychological behavior change, the traditional policy planning in transport sector fails to address and practice on public to assist them to change their behavior toward transportation. In current scenario public still appeared to be passive to change their behavior that shows the ineffectiveness of current policies in transportation sectors. So new techniques are required that changed the complex socio-psychological process in a powerful way. For that purpose social marketing is a best approach to use for socio-psychological change and making policy effective and durable.

Social marketing provide new ways of managing the transportation problem. It can be explain as "a program planning process that promotes the voluntary behavior of target audiences by offering benefits they want, reducing barriers they are concerned about, and using persuasion to motivate their participation in program activity" (Kotler & Roberto, 1989). Furthermore social marketing covers key features that are missing in traditional and current policies. These key elements are: first is customer orientation, second one mutually beneficial exchange, third one is relationship thinking and last one is utilization of behavior change tools. These elements shows the important of program success and also use for the complex socio-psychological behavior change. It also assisting people to change their travel selections and use alternative transportation instead of private vehicles. So the change of behavior toward transportation and using alternative transportation instead of private will cause reduction of vehicles on road. The reduction of vehicle on road will cause sustainability and reduction of CO₂ emission. The

aim of this study is to use social marketing in traditional and current policies of transportation for sustainability and reduction of CO₂ emission.

Objectives of the Study

1. To find the key factors of social marketing that help to change the complex socio-psychological behavior of human toward transportation.
2. To investigate how behavior change causes sustainability and reduction of CO₂ emission in transportation sector.

Research Questions

1. What are the key element of social marketing that help to change the complex socio-psychological behavior of human?
2. How changed behavior might causes reduction in CO₂ emission in transportation?

LITERATURE REVIEW

The most important issue for current environment is climate change. The Kyoto agreement has confirmed that there is 8% decrease in CO₂ emission in 2008-2012 as compare to 1990 level (European Union's portal, 2009). Transportation sector substantially contributing in CO₂ emission, "representing 23% (worldwide) and 30% (OECD) of CO₂ emissions from fossil fuel combustion in 2005, where the main source is automobile transport" (OECD/ITF, 2008). Furthermore in European Union only the "passenger cars account for about half the transport-related CO₂ emissions" (European Union's portal, 2009). So strict policy is required that not only to check CO₂ emission but also to check other transport related issue (Joyce, 2008).

Looking toward Asia, figure 1. Shows that CO₂ emissions increase year by year from 1980 to 2004. It shows that CO₂ emission increases all over the Asia and it is a big challenge to be handle. Extensive policies are required to change the present trend of CO₂ emission because if it is not stopped, it will badly damage the greenhouse and that will be a great climate change problem.

FIGURE 1 HERE

Figure 1. Shows the trend CO₂ emission overall in Asia from 1980 to 2004. But moving toward Pakistan specifically emission in CO₂ recently, the figure 2 represent the true picture of CO₂ emission trend in Pakistan. In Pakistan, the main source of GHG emission is commanded by two sector energy and agriculture. The joined sum of both is up to 87% of total national GHG emissions and only energy contributes 46% of Pakistan's annual GHG emission. Pakistan's annual GHG energy contribution further consist of 26% is credited to electricity utilization, 25% to manufacturing, 23% to transportation and the remaining 26% to other energy subsectors.

FIGURE 2 HERE

The contribution of agriculture in GHG emission in Pakistan is 41% of total Pakistan GHG emission. Enteric fermentation is main source of GHG emission in agriculture sector which contribute 46%, total of agriculture sector. The land use change and forestry (LUCF) sector contributes 6%, industrial processes (IP) contribute 5% and waste contribute 2%. Furthermore in Pakistan the transport sector discharges around 21% of the national GHG emissions. It is also responsible for more than half of the oil consumed in Pakistan. Along these lines the GHG emission management in this sector is also essential for handling environmental change. In transport sector of Pakistan road transport is predominant because it carrying 91% of the national traveler activity and 96% of the cargo movement. As the populace and the economy have developed, the size and number of vehicles has radically expanded as shown in Figure 3.

FIGURE 3 HERE

Figure 3. Shows that, in 2000 Pakistan had 4 million vehicles on road. But in 2010 it has increase up to 9.8 million. It is because of easy availability of credit from bank and unavailability of public transport system. The structure of public transport was very poor and it portrait bad image, irregularity of administration, absence of accommodation and solace, security issues, and saw reduced status which did not attracted individual for ride. People

like to move in private vehicles as soon as it is economically viable. Currently, four main kinds of environmental policy tools exist in transportation: "economic instruments (fuel taxation, road pricing, congestion charging etc.), technological measures aiming to affect quality and convenience of transportation systems (fuel-efficient cars, infrastructure improvement), regulatory measures (parking restrictions, car free zones, land-use planning, legislation on fuel quality and efficiency) and informative tools" (Joyce, 2008). Conversely most of them flop to certain level and GHG emission keep on growing in transportation sector (OECD/ITF, 2008). The immense challenge in present society is to find out how to build the viability of existing planning of public transport without some extra tools and ability and engage individual for desirable behavioral requirement (Australian Public Service Commission, 2007). The need is to practices new approaches in order to get desirable change and keep sustainability and reduction of CO₂ emission in transportation sector (Anable et al., 2006; Joyce, 2008; Nilsson & Kuller, 2000).

Additionally, in current society social marketing is way which increase the sustainability of existing planning policy through changing of complex socio-psychological process. The concept of social marketing initially presented by the work of Wiebe in 1951 who build an idea, that those tools and techniques which is used in commercial marketing for profit can also be used in social marketing for non-profit area for the betterment of public goods and services. Kotler and Zaltman (1971) keep this concept into separate discipline and also explain it as "the design, implementation and control of programs calculated to influence the acceptability of social ideas and involving considerations of product planning, pricing, communication, distribution and marketing research." (Kotler & Zaltman, 1971). It is closed to the definition given by Andreason (1995) who underlined that the primary concern of the social marketing is "to influence the voluntary behavior of target audiences in order to improve their personal welfare and that of their society". In this way society based approach, should not be ignored while applying the marketing mix to manage complex socio-psychological behavior. So according to this, the definition of Kotler and

Roberto (1989) is more in-depth to understand the social marketing. They explain it as “a program planning process that promotes the voluntary behavior of target audiences by offering benefits they want, reducing barriers they are concerned about, and using persuasion to motivate their participation in program activity”.

Social Behavior Change Process through Social Marketing

Social marketing covers the key components that are not present in traditional and current policy making for transportation sector. These components are very important for program success and also for socio-psychological behavior change process. These are: customer orientation, mutually beneficial exchange, relationship thinking and utilization of the behavior change tools. Further explanation of these component are:

Customer orientation: To plan any program or activity social marketing first objective is to get information regarding target customer. For example, their “personalities, attitudes, previous actions, their income, the attitudes and actions of their friends and associates, community and culture’s they belong to” (Ampt, 2003). This kind of information help to determine the customer need, want and also determine those market segment which are willing to change their ways of life.

Mutually beneficial exchange: Psychologists prove that individuals are acting in light of their self-interests. “This interest clearly and consistently acknowledged and pursuit in the commercial marketing” (Rothschild, 1999). Furthermore in the socio-environmental field we need individuals to carry on in a way that is frequently in opposite with their own desires, for example not to smoke or not to eat garbage nourishment, utilize public transportation rather than personal transport, which put them in more difficulty. Keeping in mind to change the behavior of individual, it is necessary that policy maker provide something beneficial. The exchange theory from economic side applied because in this case if “perceived benefits outweigh the perceived costs of its purchase, voluntary adoption by the consumer is most likely” (Maibach, 1993). Accordingly, social marketing encourage to change behavior through providing alternative option for target interest group “that lead to

voluntary self-interested exchange” (Rothschild, 1999). Utilization of exchange mechanism shows effective results both for policy maker and society. Clearly, the more choices you give to the general public, the higher is the likelihood that diverse group will think that it’s appealing for themselves to act in the desired way of policy maker. In this way number of participation also increases in the program activities.

Relationship thinking: In the current periods marketing field has encountered the interruption of “ideas and practices informed by the nature of human relationships, the importance of networks and customer value” (Hastings, 2003b). This implies marketing in these days is more concerning towards relationship practices with their customer. The IT techniques in marketing allow to reach and treat each and every individual even in mass market segment. So it increase the effectiveness of marketing campaign.

Behavior change tools: Social marketing has been completed with the understanding of behavior change theory and the tool of behavior change theory. These incorporate (McKenzie-Mohr, 1999):

1. Communication procedures: through customized marketing or through electronic media channels to attract the attention of target customer toward new thoughts.
2. Commitments: either composed or verbal, to attempt the desire behavior. Reminders which are visual suggestions to make the behavior being recalled
3. Norms: that guide the public, how it is worth to behave in way is normal because it see other individual already accept it as normal and irreplaceable.
4. Incentives: that urge public to make desirable change either fiscal or non-money related.

The social learning theory is the most widely recognized and was proposed by Albert Bandura (1977). According to social learning theory the action and behavior of individual is not only shaped by intrinsic characteristics but also it is due to the observing of other people action in society. These observing action of other people in society is called behavior modeling. This theory makes an extension

between behavioral, psychological and environmental factors which impact on each other in reciprocal way (Lefebvre, 2000). Furthermore interpersonal theory provide theoretical understanding of the socio-psychological change behavior through the awareness of behavior modeling and it is totally on the core element of social learning theory. Furthermore it can be more effective toward public policy promotion and also helpful for changing the complex socio-psychological process of human being.

The Benefits of Social Marketing in Transportation Policy Planning

Choosing the social marketing for sustainability and reduction of CO₂ emission in transportation sector is beneficial. Because it provide new approaches to deal with transportation issues. These are the advantages of social marketing for sustainable development in transport sector.

Cost-effectiveness: Social marketing approach permits changing the behavior of individuals that are “prone, resistant or unable to behave” in desirable way with high cost effectiveness as compare to traditional methodologies perform (Rothschild, 1999). The tradition method are frequently associated with the improvement in infrastructure, producing fuel efficient vehicle, sponsoring public transport and so forth. As indicated by the reviews in transportation demand management (TDM), social marketing also brought short term financial payback period and superb return on investment (Transport Policy Institute, 2008).

Long-term stable results: Social marketing approach also leads toward stable and long term results though different measure that reinforce toward desirable behavior. Like, continuously focusing on customer’s needs and wants and change the program according to environment, raise the success of program (Andreasen, 1995; McKenzie-Mohr, 1999; Hastings, 2003a).

Demographic liberties and equity issue: Social marketing approach regard democratic liberties, essentially free selection of people, offering “a mechanism to find a cooperative balance between the rights of the individual and the rights

of society” (Rothschild, 1999). Likewise, it appeared to be advanced in regard to income tending “to benefit lower-income and transportation disadvantaged people by improving their mobility options, increasing access for non-drivers, and reducing the stigma often associated with alternative modes” (Victoria Transport Policy Institute, 2008).

Changed Behavior Causes Sustainability and Reduction of CO₂ Emission in Transportation Sector

Social marketing campaign lead to change social behavior. It also persuade public to use these kind of transportation that causes reduction in private transportation. When number of vehicles decreases on roads that will ultimately lead to sustainability and reduction of CO₂ emission in transportation sector. Altered method for transportation.

Town planning: This change focuses on the sound land utilize wanting to guarantee transport improvement through the different measures. Development of strong infrastructure that promote environmentally sustainable form of traveling. Development of road, parks, signal, short roots etc. will motivate people to use alter method of transport instead of private vehicles.

Bike country: This changes aims to make Pakistan as a bicycle country. For that aims, the set of arrangement and method required. First, the price of bike should reduce. Second the quality of bike should be improved which make easy to ride. Third build separate path way for bicycle etc. This kind of arrangement make people to give priority to cycling over other mood of travelers and also motivate them.

Public transportation: This change aims is to debilitate the utilization of private vehicles through set of measures and methods and give priority for public transportation. For example inter modality of transport system that make people to easily change their mode of transport when required. So for inter modality, it is necessary to make proper stand with all bus stand and people use bicycle from home to bus stand and then ride on public transport. That required proper security in each bus stand which provide security for vehicle

so that it create trust among the society to park their bicycle there. So in this way these kind of reform help to increase the use of both type of transportation e.g. bicycle transportation and public transportation

Environmentally friendly car: This change intends to diminish the negative impacts of driving through technical measures. For example, using alternate of fuels, using modern technology engine, eco-driving and so forth.

Improvements of industrial transportation: This reform aim to make the delivery of industrial goods and movement of company's employees in a more ecological way. It can be achieve through improvement in logistic, like full trucks loading, sharing of truck with other organization if it is not full, using railway for industrial product movement when it possible etc. and for company employees they should use carpooling/sharing, boosting the use of public transportation, teleworking etc. These method are beneficial both for organization as well as for environment protection.

Conceptual model of sustainability and reduction of CO2 emission in Transport sector through social marketing

FIGURE 4 HERE

DISCUSSIONS

Although social marketing distribute efforts and resources by highlighting new method with high probability to change complex socio-psychological behavior. But it is not sure that, it will consume less time and less money as compare to traditional policy making. Because social marketing required considerable use of resource and technical measures, such as infrastructure extension and improvement. Furthermore, it also required individualized marketing campaigns, test proposals, travel surveys and linked evaluations which appeared to be time and money consuming. Further study investigate that social marketing approach does not give solid actions rather gives imperative outlining for successful transportation policy. The amount of required resources and time are totally depend upon local context. People of different culture having different attitude toward transport problem. So dealing with transport issue, the awareness of local barriers and benefits is very

necessary. Furthermore, with respect to the chosen conceptual framework, which provide social marketing technique for changing the complex socio-psychological process of human being that is self-made model, so it may be help in finding of other advanced uses of social marketing for sustainability and reduction of CO2 emission in transportation sector. Accordingly, Social marketing represents a more universal, elastic and iterative approach to raise the success of transportation policies. However it still requires extensive time and finance for further development in this area and further theoretical development also needed.

Limitations of the Research

The range of current paper exists in geographic limits of Pakistan. Furthermore the change of complex socio-psychological process of human being through social marketing is limited to these point communication, commitments, norms and incentives, there are many other way in social marketing through which, behavior can also be changed. Furthermore the alternative which is provide against private vehicles are limited to cycling, public transportation and car etc. there are many other alternative which may be used for transportation. Throughout literature review, the concept of social marketing examined on the general level with example of different areas of expertise, not really from transportation field. It is due to new emergence of social marketing and it has been essentially utilized for the advancement of wellbeing management programs.

CONCLUSIONS AND FUTURE STUDY

In spite of the significance of the complex socio-psychological behavior gap, the traditional polices of transportation fail to address it and also fail in persuading people for desirable behavior. People still looked to be inactive as they lack the inspiration to change their behavior that shows traditional polices are uselessness. So new methodologies are required to achieve desirable behavior change in a successful way. For that social marketing is very important because it provide new perspective of looking toward transportations arrangement. Furthermore it focus strongly on customer orientation at all stages of policy making. In this way the identification of public need and

want can be analyzed easily and it will provide help in planning process. Additional customer orientation also helps for changing their behavior toward transportation. In this way, the conversion of public from private vehicles to alternative mode of transportation will be easy. So alternative use of transportation instead of private will lead to reduction in vehicle on road and decrease the consumption of fuel. So reduction of vehicles and consumption of fuel both will help in achieving the objective that is sustainability and reduction of CO₂ emission in transportation.

There is need for further development in theoretical approaches of social marketing. Review of more extensive theories of behavior change that disclose more psychological factors which are needed for change of behavior toward transportation. Likewise, use of other psychological models as a ground for analytical framework that may give extra advantages to social marketing for the success of traditional transportation policy process. Additionally research about travel patterns of customers that are remembered to individuals for car sharing plans. To regard the protection of people and business associations, little research is done on how clients of auto sharing clubs are voyaging. More profound examination of the travel patterns may give better answers for area of auto sharing stations and association of travel coordinating administrations that will additionally increase the use of shared autos.

Manpower is considered as one of the most valuable resources in the organizations by which achieving organizational goals and objectives can be possible. Such resources have potential abilities and capabilities which can be actualized in the organizational environments. Achieving such a goal requires understanding human perfectly and paving the ground for manpower activities. Appointing employees in appropriate positions, which is adaptable with their abilities, experiences, and capabilities, is one of the main issues that should be considered in this area. Such a process can be examined in frame of meritocracy. Nowadays, finding capable employees is one of the most important activities in any organization. Indeed, organizations are competing in finding capable and suitable employees. Meritocracy

system can help organizations to achieving their goals and objectives (Barr, 2006).

In today's competitive world, innovation is considered as one of the main effective factors on the organizational survives. All organizations need new ideas for surviving. Emergence of organizational innovation enables organizations to achieve and maintain competitive advantage in comparison to their competitors (Dehghan Najm, 2009). Employees' perception of fairness in employment is one of the main effective factors in emergence and development of organizational innovation and encouragement of employees to offer new ideas. This is why that the present study was aimed to investigate the effect of meritocracy of employees on organizational innovation.

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APPENDIX

Figure: 1

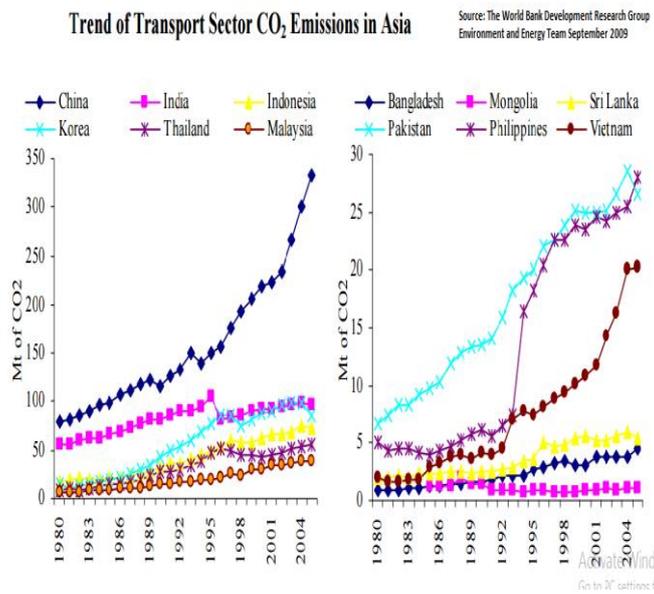


Figure: 2

