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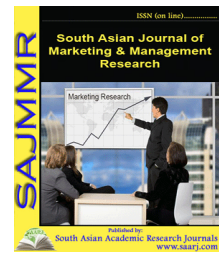
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LEAN - GREEN - SIX SIGMA APPROACH IN GLOBAL MANUFACTURING USING INDUSTRY 4.0

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ABSTRACT

By aligning IoT and Industry 4.0 makes a factory smart by applying advanced information systems and future-oriented technologies, but they will remain processes. In this industry 4.0, there is a significant "evolution" of many methodologies of Continuous Improvement, such as, e.g., Lean, Green and Six Sigma (LGSS) which maximise efficiency and enhance customer value. Most of the tools of LGSS depend on data, turning that data into actionable business intelligence still requires a consistent and successful strategy by means of using these proven methods. The aim of this paper is aligning IoT and industry 4.0 with LGSS methodology so that organizations can better leverage huge amounts of data to make operations more efficient from a sustainability point of view and provide better products and services to customers.

KEYWORDS: *Internet of Things (Iot), Industry 4.0, Lean, Green, Six Sigma Methodology.*

1.   INTRODUCTION

The history of industrial revolutions highlights a shift from power source to automation, to information technology and automated production. However, industrial revolution revolves around three pillars: people, processes and technologies as shown in figure 1.
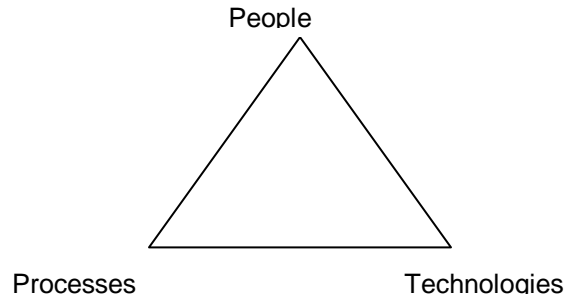

Fig. 1 Pillars of industrial revolutions

Schwab K., Davis N. (2018) opined that the concept of smart factory, the Internet of Things (IoT), Big data, Industry 4.0 has been revolves around the Cyber Physical Age (CPA) which is latest revolution. Industry 4.0 is industries which are connected to the internet for information sharing, production monitoring and industry management where parts of an industry communicate with each other for achieving objectives such as to increase efficiency, production and gain profits.

The global manufacturing environment is generally afflicted with a reduced rate of output and is imbalance with the proportion of investment being made to maintain the consistancy in the product. The reason for imbalance is the crucial competition along with the inability to struggle with increased expectations of the customers. In order to compete in the rapidly changing scenario and to obtain high-quality products at low cost require change in manufacturing system (Routroy *et al.*, 2015). This challenge mandates to each industry to choose right manufacturing strategy. This can be accomplished by the new industrial technology such as IoT and industry 4.0 with the process improvement tools like Lean – Green – Six Sigma methodology.

Vikrant Bhakar *et al*. (2018) opined that, most of the organizations are implementing Lean – Green – Six Sigma strategies and best practices for making the business sustainable. Hence, it is suggested to manufacture the product using acceptable production processes through sustainable manufacturing practices. A study including all the aspects of sustainability and incorporating existing best practices is very important (Garbie I H, 2015). Use of sustainable resources and processes, increased efficiency and reduced environment impact are core needs for engineering sustainability (Rosen M A, 2012).

2.   METHODOLOGY

In this research, we refer the literatures on the challenges faced by the organization to implement Lean - Green – Six Sigma methodology due to lack of communication, monitoring and integration. Also by introducing the IoT and Industry 4.0, we carried out discussion on its current status, and extracted the solutions to solve the barriers of these integrated implementation. The methodology is illustrated in Figure 2.
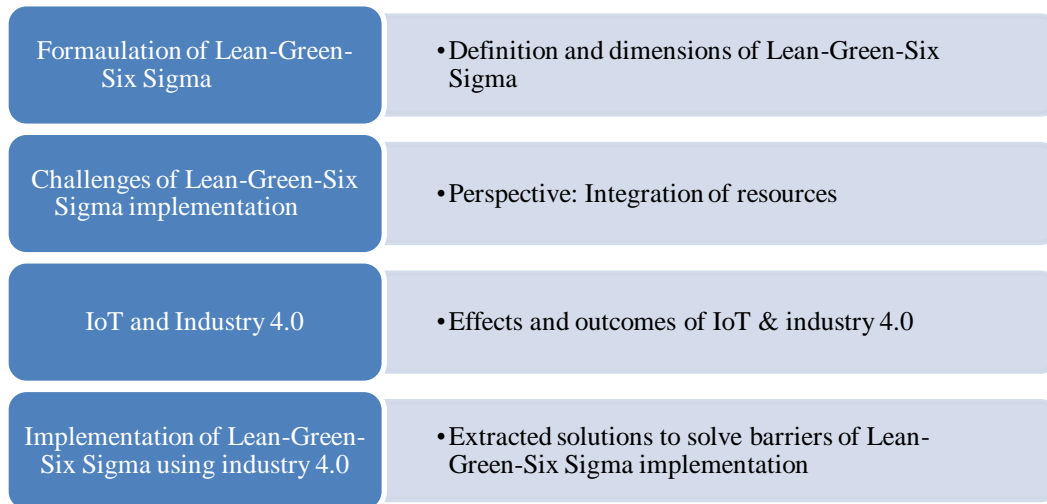
Formaulation of Lean-Green-Six Sigma	• Definition and dimensions of Lean-Green-Six Sigma
Challenges of Lean-Green-Six Sigma implementation	• Perspective: Integration of resources
IoT and Industry 4.0	• Effects and outcomes of IoT & industry 4.0
Implementation of Lean-Green-Six Sigma using industry 4.0	• Extracted solutions to solve barriers of Lean-Green-Six Sigma implementation

Fig. 2 Methodology

3.   STATE OF THE ART

The vision of Industry 4.0 is a important step for attaining the advanced information and communication technology - based manufacturing systems. In following section 3.1 it is represented.

3.1 The vision of Industry 4.0

According to Kagermann, Wahlster and Helbig, (2013) the German government has adopted industry 4.0 as part of the "*High-Tech Strategy 2020 Action Plan*". Due to this debate in Germany, now it also spread in other countries. A. Gilchrist, (2016); Lee et al., (2014) opined that industry 4.0 is the computerization of manufacturing systems. It has cyber physical systems (CPS) which are the combination of softwares and production assets. It includes automation, industrial internet of things (IIoT), data sharing and cloud computing technologies to form intelligent manufacturing environments. Refer figure 3 interdependencies of a supply chain in the context of Industry 4.0
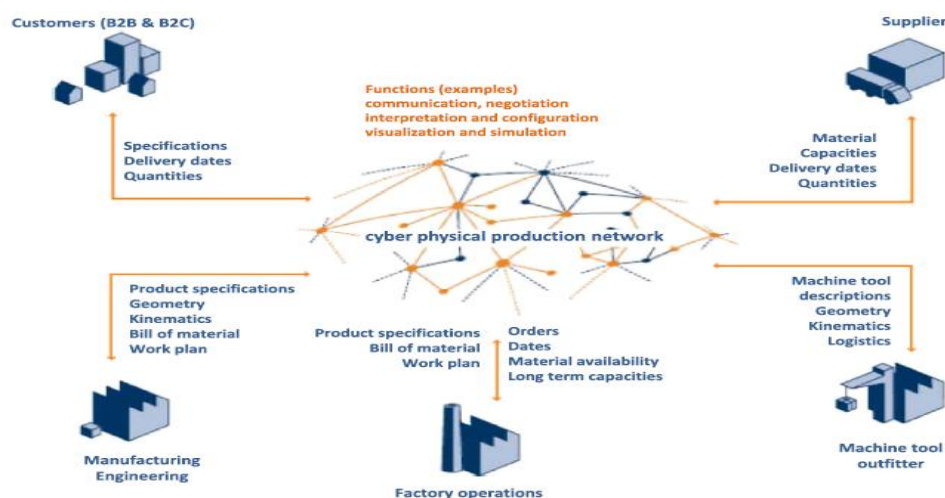

Fig. 3 Interdependencies of a supply chain in the context of Industry 4.0 (Geisberger and Broy, 2012)

IoT is part of what is called <u>Industry 4.0</u>, or the 4th major mayhem in the industrial history. It is most associated with manufacturing but can be applied to many other industries. It plays important role in It involves the factors like rapid increase in the amount of data, computational power and connectivity in which IoT plays major role of driver, the increased use of <u>data analytics</u> to drive business strategy, the emergence of machine learning and artificial intelligence etc.

3.2 Uses of IoT

IoT can be used for businesses to gather information from objects and people in the real world through sensors that share information with each other as well as being connected to the internet. The data gathered from the IoT will mean even more information for organizations to use in streamlining their manufacturing operations. Projections states that by 2020, 26 billion devices to be connected to the IoT.

3.2.1 Lean – Green – Six Sigma and IoT

The manufacturing strategies like lean – green – Six Sigma involved data, the main challenges are collecting and storing data to find out the best way to put it to use. With the IoT, Manufacturers will have details on every phase of any process because of the available data. However, before it can be used, data must be cleaned and formatted in a proper way so that it can be analyzed to improve a business procesess. That's the first step in any Lean or Six Sigma process – <u>analyzing the data</u> to find out where an operation stands and what changes need to be made.

By integrating IoT with these manufacturing strategies, the organizations can influence amount of data to improve operational excellence in manufacturing industry.

4. COMBINING LEAN – GREEN –SIX SIGMA AND INDUSTRY 4.0

In a way, information technology should be viewed as another channel to gather data. Converting these collected data into the actionable business intelligence still requires a consistent and successful strategy which means using proven methods such as Lean Green Six Sigma. It is an important research field to be extensively explored. Due to the integration of the computer technology, future factories would operate autonomously without the requirement of human operators. Hence automation in production has played an important role right from the inception of Lean-Green-Six Sigma, and Industry 4.0 can be considered as advancement in this field.

Six Sigma focuses on elimination of defects in a process whereas lean focuses on elimination of wastages in a process by keeping only value added steps that enhance the value for the final customer. Hence Six Sigma may support lean green to form a coherent management approach i.e. Lean-Green-Six Sigma for a simultaneous operational and environmental improvement. With the big data that IoT will provide the organizations, the tools and techniques provided by Six Sigma are more important than ever. For example, applying lean green Six Sigma to supply chains, supply chain management will become more complex and competitive, with business now having a global reach and all of them are trying to beat each other on providing the best service to their customers. Table 1 presents some attributes and a comparison of how these are treated under the green, lean and Six Sigma philosophies with industry 4.0

TABLE I COMPARISON OF VARIOUS ATTRIBUTES UNDER THE GREEN -LEAN - SIX SIGMA PHILOSOPHIES AND INDUSTRY 4.0

Attributes	Lean	Green	Six Sigma	Industry 4.0
Definition	Waste removal from all areas of the value stream (Womack and Jones, 1996)	Initiatives and practices directed towards the creation of environmentally friendly products, services and processes (Galeazzo *et al.*, 2013; Rao, 2004)	A statistical measure of variation; a management philosophy and strategy that allows organisations to achieve lower cost, ensuring competitive operations; applied to every process to eliminate the root cause of defects (Garza-Reyes *et al.*, 2014)	Applying future-oriented technologies, principles of cyber-physical systems (CPS), internet with enhanced human-machine interaction paradigms. (Posada et al., 2015; Lasi et al. 2014)
Purpose	Maximise profit and competitiveness (Carvalho *et al.*, 2011)	Reduce the negative environmental impact of the production and consumption of products (Galeazzo *et al.*, 2013; Rao, 2004).	Maximise profit and competitiveness (Pyzdek, 2014)	Through integration of information and communication systems, the short comings of conventional practices can be overcome to improve productivity and eliminate wastes (Adam Sanders et al., 2016).
Focus	Cost reduction through the elimination of waste (non-value added) (Womack and Jones, 1996)	Improving environmental performance through elimination of resource waste and pollution (Carvalho *et al.*, 2011)	Cost savings through defects reduction and customers satisfaction (Pyzdek, 2014).	Intelligent and self-optimising machines in the production line synchronise themselves with the entire value chain (Spath et al., 2013).
Manufacturing	High systems' utilisation rate; using JIT practices, 'pulling' system (Dües *et al.*, 2013); focus on efficiency	Resource efficiency and waste reduction for environmental benefit (Dües *et al.*, 2013);	Focus on reducing variation (Salah *et al.*, 2010) for improving quality	-intelligent manufacturing -Material replenishment monitoring -Schedule tracking and kanban updating

	(Salah *et al.*, 2010)	reduce, reuse and recycle (3Rs); rework, return and remanufacture		
Inventory	Minimise inventory, as it is considered waste, to reduce cost (Salah *et al.*, 2010; Dües *et al.*, 2013)	Minimise inventory to reduce negative impact to environment (Salah *et al.*, 2010; Dües *et al.*, 2013)	No main focus (Salah *et al.*, 2010), but reduction in quality defects may contribute to its reduction	Real-time inventory tracking Decentralised decision making Subcontracting
Lead time	Seeks its reduction as long as it does not increase cost (Dües *et al.*, 2013)	Seeks transportation lead time reduction as long as it does not increase CO2 emissions (Dües *et al.*, 2013	No main focus, but has been used to reduce it (Garza-Reyes et al., 2014)	Self-optimisation & machine learning Work piece-machine communication
Waste	Must be eliminated due to cost-saving and efficiency reasons	Must be eliminated due to environmental reasons	Reduction of defective products	Wastage reduction due to predictive action/ Improved man-machine interface, Process tracking, Workpiece-machine communication.
Customers	Cost-driven (Dües *et al.*, 2013); strong customer focus in relation to value	Profit-, people- and planet-driven (Dües *et al.*, 2013)	Cost-driven; strong customer focus in relation to critical to quality	Elongated freeze period Large volume QFD Usage analysis
People	Involve everyone in the organisation (Womack and Jones, 1996)	Involve everyone in the organization (Galeazzo *et al.*, 2013; Rao, 2004)	Mainly few champions (called 'belts') and project team members involved (Pyzdek, 2014)	Smart feedback devices Worker support systems Improved man-machine interface
Suppliers	Considers the engagement of suppliers key for operations	Collaboration to disseminate green knowledge (Dües	Consider suppliers only if they are critical to quality for	Standardised interfaces Virtual organisations - synergetic cooperation Collaborative

	improvement; certifies and cooperates with few of them (Womack and Jones, 1996; Salah *et al.*, 2010)	*et al.*, 2013; Carvalho *et al.*, 2011); integration of reverse information and material (Dües *et al.*, 2013; (Carvalho *et al.*, 2011) environmental risk sharing (Dües *et al.*, 2013; (Carvalho *et al.*, 2011)	products/processes (Pyzdek, 2014; Salah *et al.*, 2010)	manufacturing Better communication mechanisms Synchronisation of data
Techniques	Mainly analytical but uses some formulas to identify demand and calculate kanbans sizes; no mathematical tools to identify and address quality problems (Salah *et al.*, 2010)	Mainly analytical	Analytical; statistical and advanced statistical (Salah *et al.*, 2010)	Analytical, advanced computational and communication (Wireless) technologies.
Common tools	Brainstorming; process mapping; mistake proofing; standardisation; VSM; kanban, one piece flow, single minute exchange of die (Womack and Jones, 1996; Salah *et al.*, 2010).	Sustainable VSM (Kurdve *et al.*, 2011); life cycle assessment (Kainuma and Tawara, 2006); decision support and expert systems (Chan *et al.*, 2010).	Brainstorming; process mapping; mistake proofing; standardisation; hypothesis testing; control charts; regression; design of experiments; measurement analysis; capability analysis (Pyzdek, 2014; Salah *et al.*, 2010).	IoT, Cyber Physical System, Data mining

This integrated approach will help to improve the social, economical and environmental performance of the manufacturing industry. Now a day, the demand for quality control and

process improvement is high so most of the organizations and consultants are deeping in lean – green – Six Sigma.

4.1 *Advantages of combining*

Industry 4.0 can be integrated in Lean-Green–Six Sigma strategies and beyond that improve sustainable production by increasing integration of ICT. The integrated solutions, which are in general connected with high investments, is especially profitable in areas where cost-saving and simple methods of Lean-Green Production are not completely fulfilling today's requirements.

Applying Industry 4.0 to established Lean Production could lower risks of integration. Besides, production processes in Lean and Green are in comparison to other kinds of organizations are more standardized, more transparent and reduced to essential work. Due to which the installation of Industry 4.0 solution become easy and supportive.

5.   CONCLUSION AND FUTURE SCOPE

The term 4.0 specify the current industrial revolution but at the same time not only technological but also from sustainability point of view. Social networks plays important role for the continuous feedback from the customer end, which inputs have an impact on real time adjustment of design, development and production. IoT and Industry 4.0 offer businesses advantages in data collection and potential business intelligence. However, the need for a quality process to be in place has not diminished. Employees with knowledge in this continuous process improvement are activly ensuring that new technologies are incorporated into an operation in a meaningful way.

This paper has proposed a new methodology, called Lean Green Six Sigma and industry 4.0, and has proved its efficiency applied to the manufacturing context. In particular, has been proved how this novel methodology is able to optimise the production process, reducing at the same time the waste of resources, while improving the Quality of Experience of the customer. In short, Industry 4.0 and Lean - Green – Six Sigma do not eliminate to each other but add values.

In future, the research should be focused on creating a conceptual framework and cyber physical working system, integrating these parameters in a fully functional production environment.

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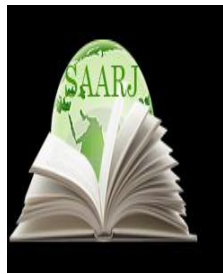
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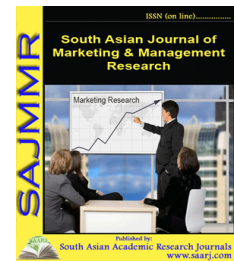
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A STUDY ON QUALITY OF WORK LIFE (QWL) IN PSPCL

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ABSTRACT

This research paper explains the concept of quality of work life (QWL) through various definitions of QWL by eminent researchers. It also examines different models of QWL and various components of quality of work life (QWL) based on earlier studies on QWL in various sectors in India and abroad. It aims to ascertain the major components of quality of work life (QWL) through summarizing various components of QWL to assess the level of QWL of employees of PSPCL. The future research in this area should focus on assessment of employee satisfaction level on each of these major components of quality of work life (QWL) of employees of PSPCL. It can be achieved through drafting of a questionnaire to elicit employee responses on these major components of quality of work life (QWL) of employees of PSPCL. However, Staines (1980) concluded that only certain spheres of work life are positively correlated with other spheres outside the work. In support of this hypothesis, Leiter and Durup (1996) add that the spillover effect between job satisfaction and personal life may be either direct or indirect. In a simple form, the concept of quality of work life (QWL) is concerned with employee job satisfaction, particularly in relation to the tangible aspects of work such as income and employment benefits (Lau and Bruce 1998).

KEYWORDS: *QWL, PSPCL, Definition of QWL, Models of QWL, Components of QWL.*

INTRODUCTION

Defining the Quality of Work Life (QWL)

The term quality of work life (QWL) may be conceptualized as a subset of the quality of life as both are closely related to each other; life at work is an integral part of total life space of any person (Lawler E.E, 1982). In a simple form, the concept of quality of work life (QWL) is concerned with employee job satisfaction, particularly in relation to the tangible aspects of work such as income and employment benefits (Lau and Bruce 1998). In a complex form, the concept of QWL is associated with an employee's subjective well being considering issues such as job security, chances of growth and occupational health and safety (Sirgy et al., 2001; Considine and Callus, 2001). However, the quality of work life (QWL) is widely accepted as a dynamic, multi dimensional construct that incorporates any number of measures relating to employment quality (Levine, 1983; Carayon, 1997; Prujit, 2002, Bhola 2006). A look into the various definitions of the term quality of work life (QWL) is as follows:

- Lawler (1982) has defined QWL in terms of job characteristics and work conditions. He has highlighted that the core dimensions of the entire QWL in the organization is to improve employees' well being and productivity.

- Lau and May (1998) has conceived QWL as the workplace strategies, operations and environment that promote and maintain employee satisfaction to improve working conditions for employees and organizational effectiveness for employers.

- Sirgy et al., (2001) has defined quality of work life (QWL) as employee satisfaction with variety of needs through resources, activities, and outcomes stemming from participation in the workplace.

- Lau et al., (2001) equated quality of work life (QWL) to favorable working environment that supports and promotes satisfaction level of employees by providing employees with rewards, job security and career growth opportunities.

- Serey (2006) has explained quality of work life (QWL) as an opportunity to exercise one's talents and capacities, to face challenges and situations that require independence, initiative and self direction.

- Rethinam and Ismail (2008) have defined QWL as the effectiveness of the work environment that supports and promotes better health and well being, job security, job satisfaction, competency development and balance between work and non work life of employees.

The above mentioned discussion on the definitions of QWL clearly indicate that quality of work life (QWL) is a multi dimensional construct, made up of a number of interrelated components such as adequate and fair remuneration, safe and healthy working conditions that enables an individual to develop and use all his or her capacities.

Various Models of Quality of Work Life (QWL)

1. The Integration Model

The Integration model considered quality of work life (QWL) as a social movement with repercussions that extend beyond the strictly organizational framework of earlier concept of QWL (Kiernan and Knutson, 1990). Many authors have noted that workers are becoming better educated and that they consider work as a tool for personal growth and social support rather than

merely a means of achieving financial independence (Kerce and Booth-Kewley, 1993). Therefore, the quality of work life (QWL) becomes an integral part of people's overall quality of life (QOL) according to the integration model.

2. The Transfer Model (Spillover Effect)

According to the Transfer model, Job satisfaction affects a person's other areas of life and vice versa (George and Brief, 1990). Similarly, Schmitt and Bedian (1982) conclude that there is positive correlation between work and areas of life outside the work. However, Staines (1980) concluded that only certain spheres of work life are positively correlated with other spheres outside the work. In support of this hypothesis, Leiter and Durup (1996) add that the spillover effect between job satisfaction and personal life may be either direct or indirect.

3. The Compensation Model

According to this model, when a person is not satisfied at work, he will try to correct it through other stimulating activities outside their work life (Rosseau, 1978; Schmitt & Bedian, 1982). Staines' (1980) analysis tends to confirm the compensation model in certain circumstances and shows that certain spheres of work life correlate negatively with areas outside work. For example, workers who have physically demanding jobs generally tend to seek out non tiring leisure activities so that they can recuperate better.

4. The Segmentation Model

According to the Segmentation model, life at work and life outside the work does not influence each other (Georges & Brief, 1990). Martin and Schermerhon (1983) in their stressor-health path analysis model projected that a clear separation of work and life dimensions creates balance, whereas a spillover of work related feelings detrimentally affects life satisfaction. Edwards and Roth bard (2000) described the uniqueness of work and non-work demands and need to maintain a separation between these roles.

5. The Accommodation Model

According to the Accommodation model, voluntarily reduction in one's investment of time and energy in one's sphere of activity results into adequate response to the demands of another sphere of life (Lambert, 1990). Due to the increased attention recently given to work life vs. family life conciliation, this model is probably suitable for more and more categories of workers, either men or women.

Components/ Dimensions of Quality of Work Life (QWL)

A detailed description of major components of quality of work life (QWL) according to various researches available in this area is given so as to identify the most important components of QWL for the purpose of present study:

1. Adequate and Fair Compensation

The compensation for work is always a fundamental driving force behind work so as to earn a living for one self and family (Walton, 1973; Nirenberg, 1993). Stein (1983) identified compensation as being one of five important components of QWL, although its categorical classification is somewhat different to Walton and Orpen. Similarly, Reid (1992) in a study on clothing workers confirmed Walton's proposition that compensation plays a critical role in determining the quality of work life (QWL).

2. Safe and Healthy Working Conditions

It has been found that safe and healthy work conditions have a significant impact on quality of work life (QWL) of employees (Walton 1973, Rousseau 1978, Nirenberg 1993). The employees should not be exposed to such working conditions that can adversely affect their physical and mental health resulting into a low level of quality of work life (QWL) of concerned employees (Orpen, 1981).

3. Opportunity to use and develop competencies

The structural approach proposed by Herman and Hulin (1972) and Loscocco (1990) explains the necessity of jobs to contain variety as a component of quality of work life (QWL). It is stated that employees' perception of the quality of work life (QWL) depends upon the extent to which jobs allow them not only to use but also to develop their competencies (Hackman and Oldham, 1980).

4. Opportunity for continued growth

The component of opportunity for continued growth is considered as a major motivator of employees working at any position or in any sector. This also relates to the idea of professional learning as a means for career development or succession possibilities for the employees in any organization (Walton, 1975, Bertrand, 1992).

5. Work and total life space

In work life literature the concept of work life is often coupled with the word balance, employees should be able to experience work and personal lives in an integrated form (Williams, 2000, Rapport *et al.,* 2002). Kotze (2005) asserts that work family balance enhances an individual's QWL, as involvement in multiple roles protects individuals from the effects of negative experiences in any one role.

6. Organizational Climate

Organizational climate can be defined as the patterns of social interactions which characterizes any organization, Walton (1973) and Orpen (1981) have identified five factors, namely, supportiveness, tolerance, equality, mobility and identification as essential for these interactions to have beneficial outcomes for employees. The communication channel and organizational atmosphere based on fairness and equity play a crucial role in QWL of any employee (Sharma, 1989; Srivastava, 1996).

7. Stress control and employee burn out

Stress control is most important for employees to work efficiently as continuous high level of stress leads to employee burnout which results into absenteeism and employee turnover. The incidence of high stress level and employee burnout reflects in a low quality of work life (QWL) of employees (Rethinam and Ismail, 2008).

8. Constitutionalism in the work organization

This component of quality of work life (QWL) is concerned with what rights employees should enjoy, whether they exercise them or not, whether the organization has set up formal procedures to protect the individual worker from arbitrary and capricious actions by employers. (Walton, 1975; Orpen, 1981).

9. Job security

Many organizations tend to employ workers on the basis of short or fixed term contracts rather than long term contracts to minimize employee costs, the uncertainty regarding task performance leading to a lower quality of work life (Sverke, *et al.,* 2006).

10. Supervisor and Colleague support

According to Michie and Williams (2003), poor supervisor support, long hours of work, and work overload factors are associated with psychological ill health. On the other hand, a good supervisor can also help one to use one's resources better and manage one's workload (Hawkins and Shohet, 2000). Social support colleagues refer to instrumental and emotional support provided by colleagues (Van Der Doef and Maes, 1999).

11. Social relevance of work

The employees who feel that their organization is acting in a socially responsible manner, in terms of its products and services, will tend to value their work and careers more highly, which in turn is likely to enhance the self esteem and well being leading to a higher quality of work life (QWL) (Walton, 1975; Orpen, 1981).

12. Recognition for achievement

This component of QWL is defined by Kotze (2008) as the recognition for achievements of the employees by management, colleagues and subordinates as feedback is closely related to task significance of employees. Hackman and Oldham (1979) suggested that feedback is a critical factor in reducing absenteeism and employee turnover.

13. Autonomy

The job should be designed in such a manner that it affords the employee a degree of independence and discretion (Orpen, 1981). Similarly, Newell (2002) opined that QWL involves providing employees with greater responsibility and autonomy. A lot of empirical results and theories about occupational stress have regarded job autonomy to be crucial for the health of employees (Jenkins, 1991; Karasek, 1998).

14. Role clarity

When the individual employee does not do certain tasks as the employer expects, stress develops which results into low quality of work life (QWL) of concerned employees (Pollard, 2001). Tubre and Collins (2000) observed that the clarity with which individuals perceive their work roles is linked to several important organizational outcomes including job performance, organizational commitment and job satisfaction.

15. Creativity and innovation

Creativity is the prerequisite for an organization's innovation, effectiveness and long-term survival (Oldham, 2002; Shalley et. al., 2004). The creativity and innovation at work is crucial for genuine psychological growth of the employees which can be achieved through new or novel exposure to the employees (Orpen, 1981, Warr, 1994).

16. Well formulated and established goals

It is most important to have a clear direction that specifies workers' purpose and orients them towards their objectives to be achieved in a given time period as deadlines and time pressures are

important regulators **(**Nordqvist, Hovmark and Zika-Viktorsson, 2004). The activities and tasks are given a certain time frame as absence of time pressure can lead to indifference towards completion of given task (Gevers, Van Eerde and Rutte, 2001).

17. Meaningfulness and significance of work

Thomas (2000) identified the four critical intrinsic reward motivators in a job, namely, sense of meaning and purpose, sense of choice, sense of competence and sense of progress. Chalofsky (2003) believed that quality of work life (QWL) is higher in workers having duties and tasks that are meaningful to him and to others in the organization.

18. Identification with and enjoyment of work

Every employee wants to identify itself with its job profile so as to enjoy its work life which invariably leads to better quality of work life (QWL) of employees. The work becomes meaningful for employees primarily by skill variety, task identity and task significance among others (Hackman and Oldham, 1980).

Growth of Punjab State Power Corp. Ltd. (PSPCL)

The Punjab State Electricity Board (PSEB) was constituted as an integrated power utility under the Electricity (Supply) Act 1948 to perform the functions of generation, transmission and distribution of electricity in the state of Punjab. The Punjab State Electricity Board (PSEB) was unbundled on 16.04.2010 into two corporations namely Punjab State Power Corp. Ltd. (PSPCL) taking over the functions of power generation and distribution in the state and Punjab State Transmission Corp. Ltd. (PSTCL) taking over the function of power transmission in the state from the erstwhile Punjab State Electricity Board (PSEB) in reforms process carried out under Electricity Act, 2003. PSPCL carries out the generation and distribution of power throughout the state of Punjab through a work force of 40,370 employees belonging to different categories; it has sold 41,330 million units of power to 85.9 lakh consumers in the year 2015-16 (Annual Administrative Reports, PSPCL).

OBJECTIVES & METHODOLOGY

The objective of this study is to ascertain the major components of quality of work life (QWL) in order to carry out a study to assess the QWL of employees of PSPCL. To achieve this objective, various components of quality of work life (QWL) according to major research studies conducted on quality of work life (QWL) of employees working in various sectors in India and abroad over the years have been discussed in detail in the previous section. This research paper aims to summarize these various components into major components of QWL to assess the quality of work life (QWL) of employees working in Punjab State Power Corp. Ltd. (PSPCL).

FINDINGS

After a detailed deliberation on each of the various components discussed in major studies on quality of work life (QWL) of employees working in different sectors over last many years, the following six major components of QWL have been summarized to form the basis for the research study on assessment of quality of work life (QWL) of employees of PSPCL: (i) Adequate compensation (ii) Working conditions (iii) Growth opportunities (iv) Organizational culture (v) Stress management and (vi) Work life balance. These six major components of quality of work life (QWL) are labeled in such a way as to represent various components of

QWL used by different researchers in their studies on QWL of employees working in different sectors in India and Abroad.

CONCLUSION AND RECOMMENDATIONS

It can be concluded from above that the quality of work life (QWL) of employees in PSPCL can be represented by these six major components of QWL which are summarized from various components of QWL considered in major research studies conducted over a long period of time in this area. Therefore, PSPCL should make policies to improve its performance on each of these individual components of QWL in order to improve the quality of work life (QWL) of its employees.

Future Course of Action

The future research in this area should focus on assessment of employee satisfaction level on each of these major components of quality of work life (QWL) of employees of PSPCL. It can be achieved through drafting of a questionnaire to elicit employee responses on these major components of quality of work life (QWL) of employees of PSPCL. It can be of immense use for policy makers of PSPCL to know the employee satisfaction level on each of the major component of quality of work life (QWL) of employees of PSPCL in order to improve the weaknesses in individual components.

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SEASONAL PRICE VARIATION AND MARKET INTREGRATION OF TILAPIA (OREOCHROMIS NILOTICUS) FISH IN SOME SELECTED AREAS OF BANGLADESH

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ABSTRACT

A study was undertaken to examine the marketing system and price behavior of tilapia fish in selected areas of Mymen singh district of Bangladesh during the month of March-May 2012. The objectives of the study were to estimate costs and margins, seasonal price variation and to test market integration of Tilapia fish. Primary and secondary data were used for this study. The higher marketing cost was incurred by aratdars and the lowest by retailer. On the other hand, retailers earned the highest net marketing margins. Analysis of market integration shows that Tilapia fish market in Bangladesh was well integrated. The study identified some problems related to economic, technical, marketing, social and natural calamities aspects and suggested

some measures for solving these problems. The findings of the study revealed that the marketing of tilapia was a profitable business and some recommendations were provided for the improvement of tilapia marketing in the country.

INTRODUCTION

The most important food crops for the 140 million people of Bangladesh are rice and fish. Fish play an important role among the population in Bangladesh for providing protein, essential vitamins, minerals and fatty acids. Fish account for about 70% of the animal protein intake with annual fish consumption of about 14 kg per person (ADB, 2005a). The average per capita fish consumption is lower than the world average of 16.1 kg a year (Hishamunda et al., 2008). Nevertheless, the importance of aquaculture as a source of food has been well recognized in Bangladesh. Bangladesh is considered one of the most suitable countries in the world for freshwater aquaculture, because of its favorable agro-climatic conditions. A sub-tropical climate and vast areas of shallow water provide ideal conditions for fish production. The total annual fish production was estimated to be 2.82 million tons in 2011, of which 892,049 tons (38%) were obtained from inland aquaculture, 956,686 tons (41%) from inland capture fisheries, and 479,810 tons (21%) from marine fisheries (DOF, 2007). The main production systems for freshwater aquaculture in Bangladesh are extensive and semi-intensive pond polyculture of Indian major carps and exotic carps which accounts or 80% of the total freshwater aquaculture production. The remaining 20% were mainly from catfish (*Pangasianodon hypophthalmus* locally known as pangas), tilapia, small indigenous fish species and rice-fish farming (ADB, 2005a). In order to meet the soaring demand for food, there is a huge potential of tilapia farming in Bangladesh. Tilapia farming is widespread in many Asian countries including China, Indonesia, Philippines, Thailand and Vietnam due to its rapid growth rate, high market demand and increasing consumer acceptance (ADB, 2005b). With increasing popularity among consumers, tilapias have become the world's second most important cultured fish after carps. There is a long history of tilapia farming in Bangladesh and it was expected that tilapia would act as a miracle fish in aquaculture. The Mozambique tilapia2 (Oreochromis mossambicus) was introduced to Bangladesh from Thailand in 1954 (Ahmed et al., 1996). However, this species was not widely accepted for aquaculture because of its early maturation and prolifically breeding lead to overcrowd in ponds. The present study aimed to identify, particularly the marketing channels, to analyse the market integration and to analyse seasonal price variation of Tilapia in Bangladesh. The study would make recommendation and suggestions to improve the organization and operation of Tilapia fish marketing with a view to enhancing efficiency by analyzing the present marketing problems. In view of these, the survey was conducted to examine marketing and price behavior of tilapia fish in selected areas of Mymensingh district. Thus the study was conducted for understanding the present situation of marketing system   of tilapia fish in different region s of Bangladesh   with following objectives.

OBJECTIVES

i.   To examine the nature of marketing system and marketing cost of tilapia fish.

ii.   To analyse the market integration of tilapia fish and

iii.   To examine price seasonal price variation of tilapia fish

MATERIALS AND METHODS

The present study was conducted based on field survey method where in primary data were collected from the respondents. Secondary data was collected from journals, thesis and raw data from monthly bulletin of Directorate of Agricultural Marketing (DAM) and District Fisheries Office. In Mymensingh district there were a number of successful Tilapia producers, trader's i.e. *Aratdar*, *Bepari*, *Paiker* and retailer etc. The study area is confined to two Upazilas namely Trishal and Muktagacha upazilas in Mymensingh district, where the cultivation of Tilapia fish was concentrated. Purposive sampling techniques were used for selecting the sample. Total sample size of the study was 100 .Selected samples consisted of 30 fish farmers and 70 traders. For this study, 30 stocking ponds were selected from Muktagacha and Trishal *upazila*s. The intermediaries dealing with Tilapia marketing were categorized into three groups, namely, *Aratdar*, *Paiker* and retailer. From different stages of fish marketing 20 *Paiker*s, 10 *Aratdar*s and 40 retailers were selected as respondents for the study. Among them two *Aratdars, five Paiker* and ten retailers from Muktagacha, three *Aratdar*s, *five Paiker* and ten retailers from Trishal, and ten *Paiker*s, five *Aratdar*s and twenty retailers from Kawran Bazar of Dhaka city were selected. The data were collected intensively by using structured interview schedules. The weekly average wholesale prices of Talapia fish of various markets like Dhaka,Chittagong, Sylhet, Bogra,Rangpur and Mymensingh during 2000 to 2012 were collected from Department of Agricultural Marketing (DAM). Latter it was converted into monthly figures.

Analytical Techniques

The following techniques were used for the analysis.

i. For analyzing seasonal and spatial price variation, ratio to moving average and
ii. Determination of market integration through Engle and Granger co-integration method

Market Integration: The main objective of price policy is to safeguard the interests of producers and consumers. The producer's interest can best be safeguarded if he is paid appropriate price for his product. He gets fair prices if markets are well integrated. The basic idea behind the measurement of market integration is to understand the interaction among prices in spatially separated markets (Goletti and Babu, 1994, pp. 311-325). Thus integrated markets are defined as markets in which prices of differentiated products do not behave independently (Monke and Petzel, 1984, pp. 401-487).

If price movement of a commodity in one market is completely irrelevant to forecast price movements of the same commodity in other markets, the markets are characterized as segmented (Kumar and Sharma 2003, p. 203). In well integrated markets, middlemen's share should be reasonable and consumers get produce at fair price. So it is very important to understand whether commodity markets function efficiently. Markets function efficiently when these are integrated in price relationships and it is also imperative to see whether infrastructural and technological development in communication system has improved the functioning of commodity markets.

Measurement of Market Integration by Co-integration Method: T he bulk of econometric theories have been based on the assumption that the underlying data process is stationary a) stochastic process is said to be stationary if its mean and variance are constant over time and the value of covariance between two time periods depends only on the distance or gap or lag between the two time periods and not the actual time at which the covariance is computed (Gujarati, 2003, p.797). In practice, most economic time series are non-stationary. Applying regression models to

non-stationary data may arise the problem of "spurious or nonsense" correlation (Gujarati, 2003, p. 792). If the time series data like prices, which are non-stationary, are used, it usually would yield a high R^2 and 't' ratios which are biased towards rejecting the null hypothesis of no relationship between the variables concerned. To overcome such problems, the concept of co-integration was used becauseit offers a means of identifying and hence avoiding the spurious.

In a high inflationary situation like Bangladesh, use of nominal price to use in estimation to correlation coefficient (pair wise) would be misleading as the force of inflation over the years for which, estimated coefficients may tend to show high degree of association between pair of prices of two markets. So, other advanced method of assessing market integration like co-integration method was also needed and that was used in this study. The underlying principle of co-integration analysis is that, although trend of many economic series show upward or downwards over time in a non-stationary fashion, group of variables may drift together.

Unit Root and Co-integrationTest: The individual price series were tested for the order of integration to determine whether they are stationary which is known as the unit root test (Gujarati, 2003, p.799). A number of tests for stationarity are available in the literature; these include the Dickey-Fuller (DF) test (Dickey and Fuller,1979),the Augmented Dickey-Fuller(ADF) test (Dickey and Fuller,1981)and the Philips-Perron(PP) test (Perron,1988). For theoretical and practical reasons, the Dickey–Fuller test is applied to regressions run in the following forms:

$Y_t$is a random walk or without constant:

$$\Delta Y_t = \delta\ Y_{t-1} + e_t \quad ………………..\ (1)$$

$Y_t$is a random walk with drift or constant:

$$\Delta Y_t = \beta_1 + \delta\ Y_{t-1} + e_t \quad ....\ (2)$$

$Y_t$is a random walk with drift around a stochastic trend (constant plus trend):

$$\Delta Y_t = \beta_1 + \beta_2 t + \delta\ Y_{t-1} + e_t ....\ (3)$$

Where t is the time or trend variable.

In each case the *null hypothesis* is $\delta = 0(\rho =1)$; that is, there is a unit root, that meanst the time series is non-stationary. The alternative hypothesis is that δ is less than zero; that is, the time series is stationary. Under the null hypothesis, the conventionally computed t statistics is known as the τ (tau) statistic, whose critical values have been tabulated by Dickey and Fuller. If the null hypothesis is rejected, it means that Y_t is a stationary time series with zero mean in the case of (1), that Y_t is stationary with a non-zero mean [$= \beta_1/ (1 - \rho)$] in the case of (2), and that Y_t is a stationary around a deterministic trend in equation (3).

It is extremely important to note that the critical values of the tau test to test the hypothesis that $\delta = 0$, are different for each of the preceding three specifications of the DF test. If the computed absolute value of the tau statistics (τ) exceeds the DF or MacKinnon critical tau values, we reject the hypothesis that $\delta = 0$, in which case the time series is stationary. On the other hand, if the computed (τ) does not exceed the critical tau value, we do not reject the null hypothesis, were the time series is non-stationary.

In conducting the DF test as in (1), (2), or (3), it was assumed that the error term $e_t$was uncorrelated. But in case the e_t are correlated, Dickey and Fuller have developed a test known as the augmented Dickey-Fuller (ADF) test.

This test is conducted by "augmenting" the preceding equation by adding the lagged values of the dependent variable ΔY_t. The ADF test here consists of estimating if the error term e_t is auto correlated, one modifies (4) as follows:

$$\Delta Y_t = \beta_1 + \beta_2 t + \delta\, Y_{t-1} + \alpha_i \sum_{i=1}^{m} \Delta\, Y_{t-i} + \varepsilon_t \quad \dots\dots\dots\dots\dots\dots\dots\, (4)$$

where ε_t is a pure white noise error term and where, $\Delta Y_{t-1} = (Y_{t-1} - Y_{t-2})$, $\Delta Y_{t-2} = (Y_{t-2} - Y_{t-3})$, etc., that is, one uses lagged difference terms. The number of lagged difference terms to include is often determined empirically, the idea being to include enough terms so that the error term in (4) is serially uncorrelated. The null hypothesis is still that $\delta = 0$ or $\rho = 1$, that is, a unit root exists in Y (i.e., Y is non-stationary).

Spatial Price Relationship: To test the market integration, the following co-integration regression was run for each pair of price series:

$$Y_{it} = \alpha_0 + \alpha_1\, Y_{jt} + \varepsilon_t \quad \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\, (5)$$

Where, Y_i and Y_j are price series of a specific commodity in two markets i and j, and ε_t is the residual term assumed to be distributed identically and independently. The test of market integration is straightforward if Y_i and Y_j are stationary variables but if the price series proved as non-stationary then we have to done another test (Engle-Granger test)

Testing whether the variables are co-integrated is merely another unit root test on the residual in equation (5). However, since the Y_i and Y_j are individually non-stationary, there is the possibility that the regression is spurious. The DF and ADF tests in the present context are known as Engle-Granger (EG) test whose critical values was provided by Engle-Granger (Ramakumar, 1998). The test involved regression the first-difference of the residual lagged level and lagged dependent variables (Engle-Granger test) is as follows:

$$\text{For Engle-Granger (EG) test, } \Delta\varepsilon_t = \beta\, \varepsilon_{t-1} \quad \dots\dots\dots\dots\dots\, (6)$$

If the computed value of 't' of regression coefficient β is higher (in absolute term) than tabulated value, our conclusion is that the residuals from the regression are I (0), that is they are stationary and the regression is not spurious even though individually two variables are non-stationary.

RESULTS AND DISCUSSION

Marketing system of tilapia fish

From the result of the study, a complete tilapia marketing system in Mymensingh region were found, which include fish farmers, channel of Muktagacha,Trishal, and Dhaka city.

Marketing functions of tilapia fish

In Muktagacha, fish farmers sold 87.5% of their fishes to *Paiker*s, 12.1% to *Aratdar* through retailers and rest0.4% were kept for own consumption and gift. *Paiker*s purchased 87.5% of their fish from fish farmers and sold64.5% of their fishes to *Aratdar*s through *Paiker* at district level and the rest 35.5% to retailers. Retailers purchased 12.1% of fish from farmer's and35.5% to *Paiker*s and sold the entire fish to ultimate consumer (Table 1). In Trishal, fish farmers sold 89.7% oftheir fishes to *Paiker*s, 9.6% to *Aratdar* through retailers and rest 0.7% were kept for own consumption and gift. *Paiker*s purchased 89.7% of their fish from fish farmers and sold 78.5% of their fishes to *Aratdar*s through *Paiker* at district level and the rest 21.5% to retailers.

Retailers purchased 9.6% of fish from farmers and 21.5% to *Paiker*s and sold the entire fish to ultimate consumer. On the other hand in the Dhaka city, *Paiker* procured 100% from the farmers of two selected areas through the local *Aratdar*s and they sold the entire amount to retailers through *Aratdar*s. Retailer sold the same to consumers (Table1).

TABLE 1. PERCENTAGE OF FISH TRANSACTED BY FISH FARMERS AND INTERMEDIARIES IN MUKTAGACHA, TRISHAL, AND DHAKA CITY

Region	Group	Purchased from (%)			Sold to (%)		
		Farmer	Paiker	Retailer	Paiker	Retailer	consumers
Muktagacha,	Farmer	-	-	-	87.5	12.1	-
	Paiker	87.5	-	-	64.5	35.5	-
	Retailer	12.1	35.5	-	-	-	100
Trishal,	Farmer	-	-	-	89.7	9.6	-
	Paiker	89.7	-	-	78.5	21.5	-
	Retailer	9.6	21.5	-	-	-	100
Dhaka city	Paiker	100	-	-	-	100	-
	Retailer	-	100	-	-	-	100

Pricing for tilapia

In the study areas all intermediaries who were involved in the buying and selling of Tilapia fish followed the open bargaining method for fixing the price of their products. The fish farmers enjoyed low bargaining power because of many factors such as perishes ability of product, absence of storage facilities and immediate need for cash. The number of buyers attending the market and the volume of product offered for sale mainly determined the price at market level. In the wholesale market, price varied with the variation of quality of and size of fish. At Arat level prices were fixed through auction. In that case, prices were determined on the basis of supply and demand.

Marketing Cost and Margins of Tilapia Fish Traders

Total Marketing Cost of all Intermediaries at Muktagacha

Total cost of marketing of tilapia fish includes all costs incurred by different types of intermediaries standing between the fish farmers and ultimate consumers. It appears from Table 8 that the total cost of marketing at Muktagacha was Tk. 309.82 per quintal. Among at costs items, icing were the highest amounting to Tk. 57.38 (18percent), followed by personal expenses and wastage (Table 2).

Total Cost of Intermediaries at Trishal

Total cost of marketing tilapia fishes includes all cost incurred by different types of intermediaries standing between the fish farmers and the ultimate consumers. It has been seen from Table 5, that the total cost of marketing fish at Trishal was Tk.334.78 per quintal. Among all the cost items, wastage cost was the highest amounting to 65.98 (25 %), followed by icing and personal expenses (Table 2).

TABLE 2. MARKETING COST OF INTERMEDIARIES PER QUINTAL OF FISHES AT MUKTAGACHA & TRISHAL (TK./QUINTAL)

| Cost Items | Muktagacha | | | | Trishal | | | |
| | Types Of Intermediaries | | | | Types Of Intermediaries | | | |
	Aratdar(Tk.)	Retailer(Tk.)	Total Cost	%	Aratdar(Tk.)	Retailer(Tk.)	Total Cost	%
Transportation		26.78 (10.87)	29.78	8.64		30.32(10.58)	30.32	8.56
Wages& Salary	28.93(40.49)		28.93	8.37	26.86 (37.01)	(	26.86	7.42
Personal Expenses	10.69(13.67)	43.79 (17.78)	48.29	15.6	11.74(14.5)	38.84(14.54)	49.58	14.51
Icing	4.5(7.07)	48.82 (19.8)	57.38	18.5	5.23(7.79)	56.34(21.05)	61.57	18.39
Market Tolls	5.18(8.15)	17.86 (7.25)	23.04	7.43	5.8(8.63)	14.12(5.28)	19.92	5.95
Phone Charges	6.90(10.85)		6.9	2.23	6.81(10.14)		6.81	2.03
Electricity	2.36(3.7.1)	8.60 (3.49)	10.96	3.54	3.56(5.3)	6.94(2.59)	10.5	3.14
Entertainment	8.56(13.47)		8.69	2.80	9.54(14.2)		9.54	2.85
Basket		18.34 (7.44)	18.34	5.92		17.85(6.68)	17.85	5.33
Packing & Materials		16.56 (6.72)	16.56	5.34		16.64(6.12)	16.64	4.97
Wastage		36.58 (14.85)	36.58	11.8		65.98(25.06)	65.98	19.70
Cleaning	0.63(0.99)	28.95 (11.75)	29.56	9.54	0.85(1.26)	22.52(7.85)	23.43	6.99
Total	65.56(100)	248.20 (100)	311.85	100	67.17(100)	267.61(100)	335.25	100

Total Marketing Cost of all Intermediaries in Dhaka City

The total marketing cost of all intermediaries in Dhaka city was estimated to be Tk. 1284.9 per quintal (Table 4) which was very high compared to other selected areas. In Dhaka, Aratdar's commission was found the highest cost comprising nearly one third of the total cost. The other cost items in descending order were transportation (27 %), wages and salary (8 %), personal expenses (7 %), electricity (5 %), packaging materials (4%), icing (4 %), wastage (3 %), market toll (3 %), rent (2%), watering (2%), entertainment (2%), loading and unloading (2 %), tips and donation (1 %) and telephone charge (1 %).

TABLE 3. MARKETING COST OF INTERMEDIARIES PER QUINTAL OF FISHES IN DHAKA CITY (TK./QUINTAL) MARKETING MARGIN OF INTERMEDIARIES

| Cost Item | Types of Intermediaries | | | | |
	Paiker	Arathdar	Retailer	Total Cost	Percentage
Arathdar Commision	400(49.75)			400	31.31
Transportation	288.83(35.55)		58.36(15.57)	347.19	27.09

Wages& Salary	54.26(6.75)	45.95(43.23)		100.2	7.789
Wastage	17.38(2.16)		25.32(6.76)	42.7	3.32
Icing		7.87(7.4)	40.28(10.75)	48.15	3.75
Entertainment		6.98(6.57)		25.58	1.99
Personal Expenses	5.72(0.71)	25.58(24.07)	76.84(20.5)	89.54	6.97
Market Tolls		12.28(11.56)	28.76(7.68)	41.04	3.19
Phone Charges	4.80(0.59)	4.20(3.95)		9	0.70
Loding & Unloding	17.44(3.4)			20.70	1.61
Tips and Donation		1.8(1.69)	12.69(3.39)	14.49	1.13
Electricity		1.58(1.48)	40.56(10.82)	59.94	4.66
Packing & Materials	15.58(1.94)		34.56(9.22)	50.14	3.9
Watering			27.11(7.23)	27.11	2.1
Rent			30.22(8.02)	30.22	2.35
Total	804.01(100)	106.23(100)	374.7(100)	12.84.94	100

Marketing Margin of Intermediaris

In the study area, Aratdar's did not perform buying and selling function. They sold the product on behalf of fish farmers for which they received commission (Tk.2 kg-1) that considered as income. Aratdar's net margin or profit was estimated at Tk. 136.4 per quintal of fishes. Because the marketing cost of Aratdar was Tk. 63.56 per quintal and the profit was calculated by deducting the marketing cost from gross margin or commission received. The marketing margin of retailers at Muktagacha is shown in Table 5. The retailers who purchased fish from Aratdar's and sold to consumers earned a gross margin of Tk. 1091.6 per quintal and after deducting marketing cost of Tk. 309.8 per quintal the net margin earned by them was Tk. 781.8 per quintal.

TABLE 4. MARKETING COST AND MARKETING MARGIN OF VARIOUS INTERMEDIARIES IN MYMENSINGH AND DHAKA CITY (TK./QUINTAL)

Area	Intermediaries	Purchase Price	Sale Price	Gross Margin	Marketing Cost	Net Margin
Muktagacha	Aratdar	-	-	200	63.56	136.44
	Retailer	6175	7180.50	1005.50	311.85	693.65
Trishal	Aratdar	-	-	200	67.17	132.83
	Retailer	6366.66	7250	883.34	335.25	548.09
Dhaka City	Paiker	6166.66	7483.33	1316.67	805.05	511.62

Aratdar	-	-	400	106.23	293.77
Retailer	7610.66	8885.66	1274	374.7	899.3

Seasonal price variation of tilapia fish in Mymensingh and Dhaka market

The monthly wholesale price indices of tilapia for Mymensingh and Dhaka market have been presented in Table 5. It is evident from Table that the price index of tilapia was the highest (105.3) in June and the lowest (94.55) in December. The important feature of tilapia fish prices was more or less same during November to February. This implies that during this period the supply matched the demand for tilapia fish. After slight increasing in the March it continue up to the month of the June. The difference between highest and lowest indices was 10.83. The co-efficient of variation of monthly price indices of tilapia in Mymensingh market of that period was 4.09. In the Dhaka market the highest price index was 102.126 in the month of July and the lowest price index of 96.17 in the month of October. Price of tilapia fluctuated in different months. The cause of this fluctuation might be due to the change in demand or other political instability in different months. The co-efficient of variation of monthly price indices of tilapia in Dhaka market of that period was 2.11.

TABLE 5. SEASONAL PRICE VARIATION OF TILAPIA FISH IN DIFFERENT MARKETS

Month	Seasonal indices in Mymensingh	Seasonal indices in Dhaka
January	95.8	100.9
February	96.38	100.35
March	98.38	101.26
April	99.08	102.02
May	101.39	102.03
June	105.38	101.09
July	104.94	102.13
August	105.23	100.85
September	103.79	98.41
October	99.83	96.17
November	95.22	97.46
December	94.55	97.11
Highest	105.38	102.13
Lowest	94.55	96.17
Range	10.83	5.95
C.V.	4.09	2.11

In some of the months of the year the price declined due to the more supply of fish. In the winter season most of the fishes were harvested due to the lack of water and market become saturated with fishes. Due to higher supply and lower demand fishes, the prices of fish become lower. On the other hand because of lower production, the price of fish was the highest in June. Another reason of higher price prevailed in the months of April to July was that the demand remained higher in those months. Sometimes, availability of substitute products of fish like Tilapia fish,

meat etc. was responsible for fluctuation of price of fish. Many religious festivals such as Ramadan, Eid-ul-Azha decreases the demand for fish and price fluctuation was found.

Spatial Price Relationship

Market Integration

The degree of interrelationships between price movements in two markets is called market integration. In other words, in an integrated market, price of a homogeneous commodity at different spatially separated locations should tend to move together indicating efficient spread of price information and inter-linkages of markets. In interlinked commodity market price movement in one location should be highly correlated with price movement in other locations.

Integration by Co-integration Method

To avoid the problem of spurious correlation between time series variables especially price variable, co-integration method was used which was developed by Engle and Granger (1987) for making firm decisions on market integration. The valuable contribution of the concepts of unit root, co-integration, is to force to find out if the regression residual are stationary (Gujarati, 2004, p. 822). As Granger (1987), notes, "A test for co-integration can be thought of as a pre-test to avoid spurious regression situations."

An intuitive explanation of the main concepts of co-integration analysis is that prices move from time to time, and their margins are subject to various shocks that drive them apart or not. If in the long run they exhibit a linear constant relation, it can be said that they are co-integrated. Granger representation theorem (Engle and Granger, 1987) tests that if a set of variables are co-integrated or integrated of order 1, denoted by I (1), there exists a valid error correction representation of the data. Converse of this theorem also holds, i.e., if an error correction model (ECM) provides an adequate representation of the variables, they must be co-integrated. The rationale behind the error correction model is that economic variables often exhibit long run equilibrium while retaining disequilibrium in the short-run. However a proportion of disequilibrium in one period can be corrected in the next period. For instance, price changes in one period may depend upon surplus demand of the previous period. Hence it is possible to recognize the short-run and long-run behavior through an error correction mechanism. The detail method is as follows:

Co-integration Test for Tilapia Fish

To test the stationary of the prices of Tilapia Fish, the DF and ADF tests for wholesale price of Tilapia fish were conducted. ADF test was applied in case where serial correlation exists and that could be found from the Durbin Watson statistic (d-value). The   estimated tau (τ) statistic of the regression coefficient of one period lagged price, DW statistic and decision that was undertaken are presented in Table 7.

The tau (τ) statistic compared with absolute values (e.g., estimated t values 1.256, -1.971 and -1.828for Dhaka district prices which are less than the critical τ values without a constant, with a constant and with a constant and trend (-2.60,-3.51 and -4.04 at 1% level). That means the null

hypothesis is accepted and concluded that the Tilapia fish prices of Dhaka district contained unit root that is the price series is non-stationary. Similarly, it is found that prices of Tilapia fish of all the selected districts are non-stationary.

The next step is to examine whether bivariate co-integration exists among different districts Tilapia fish prices. The researcher's aim was to find that which market's price influences others. It is normally assume that Dhaka is the reference market and it influences other markets prices. As data on prices of Tilapia fish for Dhaka, Chittagong, Rangpur, Bogra, Sylhet, and Mymensingh was available from DAM's weekly price report from the year of2000 to 2012, so the available data were used for the analysis. In Table 8. the results of estimated co-integration regression and the final result were presented. The Engle-Granger (EG) tests of residual or error term confirmed the stationary of the residual series for all groups of two markets.

Thus the results indicated that the residual series (which are linear combination of Tilapia fish price series) are stationary at level I (0). That means yet the original price series being non-stationary but their linear combination being I (0), the seriesareco-integ

TABLE 6: UNIT ROOT TEST (TEST OF STATIONARITY/NON-STATIONARITY) FOR THE PRICES OF TILAPIA FISH

Market	Method	Condition	Intercept	Coefficient of	Coefficient of	Coefficient of	Coefficient of trend	d-value	Decision
Dhaka	used	used		P_{t-1}	ΔP_{t-1}	ΔP_{t-2}	(t)		Non-stationary
	DF	Without constant		0.007 (-1.256)				2.12	
		With constant	27.24	-0.127 (-1.971)				2.2	
		With constant & trend	55.4	-0.248 (-1.828)			3.295	1.96	
Chittagong	DF	Without constant		0.003 (-1.251)				1.39	Non-stationary
		With constant	17.65	-0.125 (-1.628)				1.34	
		With constant & trend	39.4	-0.321 (-2.397)			2.298	2.26	
Bogra	DF	Without constant		0.004 (-0.868)				2.1	Non-stationary
		With constant	13.78	-0.176 (-1.958)				1.95	
		With constant &	28.008	-0.374 (-2.214)			4.981	1.81	

		trend							
	ADF	1 lagged difference with trend	67.05	-0.58 (-2.417)	0.239		6.597	1.94	Non-stationary
Sylhet	DF	Without constant		0.006 (-1.267)				2.02	Non-stationary
		With constant	38.24	-0.137 (-1.89)				2.1	
		With constant & trend	74.36	-0.248 (-1.825)			3.239	1.98	
Rangpur	DF	Without constant		0.004 (-0.75)				2.09	Non-stationary
		With constant	25.61	-0.117 (-1.524)				1.79	
		With constant & trend	93.5	-0.28 (-1.789)			4.205	1.98	
Mymensingh	DF	Without constant		0.004					Non-stationary
		With constant		-1.345				1.39	
		With constant & trend	35.01	-0.128 (-1.537)				1.34	

Note: Figure within ( ) shows t-values of the regression coefficient.

Dickey-Fuller Critical values for 1% and 5% are: Without a constant: -2.60 and -1.95 respectively, with a constant: -3.51 and

-2.89 respectively, with a constant and trend: -4.04 and -3.45, respectively, for sample size 100 (Gujarati 2004, p.975).

Source: Department of Agricultural Marketing (DAM 2000-2012)

TABLE 7. SPATIAL PRICE RELATIONSHIPS BETWEEN DIFFERENT MARKETS FOR TILAPIA FISH FROM MAY 2000 TO DECEMBER 2012

Markets	Co-integrating Regression	Co-integration Test Engle-Granger	Decision
Dhaka-Chittagong	P_D= 17.316+ 0.869P_C R^2= 0.891 (32.57)	ΔU_t= -0.743 U_{t-1}*** (-8.893)	Co-integrated
Dhaka-Rangpur	P_D=3.53+ 0.985P_R R^2= 0.892 (32.664)	ΔU_t= -0.628 U_{t-1}***	Co-integrated

		(-7.632)		
Dhaka-Bogra	$P_D= 16.202+ 0.96P_K$ $R^2= 0.895$ (33.248)	$\Delta U_t=$ -0.716 U_{t-1}*** (-8.581)		Co-integrated
Dhaka- Sylhet	$P_D= 18.93+ 0.87P_S$ $R^2= 0.886$ (21.75)	$\Delta U_t=$ -0.567 U_{t-1}*** (-7.30)		Co-integrated
Dhaka-Mymensingh	$P_D= 2.234+ 0.979P_M$ $R^2= 0.884$ (31.413)	$\Delta U_t=$ -0.832 U_{t-1}*** (-9.701)		Co-integrated
Dhaka-Gazipur	$P_D= 12.702+ 0.978P_G$ $R^2= 0.801$ (22.90)	$\Delta U_t=$ -0.582 U_{t-1}*** (-7.27)		Co-integrated

Note: Figure within ( ) shows t-values of the regression coefficient.

Tau (τ) values (without constant) at 1% and 5% level of significance are -2.55 and -1.95 respectively in the equation.

*** indicates 1% level of significance.

** indicates 5% level of significance.

Source: Department of Agricultural Marketing (DAM 2000-2012)

As mentioned earlier, Mymensingh is surplus area in Tilapia fish production and the rest districts considered in the study are deficit area, so when price changes in this surplus area then automatically prices will changes for the other districts.

Finally, the result implies that if any divergence from long-run equilibrium occurs in period t-1, it will be adjusted towards equilibrium level in period t. Thus, the selected Tilapia fish markets in Bangladesh are shown to be integrated. This is mainly attributed to close proxy, good communication facilities especially development of cell phone technology and good infrastructure availabilities among the market centers in Bangladesh.

CONCLUSION

It is recognized that tilapia marketing contributes a range of economic benefits at different levels. At the local level, tilapia farming and marketing activities provide employment and income for the rural poor. At the national level, tilapia marketing systems make an important contribution to food supply. Apparently, as a small fish of tilapia provides large amounts of calcium, iron, zinc and other micronutrients (Roos etal., 2003). Conversely, large fish species such as Indian major carps and exotic carps are actively promoted for aquaculture although polyculture of these species have not been provided more nutrients (Bouis, 2000).The findings of this study indicated that the marketing of tilapia fish is a profitable business. Thus, the selected Tilapia fish markets in Bangladesh are shown to be integrated. This is mainly attributed to close proxy, good communication facilities especially development of cell phone technology and good infrastructure availabilities among the market centers in Bangladesh.   It also suggests that there is wide scope for the development of tilapia farming and trading in this country. In this study the profit of retailer was higher than that of other intermediaries. To make the business more

profitable, efficient marketing system should be developed by reducing marketing cost and increasing marketing services**.**

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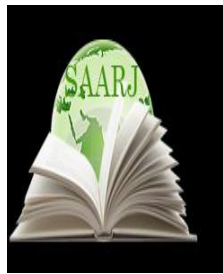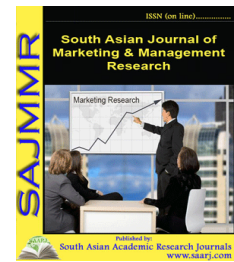
CONCENTRATION OF MANAGEMENT, LEGAL SECURITY AND EXPANSION OF FOREIGN INVESTMENT

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ABSTRACT

Security and development has a reciprocal relation forming either sides of the same coin. In order to create security we need a sustainable development and in order to create a sustainable development we need a legal security. Moreover, local investment which is imperative for development, attraction of foreign investment is of high importance. In this paper researchers address legal security and foreign investment and deal with the importance of centralized and integrated management for establishment of security and legal laws of the foreign investment. By the present research, researchers aim to study and locate the regulations of national and international authorities and their integrated management and to recognize the legal environment of the foreign investment. The questions raised in this research are: Which national and international laws and authorities are in charge of the legal security and foreign investment and what have they done through studies and analysis of the data that results such as the need for globalization, rapid growth of science and technology, rise of the volume of international trade, need for legislation of comprehensive international laws and rules for investment have been achieved. Most of the laws and regulations governing the international investment favor the advanced countries and the need for presence of the developing countries is felt therefore laws should be modified to encourage the developing countries in this respect. The present authorities

and regulations cannot be relied for the removal of the legal and foreign investment problems. Despite the progress made by the science of international management and trade, a powerful and integrated management is not exercised concerning foreign and international investment.

KEYWORDS: *Integrated and concentrated management, foreign investment, international regulations, security and sustainable development, Iran.*

INTRODUCTION:

Investment, security and development are interdependent and in order to achieve development which is an innate issue, an integrated, harmonized and centralized management at the national and international level is required. Maintaining the security of the investments in this respect beside management, modern science and technology, potentials, a constructive economy and authority of the governments all play a determining role in securing the society's welfare while the legal security and development of foreign investment by themselves require an integrated planning and management at the national and international level.

The common and contradicted interests and tastes of countries at the international level and within globalization, and existence of the investment laws and contradiction and sectional approach of related bodies and their variety at the national arenas disrupt the process of attraction of foreign investments, and whereas a continuous economic growth as a pre-requisite for development and investment too, is considered as one of the important variables of the economic development and equipment of resources through attraction of investments (local and foreign) within the needs and indexes of the developing countries, preparation of the grounds for coordination and maintaining of legal security and development of these countries are inevitable and imperative.

Legal scholars describe poverty, unemployment, absence of a thriving economy and investment, and lack of security for investment as the roots and causes of many social crimes and complications and believe that through a reverse management and engineering and in fact by maintaining legal security for investors and creating a thriving economic and entrepreneurship, poverty and consequently crimes can be reduced. This would be possible through establishment of international organizations and conclusion of regional and international covenants, legislation of comprehensive and universal rules in the domain of foreign investment at the international level and legislation of reliable and sustaining rules and regulations and establishment of consistent, integrated and harmonized management at the local level.

More than 2600 various bilateral, regional and international covenants in the area of encouragement and mutual support for investment in the world as well as other regulations for encouraging and supporting foreign investment in different countries containing standards to provide legal security for foreign investors exists [1]. Maintaining security of capital and ownership, confiscating and nationalizing properties, settling the disputes arising from investment, transferring the capital, residence, registering foreign companies, determining the percentage of foreign shares, issuing work license, removing legal impediments, providing financial supports through foreign exchange loans and custom and tax facilities in this respect would require a systematic and concentrated management inside countries which can be coordinated and organized at regional and global level in terms of the interests of countries.

International authorities and regulations

The rapid developments of the present age and their particular characteristics calls for legislation of regulations which are able to satisfy the needs of the time in the area of foreign investment concurrently with the ever-increasing and complicated advancements just like the period when a handful wealthy and advanced countries and multi-national companies were the only actors of the domain of foreign investment therefore, investment authorities and regulations were established with the objective of securing their interests. However, many developing countries and powerful companies intend to assume a role in this arena today with the aim of securing their own development and interests, so different interest and views in this respect require uniform rules and regulations in order to cover the mutual interests of the present and past actors and make a coordination and unity between the interests and tastes of various regions and countries of the world through a uniform management.

International efforts to regulate and compile the principles and rules of investment are generally made as follows:

A. International organizations and centers whose responsibility is to gather information and conduct research and offer guidelines and legal terms in the field of international trade and investment such as UNCTAD [1], UNCITRAL [2] and OECD [3].

B. Organizations that have been established mainly for the purpose of international trade however a part of their duty is to facilitate investment between the member of those organizations such as WTO [4] and NAFTA [5].

C. Centers that are involved mainly in the business of insuring international investments thus helping with facilitation of investment in the world such as MICA [6].

D. Organizations that are mainly considered as centers for settlement of disputes arising from investment while also active in businesses such as legal research and presentation of guidelines like ICSID [7]. [8]

Certain authorities in charge of settlement of disputes or authorities that play a role in the area of foreign investments directly or indirectly are:

The court of arbitration of the International Chamber of Commerce (ICC), convention for settlement of investment disputes (1966) between governments and citizens of other governments [1] to settle the disputes related to CATS [2] and the TRIPS [3] agreement and TRIMS[4] agreement are all effective as the authorities that supplement trade and investment at the international arena; indeed scholars believe that in view of the latter documents the World Trade Organization is a more suitable venue for discussion about international investments. [5] Anyhow, diversity of the covenants and organizations in the area of foreign investment and particularly settlement of the disputes thereof, which have been approved and annexed by the governments reveals the resolution and the will of the governments toward expansion of foreign investments and the need for legalization and organization of this arena while proving the inefficiency of the traditional rules of settlement of disputes concerning foreign investment. [6]

Internal authorities and regulations

In view of the issue of globalization and the natural and innate willingness of countries to achieve development, most commonly through investments in which foreign investment plays a considerable role, and whereas there seems to be a road map in the international rules and

regulations together the principles of public international law and bilateral and multi-lateral covenants, the internal laws of countries, too, need to predict authorities in this respect as time and place require and set up necessary regulations, facilities and guarantees for foreign investments. These regulations are usually based on four well-known principles:

A. Code of conduct toward investors

B. Guarantee of investments against divesting ownership and nationalization

C. Monetary and foreign exchange regulations and manner of their transfer

D. System for settlement of disputes arising from investment

The responsible authority and institution superintending foreign investment in the investment law of Iran in 1334 (1955-56) consisted of a board which was formed at Bank Melli Iran,

then in 1353 (1974-75) and according to the Act for Establishment of the Ministry of Finance and Economic Affairs, the Organization for Investment and Economic and Technical Assistance of Iran as an affiliate of the ministry and the sole official institution to encourage foreign investments was established, and by virtue of article 7 of the act: "Offices and departments which are somehow related to the foreign investment such as Ministry of Finance and Economic Affairs, Ministry of Foreign Affairs, Ministry of Commerce, Ministry of Labor, Central Bank, Custom Administration, Department for Registration of Companies and Environmental Protection Organization must have permanent and fully authorized representatives for coordination in this organization."[1] Upon approval of the Act for Encouraging and Supporting Foreign Investments in 1381 (2002-03) [2] and according to article 6 of the act the Board of Foreign Investment chaired by the head of the organization was formed to concentrate management of foreign investments while as per article 7 of the same act a "Center for Investment Services" was predicted to concentrate the management which began its activity in 1389 (2010-11) at the provincial capitals with the similar composition as that of country to concentrate the management at the provinces and remove lack of coordination between the agencies in charge of foreign investments. [3] Hence, application of foreign investors to the center for investment services has to be responded within 45 days.

Foreign investment in India

The Indian government has issued automatic licenses for most of the sectors concerning (FDI) [1] since the turn of the 1990s and is gradually increasing the number of such sectors. Foreign investors are easily informed on the balance of their investments at the central bank of India without any need to the permit or certification of the government. Other sectors are required to obtain a permit from FIPB [2] and rules differ from one industry to the other and change alternatively. Indeed, such changes take place in line with liberation. India controls foreign investments by imposing certain limits to the asset, voting right, obligatory government licenses and essential supervisions. Since 1991 when economic reform plans were achieved slowly, the Indian government gradually removed many of these obstacles however many impediments yet persists. FIPB, a central agency at the high level within the Ministry of Finance, is in charge in this respect in India and president of the board chairs the Department for Economic Affairs. Other members of the board consist of Secretary of the Ministry of Industries and Secretary of the Ministry of Commerce as well as Secretary of the Economic Relations at the Ministry of Foreign Affairs. Other members including senior officials of the government and professional industrial, trade and banking experts may join the board if required. Applications are presented

by the secretaries of industrial cooperation SIA and SIPB. SIA [3] which is located at the "Department for Industrial Strategy and Promotion" within the Ministry of Industries acts as a window for entrepreneurship cooperation, facilitation of investment, processing of all applications that only need the government's permit, cooperation with employers and investors concerning the acceptance of projects (including connection with other organizations and provincial governments) and supervision of the projects. The board is very flexible in negotiation with investors and FIPB decisions are usually communicated to the applicants by SIA within six weeks after receiving the applications.[4]

Research objectives and requirement

Research requirement:

In the great global village in which relations between countries become closer thanks to the ever increasing progresses in science, technology and economy, interests of countries and natural and legal persons in capital and technology import and export with other regions

become more evident day by day and the world feels more need to a common language and literature, common rules and regulations and global and regional organizations in the domain of foreign investment inside countries. Today, foreign investment is considered as a way for technology transfer, attraction of capitals and creation of jobs. These elements can expedite the economic growth and development that is why foreign investment is considered as a need for the economies of the third world. The present research deals with this issue.

OBJECTIVES OF RESEARCH:

Researchers seek to achieve the following objectives in this research:

1. To study and identify international rules and authorities and to establish an integrated management in the domain of foreign investment;

2. To study and identify regional rules and authorities and to survey the possibility of concentration of management in the domain of foreign investment;

3. To study and identify internal rules and authorities and to survey the possibility of establishment of an integrated management in the domain of local and foreign investment and to recognize the environment and space of foreign investment in Iran.

Questions:

1. Is there any need for an integrated management for foreign investment at the international and national arena?

2. Are there any integrated management and coordinative authority and organization in the area of foreign investment by countries?

3. Are there any rules and regulations concerning the management and coordination of foreign investments?

4. Are there any integrated management and uniform regulations in Iran to attract foreign investment?

METHODOLOGY AND DATA ANALYSIS:

The present research has used library methodology. By using this method the related sources such as books, articles, dissertations, essays and different internet sites in which national and international rules and regulations, plans and strategies and theories of the methods of investment and attraction of foreign investments have been discussed, have been studied and analyzed.

DISCUSSION AND ANALYSIS:

A review of the foreign investment rules in the Islamic Republic of Iran since the beginning of their foundation shows a process of globalization and cooperation with international rules of investment and allowing foreign partnership in the investments in Iran, however this process has been rather slow. Establishment of common border markets with neighboring countries, establishment of different economic zones and free trade areas in different parts of the country, modification of rules and acceptance of modern foreign investment views, organization of seminars, invitation of foreign investments to Iran, and reduction of tariffs, quotas and restrictions show convergence between national and international regulations to some extent. The latest organization and concentrated management which have been set up in Iran is the by-law for establishment of the center for investment services in all provinces [1] where the concentrated and integrated management is exercised to enhance attraction of foreign investments. However the process has not been desirable and the volume of the attraction of foreign investment does not imply a desirable and complete management concentration and integration.

As for the concentrated international management after the World War I, the emergence of great crises (stagnations and inflations) of the 1920s and 1930s coupled with the lack of balanced growth in different spots of the world forced compilation and management of global rules for investment, trade…and the International Monetary Fund (IMF), World Bank, UNCTAD, WTO, UNIDO… revealed that the concentrated international management of foreign investments have functioned well in certain parts of the world resulting in development and removal of problems, but failed to achieve goals appropriately in certain countries.

Presence of the aforementioned international financial and monetary organizations, the international laws and presence of some internal organizations are a good answer to the questions raised by the research. However the lack of progress and development and attraction of foreign investments in different spots of the world reveal a failure in this respect, something which call for reconsideration and modification of the global trade and international rules and international relations.

CONCLUSION:

The following conclusions have been reached by the present research:

1. The need for globalization and the high speed of the progress of modern sciences and technologies on the one hand and presence of relatively old rules and regulations in the domain of foreign investment on the other inevitably call for updating of the rules and coordination among members of the international community.

2. The traditional hegemony of advanced countries and multi-national companies over the decision-making institutions and authorities contradicts the interests and objectives of the developing countries and makes their presence and role essential in devising the rules and regulations governing foreign investments in the international arena.
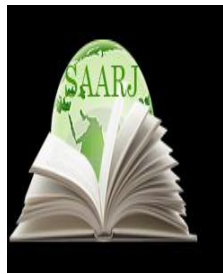
3. In view of the conditions governing the international economy and the imbalance between the members of the international community, and the need for the maintaining legal security for investment at national and international levels, availability of reliable, sustainable and guaranteeing authorities, rules and regulations at the national and international levels particularly recognition of just rights for economic activists and investors are imperative.

4. Despite the lightening progresses in management sciences and the undeniable benefits of management concentration at the local and international level, this issue has been neglected in the domain of foreign investment and the greed of certain countries and giant multi-national companies in the international arena and the sectional and non-coordinated approach at the internal level of countries have led to exacerbated concerns in this domain.

5. Contradiction of interests of countries on one hand and dependence of the interests of countries at regional and international level on the other call for flexibility and mutual understanding and international and regional cooperation. Nowadays, even powerful managements and national rules and regulations which are compatible with the structure of the international system cannot meet all the needs of a single country therefore interaction with other members of the international community and in fact participation of all actors of the foreign investment arena is an obligation for compilation of the regulations as well as interaction and cooperation in executing them.

6. Concentrated authorities and regulations at local and international level would neither satisfy the rapid needs of investors nor maintain legal security for them, since concentration of management requires culture building and culture building in this respect requires time and cost like other sectors.

7. In spite of the existence of authorities and regulations and the tendency toward legislation of national laws for attraction and protection of foreign investments, capitals flow toward secure regions and countries such as developed countries and a limited number of developing countries while other countries do not achieve much success in spite of their efforts to maintain legal security and attract foreign investments.

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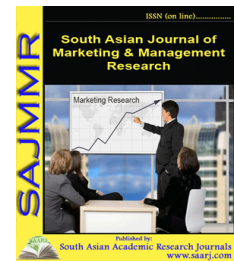
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HISTORICAL BASIS OF PEACEMAKING IDEAS

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ABSTRACT

This article discusses the historical foundations of the idea of peacebuilding. The ideas of peacekeeping ideas of the East and West thinkers were analyzed. The article explains the significance of the idea of peacebuilding for society and the state. Human activity has created the norms of behavior and relationships in the initial, but not inferior. It is this philosophical essence of Avesto, which is defined by these universal, secular ideas. " The principle of "good ideas, good words, good deeds", which determines the essence of Avesto, can be seen as the basis of the most important ideas and doctrines for today. At all stages of human development, the basic issues of society are solved positively, first of all in a peaceful environment. It should be noted that the problem of peace preservation can not be solved with the wishes and wishes of the people. The doctrine, which thousands of years ago, has created a basis for the policy of the Uzbek leadership, without undermining its own significance, even in the conditions of today's independence and renewal. The value of Avesto as a source-historical phenomenon is that it is a highly human concept associated with a whole new stage in the development of humanity, a new dimension of imagination and thinking, social life, living pleasure and essence.

KEYWORDS: *Peacekeeping, Ideology, Politics, Values, History, Progress*

INTRODUCTION

There are specific interpretations of the concept of peace and peace in the East. It is associated with the harmonious forms of morals, culture, and politics. The Avesto, which was born three thousand years ago in ancient Khorezm, became a great social, moral and ethical phenomenon as the sacred book of Zoroastrianism. The value of Avesto as a source-historical phenomenon is that it is a highly human concept associated with a whole new stage in the development of humanity, a new dimension of imagination and thinking, social life, living pleasure and essence.

The socialist justice of Avesto, the most humane human beings, for the first time developed moral principles of humanity, not only by man, but also by the interactions of the entire universe, the earth, the air, the water, the universe, the stars, the animals, the insects, the moth and the mammalian world. Human activity has created the norms of behavior and relationships in the initial, but not inferior. It is this philosophical essence of Avesto, which is defined by these universal, secular ideas.

Avesto, also known as Turan, saw many devastating wars and destructions, and became a victim of this war with prominent propaganda of the essence of humanity through peace and cooperation, friendship and mutual respect. In the ideas of "Avesto" the first ideas about man and nature, life and its essence are put forward. These ideas represent the first buds of human civilization. Indeed, the early stages of evolutionary progression of human thought and imagination go directly to Avesto. It also receives enough power.

RESEARCH BACKGROUND

More than three thousand years ago, the first changes that people had imagined had gained the status of universal values through direct Avesto. In particular, Avesto put forward the idea of a monotheism, leaving a settler among the various tribes and groups. This direct religion has led to the idea that no matter what group, tribe, tribe, or nationality a person lives, no matter where he lives on earth, he alone is the servant of Allah and Allah, the Creator of it. Through the Dajjal, Avesto called on different tribes and seeds to unite around common interests by uniting them with the sole ideology, single mind, and unique ideology. As a result, the human society has become a powerful ideology that brings about the spiritual image of the society, the culture of the people, their thoughts and their actions. It served as the basis for the unique prosperity of humanity, community, and life. Thus Avesto promoted ideas that encourage people to do good, to protect good, to avoid evil and ignorance. The book Avesto maintains that people live together in harmony with the ethical norms of human relationships, such as patriotism and peace. The 62nd hot song number 5 of Yasna's second album, Avesto, says: "I am giving birth to children who are perfect and religious, patriotic and congressional, friendly, good-natured, from the darkness and the crisis. Until they are in the city, and in the country, and in the name thereof, and in the voice of their voice. " The principle of "good ideas, good words, good deeds", which determines the essence of Avesto, can be seen as the basis of the most important ideas and doctrines for today. It is particularly striking that such thoughts, that noble intentions can be interpreted as one of the priorities of society and the word of association, is inextricably linked with our present spiritual ideals.

Theoretical background

"According to Avesto, the universe is the eternal and eternal struggle of light and darkness, life and death, body and soul, goodness, and greed, freedom and obedience. Avesto's existence and

integrity as well as the harmony of human life are closely related to the spiritual world of man. This situation has a strong effect on the formation of the spiritual world of man. This book, reflecting the noble ideas of our ancient ancestors and national statehood, has found its true value in the years of independence.

Talking about the factors of formation and sources of development of the world philosophical thinking, as well as the impact, place and role of the Oriental philosophy, F. Sulaymanova gives the exemplary words of the Belgian scientist Jacques Duchen: "From the eastern tribes the West first made Zardushtrani son. His teachings enriched Greece four centuries ago. Zoroastrian knew Platon. The Buddha and Confucius's voice took a long time to reach Europe. Therefore, for centuries, the West has been known for its ancient Oriental wisdom, only known by Zoroastrianism as "[1].

The socio-philosophical ideas of Avesto appear to be the most powerful source of human civilization. Although he was born in Central Asia and developed the social, economic, moral and ethical norms of the people of that area, his humanitarian ideas became the spiritual property of all humanity. The world science, in particular the social sciences, has used it more efficiently. According to Abu Rayhan Beruni, Avesto, in some cases, has played an important role in maintaining the integrity and unity of the state, as well as the creation of commonality of ideas and ideas in governance. This was especially true for the Sassanid era.

The ideas of peacebuilding in Abu Nasr Farabi's work, including the city of Fazil, suggest that the government should be guided by fair laws in its governance. Abu Nasr Farabi, a great scholar who writes about people, says that humanity is one of the main principles that unites them, so people should live in peace because they belong to the human race.

Based on his philosophical system, Abu Nasr Farabi considers humanity as one Great Society. The unification of all humanity was a dream of the intellectual. Having such an idea in the period when people are divided into different groups due to persistent wars in the face of persistent class, religious, racial, national contradictions, is evidence of the humanism and optimism of the scientist. The Forobi has clearly seen all the shortcomings of its present-day states, the enmity between them, and that humanity was created for happiness.

Main analyses

The role of government and leadership in the development of a democratic personality society emphasizes the importance of the rule of law in political governance. As a result, the government is raising the level of direct enrichment, development, and improvement of the community's creativity, calling for good deeds.

"If the city does not have genuine love, superior morals, or lack of intelligence in its legislation, its fate would be destructive and disastrous, if these three (beautiful ones) really achieve it," another way " number and value. Good governance depends on good laws, bad governance - bad laws, mature governance - mature laws. " This suggests that the country's life, moral etiquette, and prosperity, which is a Forobic historical process, depend on the principles of direct management, its form, method and style, and the justification of the laws and beliefs, judgments and conclusions.

In another context, speaking of threats to society's life, he argues that "efforts, rights and goals (to justify) are the purification of the city from the malicious people against the rulers" to ensure the rule of law and the rule of law. This is an indication of the high level of philosophical,

political, historical, social thought that is shaped in the medieval history of the state, the administration, the power and its just functioning. The doctrine, which thousands of years ago, has created a basis for the policy of the Uzbek leadership, without undermining its own significance, even in the conditions of today's independence and renewal.

We are human beings who are in danger of being completely eliminated in the history of humanity. This is the case with the industrialization of the war. But today 's world is closely connected and the consequences of a nuclear war are so crucial that humanity has to overcome the threat of war.

These global issues, first of all, require human perfection, moral and ethical maturity. So, first of all, human beings need to improve their capabilities, good-natured abilities, and coordinate their work. This is one of the most global issues facing global challenges of today's world. As the savior of the world is the savior of life and progress, he must realize that he needs perfection, upbringing, and high moral standing.

CONCLUSION

In short, the peace of the country is a great blessing and a great blessing for everybody. Humanity has striven for peace and harmony at all stages of its development. Therefore, peace and consolidation have been a universal problem at all times. At all stages of human development, the basic issues of society are solved positively, first of all in a peaceful environment. It should be noted that the problem of peace preservation can not be solved with the wishes and wishes of the people. It has been achieved through persistent and decisive action for the sake of humanity. Patriotism serves loyalty to the Homeland, protects it from enemies, protects the peace of the country, its struggle for freedom, independence, prosperity and prosperity, the protection of national interests. Today 's world is closely connected and the consequences of a nuclear war are so destructive that humanity is in the same position to fight the risk of war.

These global issues, first of all, require human perfection, moral and ethical maturity. So, first of all, human beings need to improve their capabilities, good-natured abilities, and coordinate their work.

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