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ভাদ্র ১৪১৪/সেপ্টেম্বর ২০০৭

লোক প্রশাসন সাময়িকী

বাংলাদেশ লোক-প্রশাসন প্রশিক্ষণ কেন্দ্র
সাভার, ঢাকা

লোক-প্রশাসন সাময়িকী

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Impacts of Government Policies on Ecology and Tribal Community of Chittagong Hill Tracts of Bangladesh
A Case Study

Mohammad Azizul Haque*

Abstract: *The environmental and social changes in Chittagong Hill Tracts (CHT) region of Bangladesh is influenced by different government policies over the last 400 years. The pattern of government views and interests shaped the pattern of environmental and social changes in this area. The pre colonial government's interest was to ensure revenue and control over the land whiles the post colonial governments policies, including control and revenue, added some development thirst. None of these government policies successfully addressed the capability of local tribal communities' capacity to keep the ecological balance as well as to ensure development needs. As a result, the region witnessed a continuous deterioration of the tribal life style as well as ecological degradation.*

Introduction:

Chittagong Hill Tracts (CHT) of Bangladesh has gone through various political and administrative changes extending over several centuries. The importance of this region to political governments was reflected through different government policies. This paper will focus on the impacts of these policies on the local tribal people and the environment.

Location of the Case Study:

CHT is located at the southeastern part of Bangladesh. It covers an area of 13,183 square kilometres, around 75% of which is heavily forested and largely inaccessible mountains (Levene, 1999; Rasul, 2007). It is surrounded by two Indian states, namely Tripura and Mizoram, at the north and north east; Myanmar at the south east; and Chittagong and Cox's Bazar districts of Bangladesh at the west and south west. Two third land area of CHT is suitable only for forests, 15% for horticulture and only 3% for intensive terraced agriculture (Rasul, 2007; Mohsin, 2003). Twelve tribal groups (Chakma, Marma, Tripura, Mro, Bawm,Tanchangya, Kheyang, Pankhu, Chak, Lushai, Khumi and

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Rakhain) comprise the majority population in the area (Mohsin, 2003; Islam, 2003b; Rasul, 2007). These tribal communities live in forests; depend heavily on forest resources for their food and wellbeing (Mohsin, 2003).

Government Policies at Different Political Periods and Impacts:

Forest management system of CHT experienced changes at different political periods. Considering the major political shifts in this region, forest management can be viewed through four political periods. These are the Pre -colonial period (before 1760), Colonial Period (1760-1947), Pakistan Period (1947-1970) and Bangladesh period (1971- now on).

Pre-colonial period (before 1760): CHT was either ruled by the Arakans or by the Hill Tripura until 1666. The Mughals controlled the area from 1666 to 1760 (Islam, 2003b; Pearn, 1944). Whatever the regime, the mountain forests were under the authority of local tribal communities before 1760 (Edmunds & Wollenberg 2001). During this period land rights were based on customs and usage, and the forest resources were held in common by communities as a whole. Individual community members had specific rights on forest and land use whereas the community as a whole exercised the rights of access and use of common lands (Roy 1996). Individuals were allowed to collect firewood, fodder, timber and non-timber forest products. They had the rights of building home, hunting, fishing, raising livestock at the forests and grazing cattle on common lands (Mohsin, 2003; Guha 2001). Shifting cultivation (locally known as jhum), was the major way of producing crops at the available arable lands. They practiced slash and burn method in producing crops. However, when a particular plot of land was no longer in use (for example an old jhum or abandoned house), land rights were automatically transferred back to the community (Roy 1996; Khan & Khisha, 1970). Forest was managed under mutual understanding among the communities, which protected the forest from the encroachment of outsiders (Thapa & Rasul 2006).

Impacts: The adverse impacts of traditional tribal culture on forest before colonial era are not evident in literatures. It can only be assumed that the practices of shifting cultivation through slash and burn process could have some impact on the environment. But, while jhuming, the tribal people never cut the important tree species (Rasul, 2007). The intensity of human settlement was also small and isolated. Timber had no commercial value due to lack of transportation and trading facilities. Moreover, the value of forest to the tribal community was huge as forest was a part of their life (Mohsin, 2003; Rasul, 2007). CHT is believed to be a densely covered forest area before colonization (Lewin, 1869 cited in Rasul 2007).

Colonial period (1760-1947): The colonial period had two phases. From 1760 to 1860, CHT was ruled by the East India Company as representative of the British Queen. Company policy was only to collect taxes from the tribal chiefs. They did not bother about administration and forest management of this region (Levene, 1999; Serajuddin 1971). But to ensure control and regular flow of revenue income, they kept the region isolated through the policy of 'divide and rule', keeping the tribal people out of mainstream society and the economy (Barua 2001; Levene, 1999). In 1857, the British Government took over the direct administration of the Indian colonies from the Company. In 1860, the CHT was declared as a separate district (Mohsin 1997). The colonial government nationalized almost all the CHT forest in 1871. They divided the land areas in three categories; Reserve forest (RF) comprising of one third forest areas where all traditional rights of indigenous people were completely banned, remaining forest areas as Unclassified State forest (USF) and Khas land (government-owned fallow land). Forest Department controlled the RFs while the management of khas and USF land was under the responsibility of Deputy Commissioner (DC), representing the central government (GoB 1971; Roy 2002; Mohsin, 2003; Rasul, 2007). The colonial government changed the traditional community controlled forest management by introducing 'Headman' system. Headman was selected jointly by DC and the Tribal King and was only accountable to its appointing authority (Rafi, 2001). Forest areas of CHT were commercially very important for the British rulers (Rasul, 2007). Forest extraction was encouraged to increase revenue from logging. Between 1862 to 1875, revenue earnings of the government from logging companies increased by 10 folds. To meet the growing demands of commercially important timber, government took initiative to plant teak trees in place of native trees and increase the areas of RF (Sivaramakrishnan 2000; Mohsin, 2003). Deforestation was also encouraged to meet the demand for wood for constructing railway tracts (Khan 1998; Damadoran 2005, Mohsin, 2003). Moreover, tea and tobacco plantation was introduced and patronised by the government during this period (Rasul, 2007).

Impacts: Changes in the forest management system during the colonial era broke the traditional practices of the tribal communities. The highly centralised system kept no room for local tribal people to exercise their rights on forests. The state became the absolute owner of land and forests. Their traditional forest rights were converted into privileges and were controlled and determined at the discretion of government officials (Islam, 2003a; Mohsin, 2003;, Rasul, 2007). As a result, indigenous people's traditional conservation responsibility started to disappear (Rasul, 2007). The forest became open to the outsiders. Loosing the rights, local people started to invade into the RF, uprooted the teak plants, and started illegal poaching and logging. Moreover, the flow of non tribal population started to increase in this region. As the tribal people were isolated from the mainstream culture and economy, local Bengali traders took the chance of getting close to the government officials for initiating timber business and thus started to live in these hilly region.

Teak tree plantation had an adverse impact on the forest ecology. Large forested areas covered with indigenous trees were deforested to plant teak tree (Mohsin, 2003; Rasul, 2007). Although teak tree produced good commercial timber, it could not hold soil like the local trees and thus exposed the soil to sun and rain which ultimately caused soil erosion. Indigenous trees were not suitable for commercial timber but were a good source of food, firewood and medicine for the local tribal people. Moreover, the ecological value of these trees was enormous. Shrubby areas of the forest were cleared for tea and tobacco plantation, resulting further ecological damage to the forest. The dense forest lost important tree species which was important for its multi-purpose use to the local tribes (Thapa & Rasul, 2006).

Pakistan Period (1947-1970): The Pakistani government followed the same management policies they inherited from the British (Mohsin, 2003). In the name of integrating the region with the mainstream, migration of mainland people to this region was encouraged through different government policies. In the 1960s, the government abolished the special status of the CHT, thereby prompting a large-scale inflow of mainland people. Due to the importance of the forest resources of CHT; industries like paper, rayon, timber, pulp, plywood and match manufacturing were built in this region. Roads were constructed to facilitate extraction of raw materials from the remote forests. Moreover, government built a dam across the river Karnafuli at Kaptai in the early 1960s to ensure electricity to these industries (Mohsin, 2003; Rasul, 2007).

Impacts: The major ecological and economic disaster occurred in this region after the building of Kaptai dam. 40% of the cultivable low land was inundated; 100,000 people became homeless- loosing their valuable land (Mohsin, 2003; Islam, 2003a). Kaptai dam failed to meet the energy requirements of this region but its adverse impacts still remains (Mohsin, 2003). Even the tribal people were not compensated for this loss (Levene, M, 1999; Islam, 2003a). Having no other alternative, jhuming was intensified at the forest lands causing huge amount of forest areas degraded. As the hilly lands were not suitable for sustainable jhuming, food production was adversely affected. Under the special status, immigration of outsiders was protected. But abolition of the status encouraged the flow of mainland Bengalis to this region. The population of the non tribal people jumped from 25000 to 120,000, between 1951 to 1961 (Adnan 2004; Islam 2003a).

The local tribal people were neither benefited from the industrialisation in terms of employment opportunity to non-agricultural sector, nor got the scope of trading. The Bengali traders controlled the supply chain of raw materials to the industries (Mohsin, 2003; Islam, 2003a). Some tribal people worked as labour under the Bengali businessmen; although most of the labour force was dominated by the Bengali workers. The industries used bamboo and soft wood as raw material (Mohsin, 2003) which were not commercially important during the colonial era. Extraction of such new products gave a new dimension to forest degradation.

Bangladesh Period (1971 to now on): After liberation, CHT gained special interest from the Bangladeshi governments for its strategic and economic importance (Mohsin, 2003). The ongoing insurgency in the north-east Indian states and in Myanmar increased the importance of CHT to the military planners. Forest conservation also got priority. In 1992, the government declared about 50,000 ha of additional forest land as RF, and 42,000 ha of unclassified state forest land was leased out to private entrepreneurs for rubber plantation and horticulture. Under the forest conservation policy Government banned the extraction of timber from RFs. At the same time high tax was imposed on import of timber. Such policy initiatives increased the demand as well as price of timber in the country (Huq, 2000; Adnan, 2004). Although the forest policies recognized the necessity of local people participation in afforestation and reforestation programmes; it did not provide sufficient incentives for participation. Instead of mustering support from local people to protect and manage forest resources, the government enhanced regulatory and punitive measures to protect forests (Rasul, 2007). The flow of Bengali settlers continued to increase in CHT (Rafi, 2001). In 1978, the Bangladeshi Government implemented a resettlement programme in the CHT. About 25000 Bengali families were resettled in CHT unclassified state forest areas (Barua 2001).

Impacts: The impact on the local tribal people due to the government policy of resettling non tribal people at this region was enormous. Huge migration of mainlanders affected the tribal identity of this region. Moreover, tribal people were not benefitted from the conservation policies of the government; rather the settlers exploited the facilities. Loosing rights, identity and failing to compete with the dominant mainlanders, tribal communities started to protest against government policies. Such protest turned to armed conflicts during the beginning of 80's resulted in more government control and military action. More than 50,000 tribal people were fled away to India due to the military actions during 80's (Mohsin, 2003; Rasul, 2007; Islam, 2003a).

The policy of leasing out community forest lands for rubber plantation and other purposes led to an acute shortage of land and forests. Although government policies focused on conservation of forest, illegal logging was continued. Bangladeshi traders, nexus with forest officials, cleared huge forest areas. Excessive logging had not only destroyed the forests, but also led to further ecological damage. Removing protective vegetation exposed the soil to the monsoon rains and eroded rapidly resulting in landslides and the sedimentation of streams, rivers and the reservoir (Van Schendel et al. 2001; Mohsin, 2003).

Findings:

The major changes in the forest management system of CHT and corresponding impacts on the environment and culture of the tribal people over the four political periods can be seen as an influence of three policies; conservation, development and political. Conservation of forests in this region was initiated due to the economic value of forest products, particularly timber. Exploitation of the resources of this region always got prominence in different government policies. The local communities conserved the nature for a long period of time before the British rulers invaded the region. Their own communal policies restored the ecology as well as ensured livelihood. It is evident from the policy implications that no 'community' level partnership was ever developed to address the environmental and economic issues in this region. The political regimes could not understand or emphasized on the interests and ability of the tribal communities in managing forests.

Development policies like construction of roads, building dam and industries reflected the intention of the governments about this region. The worldwide trend of building dam could have influenced the central government to build Kaptai dam. Moreover the economic value of the resources drove the other two development activities. None of these activities involved the considerations of the local communities effectively. The ultimate victim of the effects of these development projects were both the ecology and the tribal people. Although some development policies incorporated the necessity of compensating local tribal communities; a little was reflected in the implementation process. Such broken promises increased the distance between the governments and the tribal people, raising conflicts.

Colonial governments separated the local people to fulfil their economic policies and played the political game of separating the tribal community from the mainlanders for establishing control. Thus, the increased gap between the tribal and mainland people limit the scopes of building trust and partnership. Post colonial governments tried to control the region for both economic and political purposes. The migration policies of the post colonial governments were driven by both population pressures at the mainlands and establishing control over the region. Misunderstanding the lifestyles of the local communities and their involvement in 'anti-conservation activities' increased further gap, which might have influenced migration policies.

These three different types of the policies marginalized the local tribes in their home land. Population pressure, increased jhuming, logging, invaded plant species, commercial agriculture affected the productivity of the hilly lands causing economic marginalization. The ultimate result was the ecological marginalization of the forests.

Conclusion:

Blaikie & Brookfield (1987) remarked '...rhetoric of conservationists concerning destruction of the tropical rainforests should not be decried, despite its hyperbole, for rhetoric is the language of politics' (pp 164), which is also applicable in CHT context. The necessity of conserving the forests through community participation has been suggested in different research papers to be a major way of mitigating conflicts and sustaining ecology of this region. Although, in recent past some policies were prepared highlighting the rights of the local tribal community; still such policies may not fulfil the purpose and initiate further conflict if the non-tribal settlers' interests are excluded. Further research may contribute in finding the 'checks and balances' of participatory policy processes among tribal communities, government and the non-tribal settlers to ensure the greenness and peace in this region.

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Compensation Practices in Bangladesh Theoretical Perspective

Md. Zohurul Islam*
M. Rezaul Karim**

Abstract: *Compensation is one of the most important human resource management (HRM) functions which can help to reinforce the organization's culture and values and to facilitate the achievement of its strategic business objectives It is a systematic approach to endow with financial value to the employee in exchange of jobs they perform targeting to achieve some organizational goals and objectives. It is also connected with some purposes relating to recruitment, job performance, and job satisfaction. It serves as a tool for the management for various purposes of the organization including its existence in the global competitive market. This is not only for the private sectors but also for public sectors. Compensation can be used to recruit qualified employees, increase level of individual satisfaction, encourages high performance, attain internal and external equity, reduce turnover, practice employee welfare schemes etc. Considering these benefits of compensation every organization sets some plans in order to achieve its goals and objectives. This articles attempts to analyze different theoretical dimensions of compensation practices in public and private sectors of Bangladesh.*

1.0 Introduction

There are a good number of jobs to be performed in both Public and Private organizations regarding making decisions in line with the organizational goals and objectives.[1] All this jobs must be filled in by the qualified, effectives and efficient employees, upon whom the organization can survive and to achieve the objectives or goals. In the modern era the concept of Human Resource Management (HRM) in organization is over emphasized, the successes or failure of organization depends on how HRM practices are used in organization. Organization, public or private deals with Human Resources (HR) and Material

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1 James, E.C. 1979. How to Compensate Executives. Third Edition, Don Jones-irwin, Homewood, Illinois, USA.

Resources (MR). Effective HR can utilize the MR in efficient manner to make the organization a success. But employee productivity is a composite of wage and effort bargain, which motivation theories indicate. Organizational goal to be achieved by, supported with individual incentives.[2] Meaning thereby, the degree of effort and contribution is given by the employee, employer should compensate them in monetary and as well non monetary form.

2.0 Human Resource Management

Compensation is an important component of HRM function. Before discussing compensation in details it is better to describe HRM in brief to have clear idea on the said topic. Enormous definition has been found in different writers of HRM. According to Fisher, Human Resource Management (HRM) involves all management decisions and practices that directly affect or influence the people, or human resources, who work for the organization.[3] Fisher also noted his book, that increased attention has been devoted to how organizations manage human resources. On the other hand, HRM is on managing people within the employer-employee relationship. Specifically, it involves the productive use of people in achieving the organization's strategic business objectives and the satisfaction of individual employee needs.[4] In the people centric organization HRM concept is widely practiced in both public and private organization. HRM is a major contributor to the success of an enterprise because it is key position 'to affect customer, business results and ultimately shareholder value'.[5]

2.1 HRM function

HRM starts with the recruitment and selection of new employees to the government by following structured format and then develops them for providing them some skill-based training. After getting training new employees are placed in the right position where they fit. While they are doing their jobs their performance is evaluated and management for their career plan, good compensation. For the betterment of the organization

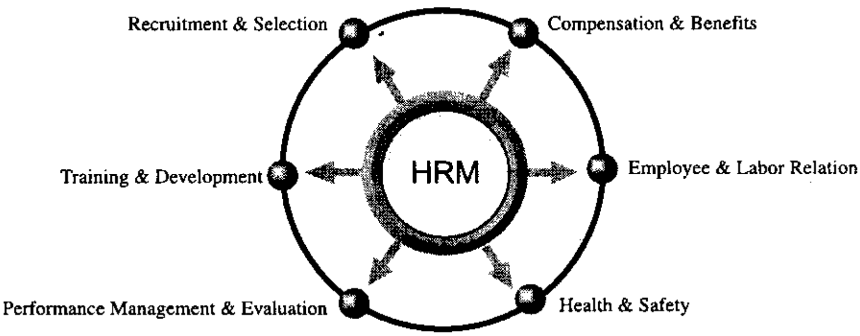
[2] Dennis M.D. 2002. Strategic Human Resource Management, Prentice Hall, Upper Saddle River, New Jersey, USA.

[3] Fisher S.S. 1993. Human Resource Management, Second Edition, Houghton Mifflin.

[4] Raymond, J.S.2002. Human Resource Management, Fourth Edition, John Wiley & Sons, Australia.

[5] Raymond, J.S.2002. Human Resource Management, Fourth Edition, John Wiley & Sons, Australia.

and achievement of strategic goals and objectives, there must be a health and safety programme for employees which is one of the most important component of modern HRM. This function is also linked with employee and labor relation. Finally compensation and benefits of the employee is the most dominant function of HRM that connects to every component of HRM. All these are interrelated and interconnected functions.



Source: Keth Davis, Human Resource Management.
www.ferrum.edu/fangel/hrm/COMPENSA

2.1.1 Recruitment and Selection

The process of attracting individuals on a timely basis, in sufficient numbers and with appropriate qualification, and encouraging them to apply for jobs with an organization. In public sector management procure personnel from internal and external sources.

Selection is the process of choosing from a group of applicants those individuals best suited for a particular position. For the public sector management, Bangladesh has an autonomous recruitment agency called "Bangladesh Public Service Commission". This body, as per vacant post of estimated by the Ministry of Establishment, arranges the recruitment process.

The number of entrants to the Bangladesh civil service has been increasing each year although there may not be a demand for new personnel. In 1972 just after the independence in 1971, there were fewer than 11,000 officers in the civil service, twenty years later it had increased to nearly 79,000.[6] Graduates are entrants to the civil service by a competitive examination with a rigorous evaluation, both in written and

[6] http://www.indiana.edu/~csrc/zafar2.html

verbal. But the employment scenario is that the graduates each year surpasses the number of jobs available in either the public or private sector. For instance, in 1995, nearly 4000 graduated with master's degree from the University of Dhaka alone, but less than half could manage a decent job. Over 65,500 applicants, graduating from the nine public universities in the country, vied for only 1,475 entry-level positions in the civil service in 1995.[7]

Table 1 : Size of the National Civil Service (1992 Figures)

Class	Min/Div	Dept/Dte	SB	Total
I (BCS)	1,875	32,922	43.888	78,685
II	51	10,741	26,066	36,858
III	4,132	442,859	132,851	579,842
IV	2,343	162,819	86,202	251,364
Total	8,401	649,341	289,007	946,749

Source: MoE, Statistics of Civil Officers, 1992.

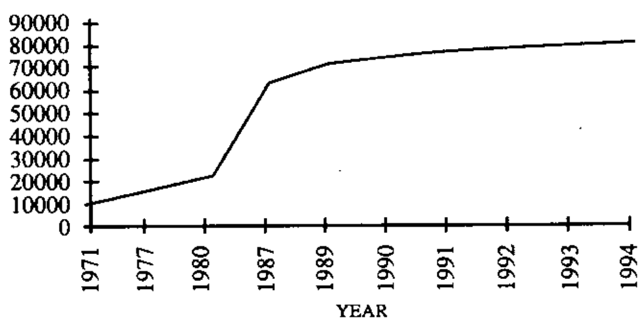


Figure 2 : Growth of the Bangladesh Civil Service

Source: Establishment Division, Startic stices on Civil Employees, 1975, 1977, 1980, 1987, Stortic stices of Civil Officers and Employees, 1988; Startic stics of Civil Officers and Staff, 1989, 1991, 1992, PSC 1994, 1995.

2.1.2 Compensation and Benefit

Compensation is one of the most important HRM functions which can help to reinforce the organization's culture and values and to facilitate the achievement of its strategic business objectives.[8] It is a tool for reinforce for the employee to achieve desired result for the organization. It can also be defined as a motivating tool for high level of job performance and enhancing organizational effectiveness.

[7] http://www.indiana.edu/~csrc/zafar2.html

[8] Raymond, J.S.2002. Human Resource Management, Fourth Edition, John Wiley & Sons, Australia.

All financial rewards those generally are not paid directly to the employee are called benefits.[9] In the public sector management public policy plays a role in determining what benefits an employee receives.[10] Employee benefit system prevailing in pure government organizations, semi-government, and non-government organization, are quite different specially in Bangladesh. Many of the problems of Bangladesh's bureaucracy can be linked with poor pay - the result of a persistent erosion and compression of salaries. From time to time, the Government has adjusted compensation - by setting up National Pay Service Commissions at five to eight year intervals. In 1985, for instance, a Pay Commission almost doubled the basic pay, and in 1991 it increased it by about 1.7 times, and there has also been a number of increases in 'dearness' allowances. However, it is clear that government salaries, at management and policy levels, have fallen far out of line with those in the private sector. The salary compensation structure does not allow for differences in professional skills, educational level, or the nature of the job. Hence, doctors, engineers, or revenue officers entering Class-I positions receive the same salary.[11] In 2005 the new pay scale was announced under the 6th pay commission where 20 pay grades with Taka 23,000 at the highest and Taka 2,400 at the lowest per month in terms of basic pay. Correspondence to 5th pay commission in 1997 it was Taka15000 and Taka 1500.[12]

2.1.3 Employee and labor relation

Human Resource Management is involved with efforts to improve productivity through employee and labor relation. Organizational effectiveness also depends on enthusiasm of employees by providing employees with a good quality of work life (QWL). QWL means having good supervision, good working conditions, first-class pay and benefits, and an interesting, challenging and rewarding job.[13]

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[09] Monday R., Noe M.1993. Human Resource Management, Fifth Edition, Allyn and Bacon, USA.

[10] John M. I.2001. Human Resource Management, Eight Edition, McGraw-Hill,Irwin, New York.

[11] Source: World Bank - Government that Works: Reforming the Public Sector (1996) (edited)

[12] The Bangladesh Observer, Tuesday, May17, 2005.

[13] Keith Davis.W.B.1993, Human Resources and Personnel Management, Fourth Edition,McGraw-Hill, New York.

2.14 Health and safety

Health and safety programs reflect the organization's strategic concern for employee productivity and quality of work life. These programs promoting employee commitment, company image, reduces cost and increases productivity. Poor occupational health and safety (OHS) performance equates to poor human resource management, and poor ethical, legal and social responsibility.[14] Government should introduce legislation covering occupational health and safety.

2.1.5 Performance Management and Evaluation

In general performance management is a formal system that provides a periodic review and evaluation of an individual's job performance. Storey and Sisson define performance management as 'an interlocking set of policies and practices which have as their focus the enhanced achievement of organizational objectives through a concentration on individual performance."[15] By evaluating past performance of employee future prediction may be helpful of job applicants. Nevertheless, evaluation of employee performance salary may determine promotion and other benefit of employees.

2.1.6 Training and Development (T&D)

Most important function of HRM is developing human resources of an organization by providing comprehensive training and education programme regarding jobs. It is the tool for understanding and developing skill, information of the organization and its goals for the employee. On the other way T&D is designed to help a person to make one's positive contributions in good performance. Training helps employee to make their work done in better way where, development prepares individuals for the future. It focuses on learning and personal development.[16]

3.0 Compensation

By definition, 'compensation is what employees receive in exchange for their contribution to the organization."[17] Compensation helps organization

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[14] Raymond, J.S.2002. Human Resource Management, Fourth Edition, John Wiley & Sons, Australia. P.642.

[15] Raymond, J.S.2002. Human Resource Management, Fourth Edition, John Wiley & Sons, Australia. P.265

[16] John M. I.2001. Human Resource Management, Eight Edition, McGraw-Hill, Irwin, New York.p.380.

[17] Keith Davis.W.B.1993, Human Resources and Personnel Management, Fourth Edition,McGraw-Hill, New York.p.412.

retaining current employee, attracting new employee, increasing productivity and reducing cost and turnover rate. Strategic compensation links with pay and benefit that attracting, retaining and motivating employees.[18] It is clear to everyone that how important individual contribution in organization to success. So attracting those individuals and keeping them is the foremost issue in creating a successful organization. That is why adequate compensation is an important factor to attract individuals.

A difference prevails in public and private sector, regarding job compensation. Although public sector pay has often lagged behind comparing to private sector, but its benefits have compensated for that in its ability to attract and retain employees. For instance in Bangladesh Government service is more secured than private job. Though there is an inequity in pay structure and pay policy.

In the competitive age, researchers have shown that in public sector intrinsic motivation is given emphasis than extrinsic reward. While an extrinsic reward, pay is also an intrinsic item. In pay-for-performance systems, pay is an indicator of accomplishment. Most public sector pay policies are based on a principle of uniformity. But it is also duty to bust up private organization as an indicator of economic growth. That needs to have fair pay structure, pay scale system, equity in administration and flexibility.[19] In the competitive business era, private organizations pay for performance that rewards employees on the basis of their performance. Reward might be in different form, reward or compensation is necessary for life or employee for both public and private organization. Compensation, reward or pay what ever called it is, essential for own and family's needs. According to Maslow's Need Hierarchy theory needs are different at different stages. It is mentioned that money is a powerful source of motivation. According to Herzberg's two- factor motivation theory, employee can motivate by financial and non-financial way. In the next page a figure has been shown of different types of compensation. These are some aspects of job satisfaction, which lead to positive employment relationships and high level of individual performance.[20]

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[18] Dennis M.D. 2002. Strategic Human Resource Management, Prentice Hall, Upper Saddle River, New Jersey, USA.

[19] Dennis M.D. 2002. Strategic Human Resource Management, Prentice Hall, Upper Saddle River, New Jersey, USA

[20] Schermerhorn J.*et.al.*, 2005, Organizational Behavior, Ninth Edition, Wiley, USA.

3.1 Objectives for effective compensation

As described earlier, now objectives of compensation may be summarized according to following points:

- To acquire qualified personnel-for attracting qualified employee compensation needs to be high. Pay levels must be determined by labor supply and demand.
- To retain present employee-employee may quit when compensation levels are not competitive, that result is high turnover.
- To ensure equity-equity in terms of internal and external. Internal equity requires that pay be related to the relative worth of jobs that ensure similar jobs get similar pay. External equity means paying workers that comparable to the other firms.
- To create society value-governments must pay their employees a living wage, as this is something our society value.
- To comply with legal regulation-a sound wage and salary considers the legal challenges imposed by government and ensures the employer's compliance.

3.2 Types of Compensation

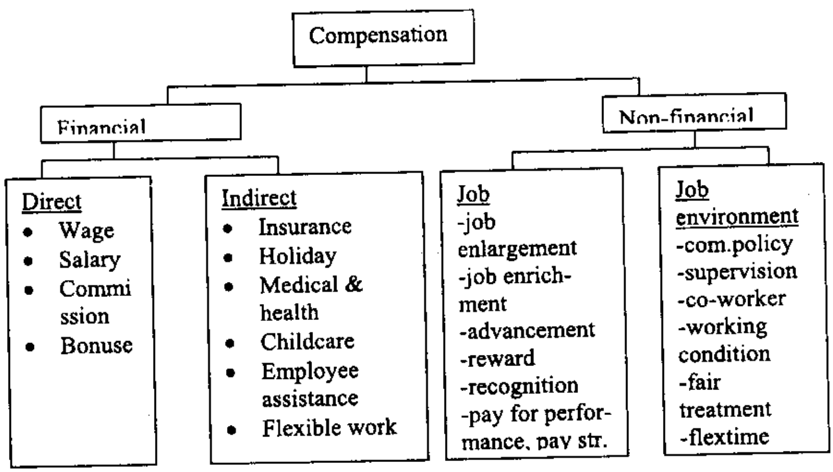

Fig:3 Types of compensation

Source: Raymond J. Stone, Human Resource Management, Fourth Edition,2002.
www.ferrum.edu/fangel/hrm/COMPENSA

3.2.1 Financial Compensation (Direct)

Salary, wage, commission and bonuses

All these are remuneration by the employer to the employees. Employees are getting this kind of remuneration by contributing their effort. In public sector organization salary structure is designed by the Pay Commission. Salary and wages is given to employee by checking in public sector organization. Naturally, salary is for the white color employee, and wages are for the blue color employees. Wages means, 'payment for labor or services to a worker, especially remuneration on an hourly, daily, or weekly basis or by the piece.'[21] Culture of commission is exercised in private sector organization, it seems that employee should do more than expectation. Especially in Bangladesh all kind of product promotion Company are offer commission for the employee. In the management term, it might be called as performance pay or motivate employee to do more work that carries incentives. Another monetary remuneration is called bonuses, to some extent it has been found in all sector. In Bangladesh public sector organizations festival bonuses have been introduced since 1990s. So, every employee of public sector receives two festival bonuses in a year in order to celebrate religious festivals.

3.2.2 Financial Compensation (Indirect)

Insurance

Insurance can disperse the financial risks encountered by employees and their families. Employees feel motivated and encouraged to work and get mental strength for the assurance of any unsent cost to be compensated occurred in future due to accident for oneself and one's family members. Insurance are like this, health related insurance, Dental insurance, mental insurance, disability insurance, life insurance.

Childcare

Childcare is fast becoming an important benefit for employee and employer. In public sector organization, mother having a child, no special arrange for her. But thing has been changing, in the ministry there is childcare centre. As per factory rule there should be a child care centre in every factory. However this is rarely seen that factories are maintaining this. Though public sector organizations have the maternity benefit for

21 http://www.answers.com/topic/wage

the mother, on the other hand private sector organizations have no hard and fast rule for maternal benefit. If the organization has the scope for childcare facility, organization would be immensely benefited from the employee's performance.

Paid Holiday

Government sector organization has fixed holidays like May Day, Christmas day, National Independence Day, Language day and so on. For example Bangladesh has 13 holidays in a year, apart from these, every government employee can take 20 casual days with pay. The reason might be illness or any other special important ground with the prior approval from the top management. However there is no scope of getting any sorts of financial benefit if any employee works on holidays. This is to some extend different in private organizations where employees can avail this opportunities as overtime payment.

United Kingdom grants 'working holiday' to workers that pay employees to visit vendor as a bonus for long service. Other company provides contingent time off in the form of paid 'holidays' to workers who meet productivity or other goal.[22]

Flextime

Flextime abolishes rigid starting and ending times for the workday. Instead, employees are allowed to report to work and end work at any time during a range of hours each day. For example, starting time may be 7 am to 9 am., all employees expected to work the core hours of 9 am. to 3 pm. 40 hours each week.[23] So it is practice of permitting employees to choose, with certain limitations, their own working hours is referred to as flextime.

Employee Assistance Programs (EAP)

Employee assistantance programs treat the individual. Individual problem does affect organizational performance at work. Thus, organization takes part action helping employees to solve their problems through job training or organizational socialization.

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[22] Keith Davis.W.B.1993, Human Resources and Personnel Management, Fourth Edition,McGraw-Hill, New York.p.479.

[23] Keith Davis.W.B.1993, Human Resources and Personnel Management, Fourth Edition,McGraw-Hill, New York.p.480.

3.2.3 Non-Financial Compensation

Job enlargement

It's a job design approach that has been created to add variety of tasks performed. Job enlargement increases task variety by combining one job two or more tasks. It is the horizontal expansion of individual responsibility.[24]

Job enrichment

Job enrichment refers to basic changes in the content and level of responsibility of a job that provides greater challenges to the employee. In Herzberg's model, job enrichment is the practice of enhancing job content that means the vertical loading of job depth. This job design strategy gives workers more responsibility for planning and evaluating their duties.

Pay for performance

Performance based compensation 'is to develop a productive, efficient, effective organization that enhances employee motivation and performance.'[25] Public sector organization has pay grade and pay policy, according to pay grade or salary structure employee get their benefits. Performance based pay is very much ignored. But it is practised in private organization. Private organization does employee evaluation in periodic basis; on the basis of employee evaluation or employee performance management determine salary, bonus or any other financial or not financial benefit.

Many employees have mistrust on pay for performance because of its having no a significant scale how much and at what point merit or performance should be increased. But in the competitive pressures there is a demand in the organization for organizational performance or effectiveness. Precisely it is a motivational tool for effective organization. HR manager could practice it to influence employee's perception of pay.

Pay-for-performance requirement[26]

To establish an effective pay-for-performance plan, HR managers need to ensure some issues which are:

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[24] Schermerhorn J. *et.al.*, 2005. Organizational Behavior, Ninth Edition, Wiley, USA.

[25] Raymond, J.S.2002. Human Resource Management, Fourth Edition, John Wiley & Sons, Australia. p 450;

[26] Raymond, J.S.2002. Human Resource Management, Fourth Edition, John Wiley & Sons, Australia.

- To create a link with reward and performance
- To provide fair and equitable compensation and EEO
- To match with organizational business strategic objectives and culture
- To involve high level of communication and employee participation
- To evaluate employee performance with unbiased way
- To train manager to measuring performance and maintaining administration

Advantages[27]

The advantages of pay for performance are as follows:

- It motivates
- It communicate the right messages of an employee
- It is fair to reward people according to their performance
- It encourages the employee.

Disadvantages

The disadvantages of pay-for-performance are as follows:

- It is not a guaranteed motivator
- To some extent it is difficult to measure performance
- Team suffer, if there is undue favor of individual
- It is not cost effective
- Rater might be biases, might not be well trained in employee performance rating.

Pay/Salary structure

Salaries are determined by job size and employee performance. Job size is established by job evaluation and performance is measured by employee appraisal. Each job level hasa salary rang with degree of maximum and minimum. Salary range represents all salary ranges over the whole spectrum of job size and a tool for salary administration.

[27] Armstrong M.2000. Performance Management, second Edition, Kogan Page ltd, USA.p.166.Australia.

4.0 Developing compensation Strategy

At the organization level there is general wage level for employee associated with some certain factors that needs to be considered. Compensation system should be in such a manner that might attract and retain talents as organization needs, encourage employees to develop the skills and ability, motivate employee and create team culture for maintaining sustainable success of organization in the long run (Fisher,1993). So compensation strategy or system design and implementation is the key role of HR manager. It is really complex to determine wage level for organization. The following factors are to be considered:

- Other firm rate
- Union demand
- Labor supply and demand
- Cost of living changes
- Firms ability to pay

This wage commission board is assigned for determining the wage rate and review wage in general. Commission review job content, task and responsibility, job description, job specification and job requirement and also market force and nevertheless commission review organizational pay policy with country economic condition.

4.1 Establishing individual pay or internal equity: Job evaluation[28]

Purpose of job evaluation is to decide which jobs are worth more for organization than other job (Devis, 1993). According to Fisher, major purpose of job evaluation is to determine the relative worth of the jobs within on organization. Job evaluation is concerned with how big or small the job is. There are many methods used to evaluate jobs, with this evaluation individual pay may be considered. Evaluation systems focus on the employee role or skills, competencies or knowledge as the basis for pay.

Job Ranking

In this method the evaluator ranks the jobs from 'bigger' to 'smallest'. It is the simplest and oldest method of job evaluation that sizes jobs by placing them in rank order.

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[28] Fisher, S.S.,1993, Human Resource Management,....

Example of job ranking:[29]

Rank	Job
1	General Manager
2	Marketing Manager
3	Production Manager
4	Accounting Manager

Job Grading

It is often used in the public sector, for example in Bangladesh has 20 grade of job according to pay scale and four tupes of employees according to level of employees such as Class-I, Class-II, Class-III and Class-IV with certain types of jobs in each level. The job grading method is a non-quantitative job evaluation technique that compares the whole job with a predetermined standard (for example, education, experience and responsibility). Here, the first step is to use a number of job related factors, next is to create generic or benchmark job descriptions for each grades of job. And to establish relative worth of an individual job, that is compared with benchmark description of the grade.

Point System

This method involves quantifying a set of job factors, such as education, experience, responsibility and working conditions by allocating points to each factor. The points are allocated for individual factors are to determine the job's relative worth to the organization. Example of point system is given below:

Education	Level	Points
PhD degree	5	250
Master degree	4	200
Bachelor	3	150
Secondary school	2	100
Primary school	1	50

Factor Comparison

This system is the refinement of ranking and point method. It permits the job evaluation process to be done factor by factor. This system is used to

[29] Raymond, J.S.2002. Human Resource Management, Fourth Edition, John Wiley & Sons, Australia

compare in five universal job factors, for example:

1. Responsibility- money, human resource record, supervisor responsibility of the job.
2. Skill-facility in muscular coordination and training in the interpretation of sensory requirement.
3. Physical effort- sitting, working, lifting, moving and so on.
4. Mental effort-intelligence, problem solving, reasoning, and imagination.
5. Working condition-environmental factors, noise, ventilation, Hours, hazards, etc.

4.2 Pay for individual and each job

Both in public and private sector organization job and responsibility are different. Each job is given grade or rank. Individual is given pay or compensation according job grade and rank and responsibility. Employee should give compensate or pay on the basis of following parameters:

a) performance appraisal
b) performance related pay
c) gain sharing
d) skill-based pay

5.0 Case study with reference to Bangladesh

5.1 Public Sector case

The civil service in Bangladesh is still steeped in traditions. The attribute of the pre-1947 Indian civil service and the civil services in Pakistan (1947-71) are still entrenched in the system to utilize and compensate human resources. The private sector is not so developed in Bangladesh as to proper regular employment opportunities for these people. Thus the civil service in Internal Labor Market (ILM), by and large, operates in a non-competitive environment and basically sets the standards of personnel management, especially recruitment and compensation.[30]

Civil service compensation is adjusted periodically by the government. Generally it is called National Pay Commission. For example the government announced new pay scale on last 17 May, 2005 with an effect

[30] http://www.indiana.edu/csrc/zafar2.html

from January 2005. This 6th pay commission announced 53% salary increased for 20 pay grade where the lowest was TK. 2,400 and the highest was TK. 23.000 month in terms of basic salary.[31]

Apart from this, public sector employees are enjoying benefits like housing allowances, traveling allowances, telephone allowances (as per ceiling), office car/transport, guard, and servant and so on. Still public sector employee's retirement age is 57. Employee has the yearly salary increment as per scale provision. Criteria for promotion is mainly on Annual Confidential Report (ACR) basis, and seniority in service. Employees are treating equally, not in gender bias. Women are also getting maternity benefit for four months twice of her service period with full salary or wages.

5.2 Industrial Sector

In Bangladesh 47 laws are now in operation. These are related to employee wages and benefit, working condition, labor administration and also workers compensation. In the industrial sector following laws are more of less practicing.[32]

- Workmen's compensation Act, 1923
- Payment of wages Act, 1936
- Maternity benefit Act, 1936
- Employment and labor Act, 1965
- Shops and Establishments Act, 1965
- Factories Act, 1965
- Industrial Relations Ordinance, 1069

5.3 Garments Sector

It is found that that more than 5000 factories are in action or production mode. Now a day it is the largest sector in terms of employment as well as exports earning. It is said that about 75% of export earning comes from Garments sector. This sector is having 2.5 million employments.

5.3.1 Garments worker compensation

At the fourth decade of independence, Bangladesh has still not reformed laws in accordance with changed scenarios. Everyday, a huge number of

[31] The Bangladesh Observer, May 17, 2005. Dhaka, Bangladesh.

[32] www.boi.gov.bd/human_resources_employment.php

working people face accidents at workplaces particularly in factory, construction sites, agricultural farms, garments, leather production, transport, fishing launches and industries. All these accidents cause injures that can lead permanent disability and sometimes death. Workers especially garments workers do not get holidays and good working environment. Moreover, there is no minimum wages or salaries are not paid regularly by the employer/ management.

It is found that the existing worker's compensation laws are rigid and out of date. The Fatal Accident Act, 1885 provides for compensation to families for death of family members caused by lack of safety in the workplace. The Workmen's Compensation Act, 1923 states briefly how and to what level workers can apply for benefits. According to this law, an injured worker or, in case of death, his/her family is entitled to compensation as follows:[33]

Injured worker's approx monthly wage (US$)	Amount of compensation (US$)	
	Death	Total disablement
$0 to $2	$ 138	$ 172
$2 to $4	$ 206	$ 275
$4 to $6	$ 241	$ 327
$6 to $8	$ 275	$ 362
$8 to $10	$ 310	$ 448
Above $ 10	$ 362	$ 517

Source: Asian Labor Update

The Independent (Bangladesh) 17 April 2004

At present, the national minimum wage is above $10 (around Tk 500). According to the Workmen's Compensation Act 1923 the surviving family of any victim of a fatal workplace accident will receive $362 (Tk 21,000) only and in case of total permanent disablement the worker is entitled to $517 (around Tk 30,000) only. It is unbelievable that worker life is worth only $362, and that the value of our ability to function normally is just $517.

[33] www.amrc.org.hk/5003.htm

5.3.2 Injured worker statistics

In fact working conditions and health hazards as a whole have changed over time. Unfortunately Bangladesh is still following an old-fashioned law that does not suit the present workers' situation at all. It is regrettable that the 'National Health Policy 2000' does not emphasize labor health issues. Every year, hundreds of accidents cause hundreds of deaths and disablement; it is high time that the seriousness of this situation is acknowledged; government should protect laborers' interests and take steps to save their lives and families as well as well as setting up a Workers' Compensation Commission to resolve all kinds of disputes.

Critical conditions regarding workplace accidents can be imagined on the basis of national newspapers report-

- In 1991, 144 workers died and 620 were injured in accidents at workplaces.
- In 2001, 196 workers died and 508 were injured.
- In 2002,168 workers died and 389 were injured.
- About 1620 people were murdered from January to June in 2003. Most of them were workers.

  Source: Source: Asian Labor Update

  www.amrc.org.hk/5003.htm

5.3.3 Compensation case: Slow, unfair and usually unpaid

A 19-year-old worker, Kamal, was electrocuted at Peoples Garments while ironing clothes made for one of the world's biggest retailers. He died instantly in Mirpur over ten years ago. A union advises his mother to submit a petition to the Dhaka Divisional Deputy Inspector of Factories for a legal suit against Peoples Garments.

The Inspectorate filed a case in the Labor Court following an investigation. But Kamal's mother has still received no compensation because of the legal tangle.

6.0 Recommendations

6.1 For Garments Sector

- Worker compensation commission should be established on the basis of bilateral discussion between employers and employees.

- Fixed minimum wage for workers, must be set and follow-up actions should also be taken by the government.
- Every factory should formulate and follow insurance policy for the welfare of working employees.
- A specific percentage of profit share to be given worker as compensation every year.
- Proper implementation of labor law should be made and concerned supervising authority should be involved in monitoring the laws.
- Implementation of operational rules, for example, wages, duty hour, working condition, appointment letter for all workers should be made.
- A single compensation scheme for all workers should be kept in operation.

6.2 For Public Sector

- Equal opportunity of pay policy should be introduced.
- Performance based pay and promotion rather than seniority basis promotion should be introduced in order to attract and retained qualified and skilled employees.
- Paternity leave for one month with full pay should be introduced for male employees, which might work as motivation.
- Adequate housing loan facilities for all level employees with minimum interest may be provided.
- Lateral entry should be encouraged so that ageing people particularly more experienced and elderly people can utilize their skills and knowledge.
- Education loan for dependents should be introduced for all employees which will serve as the motivator to work to achieve organizational goals and objectives.
- Individual incentive to be given to better performing employees in order to motivate them to produce better outputs.
- Pay policy and pay structure should be matched with living cost.
- There should be a permanent pay commission and pay should be reviewed by pay commission after every 5 years.

- Every organization with at least 200 employees should have a medical and child care centre.
- Health insurance for all employees should be covered by the government, including for new entrants.

7.0 Conclusion

HRM experts consider compensation as one of the most important human resource management functions because of its exchange values paid to the employees for the service they provide to the organization eventually leading to achieve organizational goals and objectives. A good compensation package is a motivating factor for attracting and retaining employees. It also serves as a tool for the management to serve various purposes of the organization including its existence in the global competitive market. This is not only for the private sector but also for public sector. Compensation can be used to recruit qualified employees, increase level of individual satisfaction, add high performance, obtain internal and external equity, reduce turnover, practice employee welfare schemes etc. These are the benefits of compensation that may guide every organization to formulate and implement some strategic plans in order to achieve its goals and objectives. If the theoretical issues of compensation are analyzed to have its positive impact in the organizations of Bangladesh, either in public or private, researchers may be highly dissatisfied with the findings. Because some direct benefits regarding financial matters can be established along with some indirect benefits. The non-financial benefits are still ignored in the organizations. In order to get optimum utilization of human capital of working people, there should be a highly structured and rational compensation package in every public and private organization. In that case recommendations made above may help policy makers to prepare a realistic compensation package beneficial for both employers and employees as well.

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Modern Agriculture
The Scourge of Environment and People

Shormila Arefeen*

Abstract: *We are incessantly made to believe the "rising global prosperity" because of trade liberalization and globalization but in reality, the number of the hungry in the world is increasing. Landless and poverty are age-old problems but in recent times, the development especially in agriculture, and trade policies promoted by international financial institutions and World Trade Organization (WTO) have made the problems more acute. In addition to food crisis, crops for making bio-fuels, genetically modified crops and hybrid rice are contributing less in feeding the hungry and more in exacerbating damage in environment, destroying the bio-diversity, soil degradation and last but not the least, aggravating the global climate change vis-à-vis global warming. Urgent actions are needed to stop the scourge of environment and people resulting from 'modern' agriculture.*

Introduction:

Through all the raucous debates and controversies raging over the global food crisis, two basic issues need to be remembered: to have food, one must have enough land to produce her/his own food and, one must have enough money to buy food from the market. The swelling ranks of the hungry in the world have neither, or have very little land or money.

"People are hungry because they are poor, not because the earth is running out of food... and poverty should be addressed by policy changes," wrote the Economist, of London, just before the World Food Summit (WFS) of the United Nations Food and Agriculture Organization (FAO) in Rome 1996.[1] The FAO itself, in its preparatory document for the Summit, noted: "Some 30 million in the developing countries are landless and an additional 138 million are near-landless, and the number in this category is growing throughout the developing world... Landless and near-landlessness are primary determinants of food security in rural areas."[2]

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* Assistant Commissioner, Moulvibazar Collectorate, Moulvibazar

[1] The Economist, London, 16 November 1996.

[2] FAO. Technical Background Documents 1-5, Vol. 1 for the World Food Summit, Rome, 1996.

Apparently, it is not the shortage of food, but the politics of how we distribute land and other natural resources and, how we produce and distribute food that is now playing out on such a massive scale.

Of the millions of the hungry worldwide, nearly 80% are small-scale or near-landless farmers (50% with inadequate land, 20% rural landless workers and, 10% fishers and herders); the rest, which comprises 20%, are the urban poor whose number is now growing. Our lop-sided global and national agricultural and trade policies have something to do with this.

Landlessness and poverty are age-old problems but in recent times, the development especially in agriculture, and trade policies promoted by the International Monetary Fund (IMF), the World Bank and the World Trade Organizations (WTO) and the national governments have made the problems more acute.

In the past few decades, these policies have been creating a crisis for small-scale farmers who form the majority in agriculture in the developing world and who produce much of the world's staple food (rice, wheat and corn). The policies are the root cause of these farmers' loss of livelihoods and the land through unfair competition with big farmers and agribusiness corporations in the developed world. The consequences of these policies are further aggravated by their governments' support for the Transnational Corporations (TNCs) and neglect of the poor.

Unable to cope with the crisis, the small-scale farmers are forced to migrate to cities and compete for tentative low paying jobs in the informal sector and hence, adding to the ranks of the urban poor. Food, for most of them, has become unaffordable in a system where food security is based on international trade and not on local production. The market has turned food, a basic biological need, into a commodity for willful profiteering and speculative trade and investment, and for this reason, pushed the small-scale farmers out of its ambit.

We are incessantly made to believe the "rising global prosperity" because of trade liberalization and globalization but in reality, the number of the hungry in the world is increasing. The number actually increased- from 800 million in 1995 to 850 million in 2005, adding five million every year. And this is the reversal of the world trend seen in the first half of the 90s.[3]

[3] Windfuhr, M. and Jonsen, J. Food Sovereignty: Towards Democracy in Localized Systems, ITDG Publishing House, Warwickshire, 2005.

Impacts of Food Crisis: Losers & Winners

According to estimates made by the World Bank, the new food crisis will add another 100 million to the swelling ranks, most of them are women and children among the poor. It could even be more. Based on the number of the poorest who are living on less than US $1 a day in 53 countries, Oxfam International, a non-government organization (NGO) that has been closely monitoring recent developements, estimates that the crisis "threatens the livelihood of around 290 million people"[4] . According to the United Nations World Food Program (WFP), which helps feed the needy around the world, the poor in about 40 countries is at a risk of "serious hunger or are already suffering from it".

"A community of the newly needy is emerging", warns the WFP. With its resources severely strained, the WFP finds it hard to meet their needs. Eventually, these newly needy will "end-up selling their productive assets and that pretty much mean they will remain economically destitute even when things come back to normal".[5] And things are not going to come back to normal too soon. As a coping mechanism to limited incomes and mounting food expenses, poor families have no choice but to curb other rights, services and privileges. This means less food and health care for children and women (expecting and nursing mothers included) that lead to stunted growth of millions of children, and the sacrifice of education unless the already burdened governments intervene. The WFP's meal programs for children in schools have been curtailed in many poor countries because of ballooning costs.

The dependence on imported food is putting a tremendous strain on poor countries. Nearly 70% (105) of the 149 developing countries are now net food importers, and the less developed countries account for half of the world's food importers. As a result price increases are steep in these countries. In Sri Lanka and Cote d' Ivoire, the price of rice doubled and in Bangladesh, it rose by 60%.

One would have thought that the farmers, as food producers, would have gained from the high food prices. But no. The bulk of the food producers in the world are small-scale farmers but they have not benefited. The subsistence farmers among them have no surplus to sell and may have to

[4] Oxfam International. The Time is Now: How World Leaders should Respond to the Food Price Crisis, Oxfam Briefing Notes, 3 June 2008.

[5] Sanders, E. and Wilkinson, T. A Perfect Storm of Hunger, Los Angeles Times, 1 April 2008, retrieved from Global Policy Forum.

buy food at a high price, or go without food if the produce does not last till next harvest.

On the other hand, most developed countries and some food exporting Latin American countries are gaining from increased exports. US agricultural exports are estimated to touch a record of US$ 101 billion this year (2008) 23% higher than the year 2007, New York Times (March 2008) reported.

Large transnational agribusiness corporations, who have come to dominate world agriculture and food markets, have been licking the cream off the market, making enormous profit. Cargill, the world's largest food grains dealer, which had 36% higher profit (US$ 2.3 billion) in 2007 (over that in 2006) from commodity trading, saw its profit spurt 86% in the first quarter of 2008 (compared to the same period the previous year). Archer Daniel Midland (ADM) of the US, world's second largest grain dealer, saw its profit grow by 67% to a record of US$ 2.2 billion in 2007.

Fertilizer costs had nearly doubled in 2007, Cargill's associate, Mosaic (US), which manufactures fertilizers had 141% higher profit (US$ 708 million) in 2007. Seed and pesticide companies are also profiting enormously. The world's largest seed company, Monsanto, which ran a loss of US $ 2.3 million in 2003, pocketed a profit of nearly US$ 1 billion in 2007 (44% more than in 2006) and Syngenta, world's top pesticide company and the third largest seed company, had 75% higher profit (US$ 1.1 billion) in 2007.

Thus, the real winners are transnational agribusiness corporations. Today, only a few transnational corporations (TNCs) control the global food trade, with five companies accounting for nearly 90% of the grain trade. In recent times, these powerful integrated corporations that deal with seeds, fertilizers and pesticides, grains and processed foods, have been shaping global agriculture and food policies to their benefits and advantages through their influence in the international finance institutions and trade organizations.

Bio-fuel: Boon or a Crime against Humanity

Cereal use patterns during this decade show an interesting trend. Since 2000, cereal use for industrial uses, which include bio-fuels, rose by 25% compared to 4% and 7% respectively for food and animal feed.[6] More

[6] OVon Braun, J. The World Food Situation- New Driving Forces and Required Actions, International Food Policy Research Institute, Washington DC, December 2007.

than half the food produced in the world is now used for animal feed and industrial raw materials; including bio-fuels.

The US and Brazil are the leaders in bio-fuel (bio-ethanol) production. The US uses corn while Brazil uses sugar cane. The European Union (EU) uses wheat and oil seeds to produce biodiesel. The US has an ambitious plan to replace 15% of the gasoline used (or 132.5 billion litres against the current use of 34 billion litres) in transport vehicles with bio-fuel by 2017. To promote bio-fuel production, the US offers incentives in the form of subsidies to its farmers to grow corn for bio-fuel. Prompted by this subsidy, farmers have been rushing to convert cropland to corn for bio-fuel. In 2006, the US used about 55 million tones of corn, or 20% of its total production, for bio-fuel. In 2007, this went up to 20%. The EU used 4.5 million tones of grains for bio-fuel in 2007, and this is set to increase several folds in the next decade. This prompted the UN Special Rapporteur on the Right to Food, Oliver de Schutter, to call the US and EU "ambitious goals" for bio-fuel production "irresponsible" and the bio-fuel rush was a "scandal that only serves the interests of a tiny lobby".[7] Bio-fuels now offer big trading opportunities in the international market, which has drawn corporations such as Monsanto, Syngenta, DuPont, Bayer, BASF and Dow to invest in corps specially designed for bio-fuels as also grain traders such as Cargill, ADM and Bunge.

According to a confidential World Bank report obtained by the Guardian, bio-fuels have forced global food prices to soar by 75% and the rising food prices have pushed 100 million people world wide below the poverty line. The united Nation's independent expert on the right to food, Jean Ziegler, has called bio-fuels a "crime against humanity" (Source: The Daily Star, 1 May 2008).

Two reasons are advanced for the increasing bio-fuel production: energy security and efficiency; and the need to cut down environmentally harmful carbon emissions from vehicles to meet the challenge of global warming. But a series of recent scientific studies refute these claims: making bio-ethanol from corn using current technologies takes more energy than it saves, and the environmental reasons are also not quite sound. Cutting down swathes of rain forests to plant sugar cane or oil palm to produce bio-fuel, as is being done in several Asian and Latin American countries like Indonesia, Malaysia, and Brazil will have a greater environmental impact than burning oil, i.e. they lead to greater

[7] Agence France Press, Food Crisis Payback for '20 Years of Mistakes': UN Expert.

carbon loss than what bio-fuels can save. Bio-ethanol from corn poses another environmental problem. The process by which corn is currently converted to bio-fuel (ethanol) demands heavy use of water (1,900 litres of water per minute, typically), mainly for heating and cooling, putting a tremendous strain on local water resources.[8]

Bio-fuels have not mad a dent on the fuel problem either. One-fifth of the US corn production that went to making ethanol in 2006 could only replace about 3% of its fuel consumption, points out the World Development Report 2008.

Climate Change:

In 2006, bad weather- drought in Australia and heat waves and floods in Europe- led to many crop failures and partly lowered global food production (around 2.5% less than in 2005). Floods, droughts, erratic monsoon, sea level rise and coastal flooding, water scarcity, etc., could increase with the rise in global temperature and climate change and affect crop yields and production, warned the Intergovernmental Panel on Climate Change (IPCC).[9] Though much of the so-called greenhouse gases (GHG) or carbon emissions that cause global warming are emitted by the industrialized developed countries, it is the developing countries in Sub-Saharan Africa and Asia which face greater risks of damage from climate change. Global average temperature is estimated to rise by 1.8 to 4 degrees Celsius this century compared to only 0.74 degree over the past century. Rice yields are likely to be affected in Asia over the long term. In Africa, land degradation and water scarcity are additional threats.

Profligate energy use, highly energy-intensive industries and chemical based industrial agriculture, particularly export-oriented crop production, etc. are the major contributors to climate change. Chemical-based agriculture is estimated to contribute 15% to 25% to greenhouse gas emissions, mainly from the use of chemical fertilizers. In this context, local production of food by non-chemical methods and emphasis on local markets can help cut down carbon emission.

Genetically Modified Crops Not the Answer

The food crisis has prompted some looks towards genetically modified (GM) food production as a solution. That in turn has led to stronger

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8 Ethanol and Water: Don't Mix, The economist, 1 March 2008.

9 Intergovernmental Panel on Climate Change (IPCC), Climate Change 2007: Impacts and Adaptation and Vulnerability.

warnings over the consequences of such food for health and the environment. Feeding the debate, scientists, farmers and environmental activists in many countries continue to warn that GM agriculture presents a risk, and not a contribution, to food production.

In fact, most of the genetic modifications introduced in crops aim at making them resistant to pests or weeds but not to increase yields. The crop around which there has been most controversy has been Bt cotton. Despite the hype around the "wonder crop", an investigation by GRAIN (a non-government organization which tracks and studies developments in agriculture) revealed no consistent pattern of increased yields for Bt cotton compared with conventional varieties. Moreover, the cultivation of Bt cotton made farmers much more susceptible to contracting crippling debts.[10]

Genetically modified organisms (GMOs) also failed to deliver the promised reduction in pesticides outlay, which was the main reason for their intervention. Although pesticide expenditure often declined in the early years, it bounced back to its former level- or even higher- as farmers sought to deal with new, resistant 'super weeds'. In France organic farmers are complaining that GM plants are poisoning their plantations. GE technology also hampers the pest-predator balance. While transferring a particular pest-resistance gene it often ends up destroying other beneficial insects. Bt toxin, a soil bacterium, has been particularly toxic to the butterflies and moths.

Several scientists and environmental activists say that the idea that the GM agriculture could help feed the world is part of the propaganda that biochemical industry has used for years, but it is false. It will not solve the world's hunger problem.

.... Nor is Hybrid Rice

Despite the fanfare about soaring yields, hybrid rice has not been a successful crop. Three decades of subsidies and research have failed to bring it into mass production, except in China.

The consequence of a large-scale shift from conventional rice to corporate-friendly hybrids would be devastating not only for small farmers but also for future rice production and environment.

The few studies of it have painted a bleak picture. Official statistics from 2003 for one town in Isbela Province in the north-west of the Philippines

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[10] Seedlings, GRAIN, July 2008.

show that for every hectare of hybrid rice that yielded above the national average for the conventional inbred varieties, currently 4.2 million tones, seven hectares of same variety yielded well below it.

Hybrid gives superficial profit to the farmers. The cost of inputs (fertilizer, seeds, pesticides, labor wage, cattle manure, renting charge of irrigation pumps and diesel) are much higher than that of the indigenous rice varieties. Rampant use of chemical fertilizers and pesticides is the major cause of soil depletion, infertility and lower production. According to the experts and think tanks, fertility level of 70% of the arable lands of Bangladesh has been reduced by the unrestricted use of chemical fertilizers in the cultivation of hybrid rice.

Hybrid rice seeds are not self-pollinating. They cannot be saved from the harvest, so farmers have to buy new seeds every year. And hybrid seeds are supplied almost exclusively by private seed companies. Indeed, the whole logic behind hybrids is to make profits for corporations. It is the key to corporate controlled market for rice.

Recommendations:

1. Promote and support biodiversity-based ecological food production through the enactment of a strong policy.
2. Stop the indiscriminate conversion of agricultural land to other uses, and also stop the conversion of food crops to other uses such as bio-fuels.
3. Ensure fair price for farm/farmers' produce.
4. Promote and support community-based seed and grain storage systems to restore farmers' control over seeds and protect local varieties from extinction.
5. Strengthen public procurement, distribution and stocking systems for food.
6. Take WTO out of agriculture.

Conclusion:

The WTO, by formalizing and supporting agriculture trade system, has played havoc with the lives of millions of small-scale farmers and workers around the world, as experienced with the WTO system for over a decade now has shown. And there is not much hope for changing the WTO trade rules rigged in favor of the powerful developed countries and

TNCs as recent developments in trade negotiations at the so-called Development Round or the Doha Round of talks to correct these distortions have shown.

Besides, much of the fertile agricultural land has been, is being, converted to other uses such as industries, urban infrastructure and large scale recreational centres, special economic zones, and now to crops for making bio-fuels. This has limited the land available for agriculture and restrained expansion of agricultural production.

"Modern" chemical-based mono-crop agricultural systems are not only unsustainable but have destroyed the natural resource base agriculture and biodiversity (which is a basic element in providing food security to the poor), global climate change, displaced small-scale and marginal farmers and created economic and social inequalities. For sustainability and food security, we need to focus on biodiversity-based ecological agriculture, centered on small-scale farmers. These systems also offer higher productivity and income than mono-crop systems, and help improve and create rural livelihood by spurring diverse economic activities. However, these systems need strong institutional support.

Meanwhile, the international climate change negotiations to reduce global warming and tackle climate change have been dragging on for years. As the UNDP (United Nations Development Program) Human Development Report 2007 noted: "The world's poor and future generations can not afford the complacency and prevarication that continues to characterize international negotiations on climate change".

While agricultural science and technology has made it possible to greatly increase productivity in the last 50 years, the sharing of benefits has been far from equitable. Furthermore, progress has been achieved in many cases at a high social and environmental cost. Agricultural science place greater emphasis on safeguarding natural resources and on "agro-ecological" practices. These include using natural fertilizers and traditional seeds, intensifying natural processes and reducing the distance between agricultural production and the consumer. The need for action is urgent.

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Repeated and Excessive Slash and Burn Agriculture and Adverse Effects on Environment: *A Case on Matamuhuri Catchments of South-Eastern Tertiary Hills of Bangladesh*

Dr. H.Z.M. Hasibush Shaheed*

Abstract: *Matamuhuri catchment is a part of Greater district of Chittagong and Chittagong Hill Tracts and it occupies about 2,05,628 hectares of hilly landmass. Once the hilly region represents green vegetated landscape and people satisfy their essential needs from nature. But at present, due to increasing population and extension of reserved forest traditional jhum cycle (interval between two subsistence slash and burn agriculture) of tribal people has been reduced from 15-25 years to 2-3 years or maximum 5 years only. In reserved forests and khash lands the forest department and different organizations have been introduced commercial monocultures (teak, acacia, eucalyptus, rubber etc.). Those monocultures are created after total slash and burn of natural vegetation. All slash and burn processes cause massive soil erosion, oversiltation in streambeds, loss of natural woody plant, bamboo, cane, medicinal plants, natural fruit and roots, fishes in streams, rise in temperature, increasing landslide and such other problems. To search out the actual problems-originated from slash and burn agriculture different PRA sessions (group and individual interviews of key informants) have been done in different locations of study area. Direct field observation has been introduced in different field of slash and burn (different jhum fallows and land of monocultures) to note down physical environment of soil, hillslope, status of natural flora and fauna, output from jhumfields, temperature, natural spring and stream flow etc. Soil samples have been collected from different lands of slash and burn and naturally vegetated lands to trace out actual scientific cause of soil degradation and associated problems. The study reveals that slash and burn agriculture causes decrease in hydrogen ion of soil (pH value) that indicates soil becomes toxic, significant decrease in organic matter that is the actual cause of soil disintegration and erosion and decrease in soil moisture. All these conditions cause creation of barren hill ridges in study area. Soil properties are much degradable in land of monocultures than those of different jhumlands. The striking result of this research is that soil properties are not degraded at all in long jhum fallows.*

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Introduction:

'Slash and Burn Agriculture' or Jhum cultivation (Shifting cultivation) is the primitive from of agriculture (started from Neolithic age which comprises cutting and burning of forest, making holes over the small hill beds and then sowing a variety of seeds (Hossain,1996) Shaheed, 2002) Shifting cultivation, which is at the fore-front of forest exploitation in South and South east Asia, accounts for about 49% of deforestation (FAO,1982).

In Bangladesh Jhum (shifting cultivation) is practiced only Chittagong Hill tracts and in some tribal areas of adjacent hill region of greater Chittagong. Shifting cultivation is also treated as rotational cultivation. The nomads or Jhumias use the land after a certain interval. After a slash and burn process a land can revive it's nutrient capacity after fifty years (Alexander,1977). In Chittagong Hill tracts formally the fallow period was 15-25 yerar. Later it has been decreasing with the increase of population and now the interval is only 2-3 years in maximum places (Gafur, *et.al.* 2000). Beside it yield from Jhum field become very and the Jhumias are taking alternative works for survive all over the year. In most cases they cut the timber wood and as for result no natural mature trees are seen in the region without some very remote places. The maximum Jhum fields are now totally devoid of trees or large vegetation. The ultimate result is that the ecosystem of the area becomes seriously endangered. From field survey, massive soil erosion and landslide, oversiltation in torrents and riverbes, loss of maximum hilly springs, decreases in water flow, intolerable temperature, disappear of forest rainfall (which was seen before 30-40 Years) decrease of crop and natural output (bamboo, cane, natural fruits and roots, fishes shrimps and others), crisis of pure drinking water, decrease in water level and such other problems have been identified. The total Jhum fields have been increased 3-4 times after peace treaty with tribal leaders(Shaheed, 2007).

In recent decades, some other forms of 'Slash and Burn Agriculture' have been running in study area. They are apparently more devastating to hilly environment than that of traditional shifting agriculture. Teak, acacia, eucalyptus, pine, gamar and such other monocultures are established after complete slash and burn of natural vegetation. Most of them are exotic origin and the mature gardens of teak, acacia and eucalyptus represents zero undergrowth.

The British colonial foresters introduced teak in 1872 at Sitapahar, Kaptai with seeds brought from Burma (Myanmar), the Pakistan and Bangladesh Government followed that colonial policy (Gain,1997) and now teak monoculture covers around 60 percent of total forestation program (Sources of Rangamati, Chittagong, Bandarban and Cox's Bazar forest divisions).The teak is not beneficial to environment. It is criticized for massive soil erosion. Undergrowth vegetation is totally absent in the teak plantation because of an acidic reaction with the soil (Marchak, 1998). Teak is not indigenous specie and perhaps not a proper replacement. The monoculture of teak, however desirable commercially, is a death knell to wildlife conservation (Schendel, *et.al,* 2000).

Pulpwood or industrial plantations with exotic species (pine, eucalyptus & acacia) have already contributed to massive deforestation with severe environmental degradation and replaced natural forests with alien species in Chittagong and Chittagong Hill Tracts. In some places such plantations have been established on the traditional jhum land and cause loss of biodiversity and soil erosion. Actually such plantations are monoculture and they typically have sparse canopies-do not protect the land. They cause rise in air temperature and deplete water table (Marchak,1998).

Objectives:

The aim of this study is to identify the nature of slash and burn agriculture and the environmental problems- originated from this malpractice. To reach the goal the following objectives have been adopted.

1. Observe different fields of slash and burn agriculture in some selected areas and find out the environment hazards- originated from them;

2. Find out the status of soil properties in different field of slash and burn agriculture.

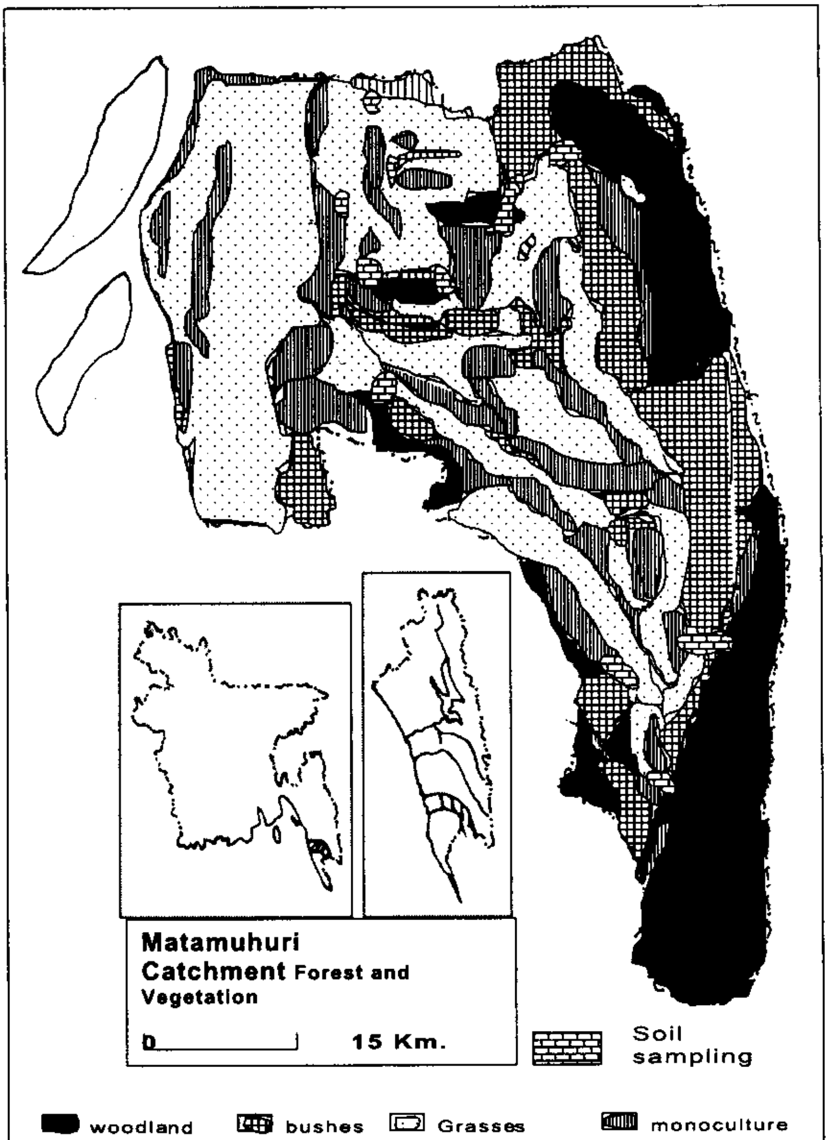

Fig.1: Forest and Vegetation Map of Matamuhuri Catchment
(*Source*: Shaheed, 2007)

Study Area:

The Matamuhuri Catchment of Greater districts of Chittagong and Chittagong Hill Tracts represents low hilly area. The hilly region stretches latitudinally between 210 21/ - 21059/ north and longitudinally between 91075/-92034/ east. The area includes whole Alikadam upazila of Bandarban district and maximum portion of Lama (Bandarban) and Chokoria upazila of Cox' s Bazar. The catchment area stretches from Bandarban Sadar and Lohagora upazila in the north and Arakan of Myanmar in the south. The eastern border represents Ruma and Thanchi upazila of Bandarban while the western part comprises Cox's Bazar district and Bay of Bengal. Area of this hilly river catchment is about 1400 square kilometer in which maximum part represents very dense hilly forest or shrubs.

Methodology:

Primary and secondary- both types of data have been considered. Primary data have been collected from field visit (PRA Sessions in different locations). To determine the environmental hazards due to slash and burn agriculture several PRA sessions (individual and group interviews of key informants of the localities) have been done. In depth field observations have been adopted to find out the scientific cause and actual scientific effects on environment. This process has been done to note down physical environment of soil, hillslope, status of natural flora and fauna, output from jhumfields, temperature, natural spring and stream flow etc. To measure the soil degradation, sample from different places have been collected. Mainly soil organic matter, moisture content of soil and soil pH has been tested in laboratory to find out the cause of soil loss and abolish of undergrowth vegetation. Some data have been collected from secondary sources. Previous research works, reports, journals and books have also been considered.

Characteristics of existing lands of 'Slash and Burn Agriculture':The matamuhuri catchment represents different types of jhumland and monoculture-

i) Short fallow (repeated jhumfield): 2-3 years jhum cycle; In lama upazila, specially lama sadar and Aziznagar union, the jhum cycle has been reduced too much due to heavy population pressure and lack of secondary or tertiary occupation.

ii) Short to medium fallow: 4-6 years jhum cycle In north Alikadam and south lama upazila the tribal peoples become habituated in some alternative occupations. Tobacco plantation forest workers or N.G.O and private services give some opportunities of employment. The returns from jhum fields are not so satisfactory and population density is not so thick like Aziznagar and lama sadar or other parts of hills like Bandarban sadar, Taracha, Kaptai, Rangamati, or Kahagrachari.

iii) Medium to long fallow (jhum cycle is 5-8 years): In Lemupalong of lama, some part of Matamuhuri reserved forest, Champra and Tainpa of Alikaloam, population density is very low and actually there are no administrative controls at all. In those places the tribal use land anywhere as they like. The jhum cycle is comparatively longer in those places and production satisfies the farmers

iv) Long fallow (11-20 years): Apparently these are not jhum fields. In some places of matamuhuri reserved forest, Champra, Lemupalong, Lulaing are filled with bushes and medium aged scattered tress. Local people reported that jhum cultivation had been occurred there long days ago (11-20 years).

Teak monoculture: Mature (more than 50 years), semi mature (20 years+) and tin aged teak gardens are seen elsewhere. They cover about 60% of plantation. But the great concern for this practice is that the hillslopes of teak monocultures are totally devoid of undergrowth vegetation. Due to long absence of micro flora, topsoil has been totally eroded for rainfall action. hillslopes have become very fragile and regular increasing landslides are observed in barren hills after collection of timber.

Acacia monoculture: This type of monoculture is also very dominant feature in study area. The land situation is almost same like teak garden.

Rubber monoculture: Very few lands of study area are used for this practice. Rubber monoculture is also created after complete slash and burn of natural forest and this landscape also shows ' total absence of natural flora'.

Eucalyptus monoculture: This practice is decreasing in study area. Very few gardens are remaining here and there and they cover poor area. But the lands covered by eucalyptus monoculture are also barren like teak and other monocultures.

Adverse effects on environment Due to Repeated and Excessive Slash and Burn Agriculture:

Excessive slash and burn of natural forest for commercial monoculture and repeated jhum practice are doing great harm to environment. The following table shows the situation:

Table-1: People's perception about environmental degradation-originated from slash and burn agriculture

Problem	Very high	High	Medium	Low	Rank
Soil erosion	500	-	-	-	1
Loss of soil fertility	500	-	-	-	1
Siltation	500				1
Landslide	500				1
Decrease in river depth	500				1
Decrease in water flow (dry season)	500				1
Loss of fauna	500				1
Crisis of fishes from natural sources	500				1
crisis of natural food	500				1
Crisis of medicinal plants	500				1
Loss of hilly spring	421	72	7		2
Decrease in water level	417	82	1		3
Rise in temperature	406	88	6		4
Loss of natural trees	403	87	0		5
Loss of bamboo	397	91	12		6
Loss of cane	381	103	16		7
Extension of Grassland	287	193	105	15	8
Extension of shrubby area	245	230	25	-	9
Extension of barren hill	23	252	104	121	10
Crisis of fishes from natural sources	21	240	201	38	11
crisis of natural food		191	171	18	12
Crisis of medicinal plants		181	179	75	13
Water logging	-	33	41	426	14
Crisis of drinking water (dry season)		24	219	257	15
decrease in rainfall		19	307	174	16
Sheet erosion and mudflow	-		232	268	17

NB: Five hundred people have been interviewed from different locations

Table1 shows the environmental problems - originated from slash and burn agriculture. These are the common results. In depth field observation and soil sample test can show the actual scientific cause of environmental degradation in different field of slash and burn agriculture.

Scientific Evidences of Soil Degradation and Loss of Production: The proportion of sand is increased after slash and burn of vegetation (SCWM,1998). For this reason, the overjhumming area is suffering from huge soil erosion. The rate of soil loss from active jhum land is 43 ton/hectare/ year, which is 4-5 times from normal land uses (SCWM,1998). The soil erosion from land of monoculture of exotic species is highest reportedly but no authentic calculation has been done for soil loss from monocultures. Table2 can explain the scientific cause of excessive soil erosion from land of monoculture and repeated jhumland

Table-2: Average value of organic matter, pH and water aggregate in Study Area

Land category	average value		
	organic matter(%)	p^H	water aggregate(%)
Natural woodland forest	4.8	7.4	44.5
Natural bush and shrubs	4.3	6.5	31
Short *jhum* fallow	1.7	5.7	26.5
Short to medium *jhum* fallow	3.1	5.9	30
medium to long *jhum* fallow	4.6	6.2	31.5
Long *jhum* fallow	4.8	6.8	20
Teak monoculture	0.88	4.0	8
Acacia monoculture	1.5	4.2	12
Rubber monoculture	1.1	4.3	22
Eucalyptus monoculture	0.93	3.9	7.5

Table 2 represents the soil organic matter, pH, water holding capacity of natural forest soils of hill slope and soils of those degraded hillslope that are used for modern and indigenous land use.

The table shows that organic matter content of teak, acacia, eucalyptus and rubber monoculture is very poor. Long fallow after slash and burn and repeated jhum fallow are also harmful but not so like monoculture. Loss of organic matter causes disintegration of soil (Asthana, 2001). Water aggregate of monocultures (except rubber) is also very poor. Very low pH value indicates toxicity of soil (Biswas and Mukherjee,1991) - In this situation, no plant will grow and animal species will be disappeared due to destruction of food and shelter.

Table-3: Physical environment of different land category in Study Area

Land category	Physical environment			
	status of phytodiversity	density of hilly spring (per sq. km)	temperature	slope stability
Teak monoculture	no undergrowth, climber or another flora	0	highest 36^0 c variation 10^0c -14^0c	very fragile, top soil eroded from mature gardens
Acacia monoculture	no undergrowth, climber or another flora	0	highest 34^0 c variation 9^0c -11^0c	also fragile but not so dangerous like teak
Eucalyptus monoculture	no undergrowth, climber or another flora	0	highest 36^0 c variation 10^0c -13^0c	fragile
Rubber monoculture	no undergrowth, climber or another flora	0	highest 32^0 c variation 9^0c -11^0c	accelerated erosion due to lack of undergrowth
Traditional long jhum fallow	natural forest regrowths, bountiful phytodiversity	7	highest 28^0 c variation 4^0c -7^0c	stable
medium to long jhum fallow	natural forest regrowths,thin bushes	3	highest 30^0 c variation 6^0c -8^0c	fragile
short to medium jhum fallow		0	highest 36^0 c variation 10^0c -14^0c	fragile
Modern repeated short jhum fallow	thin shrub	0	highest 36^0 c variation 11^0c -15^0c	fragile
Natural bushes	bountiful phytodiversity	10	highest 28^0 c variation 5-9^0c	stable
Natural woodland	bountiful phytodiversity	14	highest 28^0 c variation 4^0c -5^0c	stable

Source: Shaheed,2007

[*note: the variation of temperature ranges from 180-220C. The record of SCWM weather station, Bandarban shows the variation from 150-180C. The site of weather station is not totally barren. Beside it some big trees and mixed man make gardens are seen here and there. So temperature of totally barren land will be higher than that station.*]

The above table shows natural woodland and bushes represent bountiful phytodiversity, natural springs as source of water, low temperature and slope stability. Traditional jhumlands also represent same situation. But monocultures are totally devoid of phytodiversity and natural springs. They represent very high temperature and slope instability. The situation of modern jhumlands is almost same as monocultures.

Cause and effect relationship between depletion of forest land (originated from over jhumming) and environmental degradation: 'Slash and Burn' agriculture in hilly area is too much harmful to environment and ecosystem also. After jhum cultivation, natural flora can grow again and long interval jhum cultivation in limited area is almost eco-friendly but creation of monoculture of exotic species causes permanent damage of natural flora and significant change in environment and eco-system. The following model shows the relationship between permanent 'Slash and Burn' agriculture and environmental degradation.

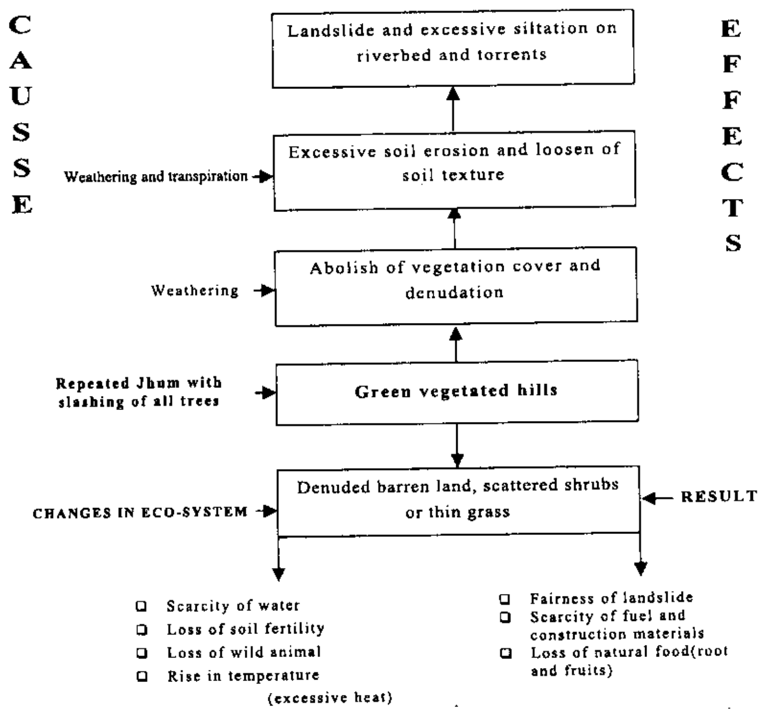

Figure-2 : Relationship between permanent 'Slash and Burn' agriculture and environmental degradation.

The postulated model shows that repeated slash and burn agriculture causes abolish of vegetation cover that starts destruction of hill slope and significant changes in ecosystem. Weathering on denudated landmass causes excessive soil erosion and loosen of soil texture. This process originates accelerated landslide and over sedimentation on riverbeds or torrents. Barren lands represent significant degradation in hill eco system. After destruction of green vegetation the hill area suffers from scarcity of water, rise in temperature, loss of soil fertility, fairness of landslide, scarcity of fuel wood and construction materials, loss of natural food (fish, fruit and roots) and such other problems. In a word, the hill ecosystem becomes unfavorable for mankind and animal species after destruction of natural forest adopting repeated and excessive jhum cultivation.

Conclusion:

Repeated and excessive jhum cultivation is originated from over-population and their unemployment problem. In most cases, jhum cultivators have no scope to get alternative job. But in future they will get no return from the barren denuded land. Then the problem will be multiplied. So govt. and others institutions should take attempt to provide jhumias in other sector for greater national interest. Moreover, monoculture should be banned very soon and local woody plants will be replaced for greater interest of the nation.

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Violation of Human Rights: A Study on Iraq War 2003

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Abstract: *Since 9/11 US languishment vested with the regime change in Iraq. US allies allege Iraq having WMD, violation of human rights and link with the terrorist organizations. On March 18, 2003 US alliance started bombing on Iraq and successively killed 60,196 civilians in 14,196 events till March 19, 2008. The US lobbies attack was an occupation, or liberation, or self-defense, or aggression? However, Obama administration has retreated albeit from his predecessor's policy. But legality of Iraq War 2003 in both jus ad bellum and jus in bello is still unsettled in many points of view. International community should raise their voice and strengthen mechanism to reduce probability of war, or aggression. This article, however, tries to scrutinize the worldwide impact of such unlawful and exported war to a sovereign state; and to highlight the helplessness of the world community to find any measures to be justified.*

1.0 Introduction

Human rights violations occur when any state or non-state actor breaches any part of the UDHR treaty or other international human rights or humanitarian law. Human rights abuses are monitored by United Nations committees, national institutions and governments and by many independent non-governmental organizations, such as Amnesty International, International Federation of Human Rights, Human Rights Watch, World Organisation Against Torture, Freedom House, International Freedom of Expression Exchange and Anti-Slavery International. These organisations collect evidence and documentation of alleged human rights abuses and apply pressure to enforce human rights laws. Wars of aggression, war crimes and crimes against humanity, including genocide, are breaches of International humanitarian law and represent the most serious of human rights violations. The Rome Statute of International Criminal Court 1998 is the complementary basic law to drag the accused persons under justice if the state party is unwilling or unable to try the case.

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Basic Rules of International Humanitarian Law—

1. Persons hors de combat and those not taking part in hostilities shall be protected and treated humanely.
2. It is forbidden to kill or injure an enemy who surrenders or who is hors de combat.
3. The wounded and sick shall be cared for and protected by the party to the conflict which has them in its power. The emblem of the Red Cross or the Red Crescent must be respected as the sign of protection.
4. Captured combatants and civilians must be protected against acts of violence and reprisals. They shall have the right to correspond with their families and to receive relief.
5. No one shall be subjected to torture, corporal punishment or cruel or degrading treatment.
6. Parties to a conflict and members of their armed forces do not have an unlimited choice of methods and means of warfare.
7. Parties to a conflict shall at all times distinguish between the civilian population and combatants. Attacks shall be directed solely against military objectives.[2]

2.0 Background

A stated rationale for a potential attack on Iraq is the desire to remove any threat from weapons of mass destruction (WMD) that it possessed.[3] Throughout 2002, the Bush administration made clear that removing Saddam Hussein from power in order to restore international peace and security was a major goal.

The principal stated justifications for this policy of "regime change" were that Iraq's continuing production of WMD and known ties to terrorist organizations, as well as Iraq's continued violations of UN Security Council resolutions, amounted to a threat to the U.S. and the world

[2] de Preux (1988). Basic Rules of the Geneva Conventions and their Additional Protocols, 2nd edition. Geneva: ICRC. p. 1.

President George W. Bush stated in November, "America's goal, the world's goal is more than the return of inspectors to Iraq. Our goal is to secure the peace through the comprehensive and verified disarmament of Iraq's weapons of mass destruction. Voluntary [sic], or by force, that goal will be achieved." Remarks by the President to Prague Atlantic Student Summit, Hilton Prague, Prague, Czech Republic, November 20, 2002,

http://www.whitehouse.gov/news/releases/2002/11/20021120-4.html (retrieved January 14, 2003).

community. The Bush administration's overall rationale for the invasion of Iraq was presented in detail by Secretary of State, Colin Powell, to the United Nations Security Council on February 5, 2003. In summary, he stated:

> "We know that Saddam Hussein is determined to keep his weapons of mass destruction; he's determined to make more. Given Saddam Hussein's history of aggression... given what we know of his terrorist associations and given his determination to exact revenge on those who oppose him, should we take the risk that he will not someday use these weapons at a time and the place and in the manner of his choosing at a time when the world is in a much weaker position to respond? The United States will not and cannot run that risk to the American people. Leaving Saddam Hussein in possession of weapons of mass destruction for a few more months or years is not an option, not in a post-September 11 world.

The main allegations at that time were that Saddam Hussein was in possession of, or was attempting to produce WMD particularly in light of two previous attacks on Baghdad nuclear weapons production facilities by both Iran and Israel which only postponed weapons development progress; and that he had ties to terrorists, specifically al-Qaeda. Moreover, it has also been alleged by some commentators that, while it never made an explicit connection between Iraq and the September 11 attacks, the Bush Administration did repeatedly insinuate a link, thereby creating a false impression for the American public.

Grand jury testimony from the first World Trade Center attack (February 26, 1993) trials cited numerous direct linkages from the terrorists to Baghdad and Department 13 of the Iraqi Intelligence Service in that initial attack marking the second anniversary to vindicate the surrender of Iraqi armed forces in Operation Desert Storm. For example, The Washington Post has noted that—

> While not explicitly declaring Iraqi culpability in the September 11, 2001, terrorist attacks, administration fficials did, at various times, imply a link. In late 2001, Cheney said it was "pretty well confirmed" that attack mastermind Mohamed Atta had met with a senior Iraqi intelligence official. Later, Cheney called Iraq the "geographic base of the terrorists who had us under assault now for many years, but most especially on 9/11." [4]

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[4] Milbank, Dana (June 18, 2004). "Bush Defends Assertions of Iraq-Al Qaeda Relationship". The Washington Post: p. A09. http://www.washingtonpost.com/wp-dyn/articles/A50679-2004Jun17.html.

Steven Kull, director of the Program on International Policy Attitudes (PIPA) at the University of Maryland, observed in March 2003 that "The administration has succeeded in creating a sense that there is some connection [between Sept. 11 and Saddam Hussein]". This was following a New York Times/CBS poll that showed 45% of Americans believing Saddam Hussein was "personally involved" in the September 11 atrocities.

As the Christian Science Monitor observed at the time, while "Sources knowledgeable about US intelligence say there is no evidence that Hussein played a role in the Sept. 11 attacks, nor that he has been or is currently aiding Al Qaeda... the White House appears to be encouraging this false impression, as it seeks to maintain American support for a possible war against Iraq and demonstrate seriousness of purpose to Hussein's regime." The CSM went on to report that, while polling data collected "right after Sept. 11, 2001" showed that only 3 percent mentioned Iraq or Saddam Hussein, by January 2003 attitudes "had been transformed" with a Knight Ridder poll showing that 44% of Americans believed "most" or "some" of the September 11 hijackers were Iraqi citizens.[5]

The BBC has also noted that while President Bush "never directly accused the former Iraqi leader of having a hand in the attacks on New York and Washington", he "repeatedly associated the two in keynote addresses delivered since September 11", adding that "Senior members of his administration have similarly conflated the two.

"For instance, the BBC report quotes Colin Powell in February 2003, stating that "We've learned that Iraq has trained al-Qaeda members in bomb-making and poisons and deadly gases. And we know that after September 11, Saddam Hussein's regime gleefully celebrated the terrorist attacks on America." The same BBC report, from September 2003, also noted the results of a recent opinion poll, which suggested that "70% of Americans believe the Iraqi leader was personally involved in the attacks."[6]

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[5] Feldmann, Linda (March 14, 2003). "The impact of Bush linking 9/11 and Iraq". The Christian Science Monitor. http://www.csmonitor.com/2003/0314/p02s01-woiq.html. Retrieved on 22/10/07.

[6] "Bush administration on Iraq 9/11 link". BBC News Online. September 18, 2003. http://news.bbc.co.uk/2/hi/americas/3119676.stm. Retrieved on 22/10/07.

Also in September 2003, the Boston Globe reported that "Vice President Dick Cheney, anxious to defend the White House foreign policy amid ongoing violence in Iraq, stunned intelligence analysts and even members of his own administration this week by failing to dismiss a widely discredited claim: that Saddam Hussein might have played a role in the Sept. 11 attacks."[7] A year later, Presidential candidate John Kerry alleged that Cheney was continuing "to intentionally mislead the American public by drawing a link between Saddam Hussein and 9/11 in an attempt to make the invasion of Iraq part of the global war on terror."[8]

According to then-President of the United States George W. Bush and the Prime minister of the United Kingdom of that time; Tony Blair, the reasons for the invasion were "to disarm Iraq of WMD, to end Saddam Hussein's support for terrorism, and to free the Iraqi people."[9] According to Blair, the trigger was Iraq's failure to take a "final opportunity" to disarm itself of nuclear, chemical, and biological weapons that U.S. and coalition officials called an immediate and intolerable threat to world peace.[10] Although some remnants of pre-1991 production were found after the end of the war, U.S. government spokespeople confirmed that these were not the weapons for which the U.S. went to war.[11]/[12]

In 2005, the Central Intelligence Agency (CIA) released a report saying that no weapons of mass destruction had been found in Iraq.[13]

2.1 US Allies Argument to Attack Iraq

George Bush, speaking in October 2002, said that "The stated policy of the United States is regime change… However, if Hussein were to meet all the conditions of the United Nations, the conditions that I have described very clearly in terms that everybody can understand, that in itself will signal the regime has changed".[14]

[7] Kornblut, Anne E.; Bender, Bryan (16/9/2003). "Cheney link of Iraq, 9/11 challenged". http://www.boston.com/news/nation/articles/2003/09/16/cheney_link_of_iraq_911_challenged/. Retrieved on 22/10/07.

[8] Kerry challenges Bush on Iraq-9/11 connection". CNN. 12/9/04. http://www.cnn.com/2004/ALLPOLITICS/09/12/kerry.powell.iraq/index.html.Retrieved on 22/10/07.

[9] President Discusses Beginning of Operation Iraqi Freedom". http://georgewbush-whitehouse.archives.gov/news/releases/2003/03/20030322.html

[10] President Bush Meets with Prime Minister Blair

[11] "Report: Hundreds of WMDs Found in Iraq", FOXNews.com, June 22, 2006

[12] Fax and report, June 21, 2006

[13] CIA's final report: No WMD found in Iraq - Conflict in Iraq - MSNBC.com". Msnbc.msn.com. April 25, 2005. http://www.msnbc.msn.com/id/7634313 .

[14] Bob Kemper (2002-10-23). "Saddam can keep rule if he complies: Bush". Daily Times. http://www.dailytimes.com.pk/default.asp?page=story_23-10-2002_pg4_1

Based on claims from intelligence sources, George Bush stated on March 6, 2003 that he believed that Saddam Hussein was not complying with UN Resolution 1441, which granted Iraq a final opportunity to disarm itself of Weapons of Mass Destruction, certain missile types, and other components and technologies.[15]

In September 2002, Tony Blair stated, in an answer to a parliamentary question, that "Regime change in Iraq would be a wonderful thing. That is not the purpose of our action; our purpose is to disarm Iraq of weapons of mass destruction..."[16]

In November of that year, Tony Blair further stated that "So far as our objective, it is disarmament, not régime change - that is our objective. Now I happen to believe the regime of Saddam is a very brutal and repressive regime, I think it does enormous damage to the Iraqi people... so I have got no doubt Saddam is very bad for Iraq, but on the other hand I have got no doubt either that the purpose of our challenge from the United Nations is disarmament of weapons of mass destruction, it is not regime change."[17]

At a press conference on January 31, 2003, George Bush again reiterated that the single trigger for the invasion would be Iraq's failure to disarm: "Saddam Hussein must understand that if he does not disarm, for the sake of peace, we, along with others, will go disarm Saddam Hussein."[18]

As late as February 25, 2003, it was still the official line that the only cause of invasion would be a failure to disarm. As Tony Blair made clear in a statement to the House of Commons: "I detest his regime. But even now he can save it by complying with the UN's demand. Even now, we are prepared to go the extra step to achieve disarmament peacefully."[19]

Additional justifications used at various times included Iraqi violation of UN resolutions, Saddam's repression of Iraqis and Iraqi violations of the 1991 cease-fire.[20]

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15 "News Release". White House. http://georgewbush-whitehouse.archives.gov/news/releases/2003/03/20030306-8.html.

16 "Tony Blair: Answer to Parliamentary Question". Hansard. http://www.publications.parliament.uk/pa/cm200102/cmhansrd/vo020924/debtext/20924-05.htm

17 "PM gives interview to Radio Monte Carlo". http://www.number-10.gov.uk/output/Page1299.asp

18 "Bush, Blair: Time running out for Saddam". CNN. http://www.cnn.com/2003/US/01/31/sprj.irq.bush.blair.topics/

19 "Tony Blair: Parliamentary Statement". Hansard.http://www.number10.gov.uk/output/Page3088.asp

20 Fax and report, June 21, 2006

Since the invasion, U.S. and British claims concerning Iraqi weapons programs and links to terrorist organizations have been discredited. While the debate of whether Iraq intended to develop chemical, biological, and nuclear weapons in the future remains open, no WMDs have been found in Iraq since the invasion despite comprehensive inspections lasting more than 18 months.[21]

In Cairo, on February 24, 2001, Colin Powell had predicted as much, saying "He [Saddam Hussein] has not developed any significant capability with respect to weapons of mass destruction. He is unable to project conventional power against his neighbors."[22] Similarly, assertions of significant operational links between Iraq and al Qaeda have largely been discredited by the intelligence community, and Secretary Powell himself eventually admitted he had no incontrovertible proof.[23]

In September 2002, the Bush administration said attempts by Iraq to acquire thousands of high-strength aluminum tubes pointed to a clandestine program to make enriched uranium for nuclear bombs. Indeed, Colin Powell, in his address to the U.N. Security Council just prior to the war, made reference to the tubes. But a report released by the Institute for Science and International Security in 2002 reported that it was highly unlikely that the tubes could be used to enrich uranium. Powell later admitted he had presented an inaccurate case to the United Nations on Iraqi weapons, based on sourcing that was wrong and in some cases "deliberately misleading." [24]/[25]/[26]

The Bush Administration asserted that the Hussein government had sought to purchase yellowcake uranium from Niger.[27]

On March 7, 2003, the U.S. submitted intelligence documents as evidence to the IAEA. These documents were dismissed by the IAEA as forgeries, with the concurrence in that judgment of outside experts. At the

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21 "CIA's final report: No WMD found in Iraq". MSNBC.com, April 25, 2005. Retrieved on April 5, 2007, Associated Press

22 Australian Associated Press (2003-09-23). "Pilger claims White House knew Saddam was no threat.". Sydney Morning Herald.

23 Marquis, Christopher (2004-01-09). "Powell Admits No Hard Proof in Linking Iraq to Al Qaeda.". New York Times. http://www.nytimes.com/2004/01/09/politics/09POWE.html?ex=1388984400&en=6bb5457574b8cc1d&ei=5007&partner=USERLAND

24 "Evidence on Iraq Challenged," Joby Warrick, The Washington Post, Sept. 19, 2002

25 Colin Powell's speech to the UN, Feb 5, 2003

26 Meet the Press, NBC, May 16, 2004

27 Lichtblau, Eric. "2002 Memo Doubted Uranium Sale Claim", The New York Times, January 18, 2006. Retrieved on May 10, 2007.

time, a US official claimed that the evidence was submitted to the IAEA without knowledge of its provenance, and characterized any mistakes as "more likely due to incompetence not malice".

Bush formally began making his case to the international community for an invasion of Iraq in his September 12, 2002 address to the UN Security Council.[28]

Key US allies in NATO, such as the United Kingdom, agreed with the US actions; while France and Germany were critical of plans to invade Iraq, arguing instead for continued diplomacy and weapons inspections.

Security Council members France and Russia made clear that they did not believe these consequences to include the use of force to overthrow the Iraqi government.[29]

After considerable debate, the UN Security Council adopted a compromise resolution, 1441, which authorized the resumption of weapons inspections and promised "serious consequences" for noncompliance.

Both the US ambassador to the UN, John Negroponte, and the UK ambassador, Jeremy Greenstock, publicly confirmed this reading of the resolution, assuring that Resolution 1441 provided no "automaticity" or "hidden triggers" for an invasion without further consultation of the Security Council.[30]

U.N. Security Council passed Resolution 1441, gave Iraq "a final opportunity to comply with its disarmament obligations" and set up inspections of Iraq by the United Nations Monitoring, Verification and Inspection Commission (UNMOVIC) and the International Atomic Energy Agency (IAEA).

Saddam Hussein accepted the resolution on November 13 2002, and inspectors returned to Iraq under the direction of UNMOVIC chairman Hans Blix and IAEA Director General Mohamed Elbaradei.

As of February 2003, the IAEA "found no evidence or plausible indication of the revival of a nuclear weapons program in Iraq"; the IAEA concluded that certain items which could have been used in nuclear

[28] Remarks by the President in Address to the United Nations General Assembly, New York; official transcript, press release, The White House, September 12, 2002.

[29] "France threatens rival UN Iraq draft". BBC News, October 26, 2002.

[30] "U.S. Wants Peaceful Disarmament of Iraq, Says Negroponte". Embassy of the United States in Manila. November 8, 2002. http://manila.usembassy.gov/wwwhira3.html.

enrichment centrifuges, such as aluminum tubes, were in fact intended for other uses.[31]

UNMOVIC "did not find evidence of the continuation or resumption of programs of weapons of mass destruction" or significant quantities of proscribed items. It did supervise the destruction of a small number of empty chemical rocket warheads, 50 liters of mustard gas that had been declared by Iraq and sealed by UNSCOM in 1998, and laboratory quantities of a mustard gas precursor, along with about 50 Al-Samoud missiles of a design that Iraq claimed did not exceed the permitted 150 km range, but which had travelled up to 183 km in tests. Shortly before the invasion, UNMOVIC stated that it would take "months" to verify Iraqi compliance with resolution 1441.[32]

In October 2002, the U.S. Congress passed a "Joint Resolution to Authorize the Use of United States Armed Forces against Iraq". While the resolution authorized the President to "use any means necessary" against Iraq, Americans polled in January 2003 widely favored further diplomacy over an invasion.

Later that year, however, Americans began to agree with Bush's plan. The U.S. government engaged in an elaborate domestic public relations campaign to market the war to the American people.

See, Public relations preparations for 2003 invasion of Iraq. Americans overwhelmingly believed Hussein did have weapons of mass destruction: 85% said so, even though the inspectors had not uncovered those weapons. Of those who thought Iraq had weapons stashed somewhere, about half were pessimistic that they would ever turn up. By February 2003, 74% of Americans supported taking military action to remove Saddam Hussein from power.[33]

In February 2003, US Secretary of State Colin Powell addressed the United Nations General Assembly, continuing US efforts to gain UN authorization for an invasion. Powell presented evidence alleging that Iraq was actively producing chemical and biological weapons and had ties to al-Qaeda.

[31] Statements of the Director General". IAEA. http://www.iaea.org/NewsCenter/Statements/2003/ebsp2003n006.shtml.

[32] Blix, Hans (2003-05-13), Thirteenth quarterly report of the Executive Chairman of the UNMOVIC in accordance with paragraph 12 of Security council resolution 1284 (1999).

[33] "Poll: Talk First, Fight Later". CBS.com, Jan. 24, 2003.

As a follow-up to Powell's presentation, the United States, United Kingdom, Poland, Italy, Australia, Denmark, Japan, and Spain proposed a UN Resolution authorizing the use of force in Iraq, but NATO members like Canada, France, and Germany, together with Russia, strongly urged continued diplomacy. Facing a losing vote as well as a likely veto from France and Russia, the US, UK, Spain, Poland, Denmark, Italy, Japan, and Australia eventually withdrew their resolution.[34]

With the failure of its resolution, the US and their supporters abandoned the Security Council procedures and decided to pursue the invasion without UN authorization, a decision of questionable legality under international law.[35]

In March 2003, the United States, United Kingdom, Spain, Australia, Poland, Denmark, and Italy began preparing for the invasion of Iraq, with a host of public relations, and military moves.

In his March 17, 2003 address to the nation, Bush demanded that Hussein and his two sons Uday and Qusay surrender and leave Iraq, giving them a 48-hour deadline.[36]

But Bush actually began the bombing of Iraq on March 18, the day before his deadline expired. On March 18, 2003, the bombing of Iraq by the US, the UK, Spain, Italy, Poland, Australia, and Denmark began, without UN support, unlike the first Gulf War or the coming in of Afghanistan.

Leaked White House documents reveal that UK Prime Minister Tony Blair and US President George Bush planned to invade Iraq regardless of whether or not they won UN approval. Though Blair has asserted that the final decision to invade was made only twenty-four hours before the war began, the leaked documents from a high-level meeting between Bush and Blair indicate that the decision was made before the Security Council discussed - but never adopted - a second resolution authorizing war against Iraq.[37]

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[34] US, Britain and Spain Abandon Resolution". Associated Press. 2003-03-17. http://www.globalpolicy.org/security/issues/iraq/attack/armtwist/2003/0317usbritspain.htm

[35] "Iraq". House of Commons Hansard Debates for 18 Mar 2003 (pt 6). http://www.publications.parliament.uk/pa/cm200203/cmhansrd/vo030318/debtext/30318-06.htm#30318-06_head1

[36] "Global Message". Whitehouse.gov. http://georgewbushwhitehouse.archives.gov/infocus/iraq/news/20030317-10.html

[37] Mail on Sunday :Blair in Secret Plot with Bush to Dupe UN (January 29, 2006)

2.2 View of UN Security Council

In March 2003 the US government announced that "diplomacy has failed" and that it would proceed with a "coalition of the willing" to rid Iraq under Saddam Hussein of WMD the US insisted it possessed. The invasion began a few days later. Prior to this decision, there had been much diplomacy and debate amongst the members of the UN Security Council over how to deal with the situation. Prior to 2002, the Security Council had passed 16 resolutions on Iraq. In 2002, the Security Council unanimously passed Resolution 1441.

In 2003, the governments of the US, UK, and Spain proposed another resolution on Iraq, which they called the "eighteenth resolution" and others called the "second resolution." This proposed resolution was subsequently withdrawn when it became clear that several permanent members of the Council would cast no votes on any new resolution, thereby vetoing it.[38] Had that occurred, it would have become even more difficult for those wishing to invade Iraq to argue that the Council had authorized the subsequent invasion. Regardless of the threatened or likely vetoes, it seems that the coalition at no time was assured any more than four affirmative votes in the Council-the U.S., Britain, Spain, and Bulgaria-well short of the requirement for nine affirmative votes.[39]

On September 16, 2004 UN Secretary-General Kofi Annan, speaking on the invasion, said, "I have indicated it was not in conformity with the UN charter. From our point of view, from the charter point of view, it was Illegal."

2.3 Voice of the World:

2.3.1 US Population

March 2003: 75% of US citizens felt the invasion was not a mistake. May[40] 2003: 79% thought the Iraq War was justified, with or without evidence of illegal weapons. 19% thought weapons were needed to justify the war. April 2007: 58% stated that the initial attack was a mistake.[41] Dec. 2008: 64% felt the Iraq War was not worth fighting, with 34% saying it was worth fighting, with 2% undecided.[42]

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[38] Iraq war illegal, says Annan BBC 16 September, 2004.

[39] Blix urges US and UK to hand over Iraq evidence Guardian Dec 20 2002

[40] http://www.pollingreport.com/iraq.htm

[41] Poll Shows View of Iraq War Is Most Negative Since Start, New York Times, May 2007.

[42] http://www.pollingreport.com/iraq.htm

Did the United States do the right thing in taking military action against Iraq?

According to The New York Times and the CBS News Poll, 35% said USA did the right thing. 61% opined that US should have stayed out. How are things going for the US in its efforts to bring stability and order to Iraq? 2% replied "very well", 21% said "somewhat well," but 47% answered "very badly" and 29% "somewhat badly."

2.3.2 Voice of the World: Iraq

82-87% of the Iraqi populace was opposed to the US occupation and wanted US troops to leave ---2005. 69% believed the presence of U.S. forces is making things worse. 51% of the population considered attacks on coalition forces acceptable, up from 17% in 2004 and 35% in 2006.[43]

3.0 Criteria of Just War theory

Just War Theory has two sets of criteria. The first establishing jus ad bellum, the right to go to war; the second establishing jus in bello, right conduct within war.[44]

3.1 Jus ad bellum

(a) US attack in Iraq: an Occupation or Liberation?

U.S. military forces entered Baghdad on April 9, 2003, General Tommy Franks, commander of the coalition forces, announced that the Americans had "come as liberators, not occupiers."

In the traditional understanding, an occupying power is a temporary custodian of the status quo in the territory it controls. Occupiers are assumed to remain only for the limited period between the cessation of hostilities and the conclusion of a final peace treaty. That treaty determines the fate of the occupied territory, most likely returning it to the ousted de jure sovereign. Thus, an occupier exercises mere de facto power. For that reason it enjoys no general legislative authority to make permanent changes to legal and political structures in the territory.

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43 http://www.pollingreport.com/iraq.htm

44 Childress, James F. (1978). "Just-War Theories: The Bases, Interrelations, Priorities, and Functions of Their Criteria". Theological Studies 39: 427-45.

(b) US Attack in Iraq: a Self Defense?

Since it was not directly attacked by Iraq the United States did not have an obvious right to self-defense. The administration, though, argued that it had a right to defend itself preemptively against a future possible attack. In his speech to the United Nations on September 12, 2002, President Bush described Saddam Hussein's regime as "a grave and gathering danger," detailed that regime's persistent efforts to acquire weapons of mass destruction, and spoke of an "outlaw regime" providing such weapons to terrorists. For an extensive discussion of international law and the preemptive use of force, We can see the Congressional Research Service's Report for Congress of September 23, 2002.

While arguing for preemption, the administration also suggested that the United States had a right to self-defense on the grounds that the Iraqi regime was connected to Al Qaeda, the organization responsible for the attacks on the United States of September 11, 2001. In February 2003, Secretary of State Colin Powell told the United Nations Security Council that Iraq was harboring a terrorist cell led by Abu Musab Zarqawi, a suspected associate of Al Qaeda. Powell also said that senior Iraqi and Al Qaeda leaders had met at least eight times since the early 1990s. Ansar al-Islam, an Islamist militia group, was also suspected of ties to Al Qaeda, and was based in a lawless part of northeast Iraq, though it was not known to have cooperated with Saddam Hussein.

(c) Analysis of Jus ad bellum

Thus, Iraq war was a Self Defense? Simply not because Iraq's missile power was limited within 150 to 180 kilometers, that could not reach to the territory of US or its neighboring countries. It was an Anticipatory Self Defense? No, because anticipatory self defense is a vague idea. Apart form this, UNMOVIC and IAEA did not find any development of weapons of mass destruction or nuclear weapons that may be a threat to world peace and security. Iraq attack was a Reprisal? Simply should not be because CIA and other Intelligence Agency could not trace out any involvement of Iraq with Al Qaeda, or 9/11 mishaps in US. Iraq War was s Doctrine of Necessity? I think it should not be because finally Iraq accepted UN Resolution 1441 and UNMOVIC and IAEA inspected the required suspected places of Iraq. Iraq War was a humanitarian intervention? I think if Iraq violated human rights to a large scale, President Saddam Hussein should be dragged under justice for crimes against the humanity but regime change cannot be the object of military action. Diplomatic negotiations comes first. If it fails, then economic sanctions might have been imposed upon Iraq and even diplomatic relations might be curtailed. Then the responsibility should go to the UN Security Council, not of USA. Thus I think Iraq war was an aggression and use of unauthorized force by US allies.

Asked in the fall of 2002 if the upcoming war in Iraq would be a just war, Cardinal Joseph Ratzinger said that "the concept of 'preventive war' does not appear in the Catechism of the Catholic Church."[45] UN Secretary General stated that the use of force without Council endorsement would "not be in conformity with the Charter" and many legal experts now describe the US-UK attack as an act of aggression, violating international law.

Attorney General Lord Goldsmith describes regime change in Iraq as a disproportionate response to Saddam Hussein's alleged failure to disarm, illegal in the eyes of international law. Goldsmith stresses that in terms of legality, "regime change cannot be the objective of military action." In 2003, apparently under pressure from Prime Minister Tony Blair, Goldsmith stated that invading Iraq was legal even without a second UN Security Council resolution. (The Common Dreams)

Senior UK judicial figure, Lord Bingham, argues that the US and UK invasion of Iraq in 2003 was a serious violation of international law as there was no hard evidence that Iraq failed to disarm. UK opposition parties are pressing for an independent inquiry to scrutinize the actions of the government in the run up to the invasion.[46]

4.0 Crimes against Humanity in Iraq War 2003

4.1 Indiscriminate Killings of Civilians

During the second half of 2008, despite significant improvements in security conditions, the indiscriminate killing of civilians continued. According to the Ministry of Health, a total of 6,787 persons were killed and 20,178 injured in 2008 as a result of ongoing violence. The most affected provinces were Baghdad and Ninawa. United Nation Assistance Mission for Iraq reiterates that the systematic and widespread attacks against the civilian population are tantamount to crimes against humanity and violate the laws and customs of war, and their perpetrators should be prosecuted.

[45] Benedict XVI, The Peace Pope

[46] The Guardian

After 2003 another massive brain drain began when the lives of Iraqi academics were pervaded by a constant fear of being murdered. 269 academic staff members were killed in 2005, 180 teachers were killed since 2006.

The charts below shows statistics provided by the ministry of Health of persons killed in 2008 by Governorates

Province	Injured				Killed			
	Men	Women	Children	Total Injured	Men	Women	Children	Total Killed
Baghdad	7503	822	676	**9001**	1437	111	101	**1649**
Karballa	137	18	16	**171**	83	22	8	**113**
Najaf	18	3	0	**21**	39	5	2	**46**
Wassit	202	29	23	**254**	170	20	2	**192**
Babil	328	31	20	**379**	155	17	16	**188**
Thi Qar	376	36	28	**440**	109	44	45	**198**
Salah Addin	524	34	51	**609**	263	25	21	**309**
Misan	205	23	9	**237**	103	18	5	**126**
Basra	1525	193	211	**1929**	487	57	28	**572**
Diwaniya	40	4	6	**50**	15	4	3	**22**
Muthanan	-	-	-	-	-	-	-	
Ninawa	3443	466	385	**4294**	1313	100	66	**1479**
Kirkuk	672	59	29	**760**	279	24	7	**310**
Anbar	191	11	6	**208**	160	4	2	**166**
Diyala	1480	211	134	**1825**	918	129	70	**1117**
Total	**16644**	**1940**	**1594**	**20178**	**5531**	**580**	376	**6487**

Source: United Nations Assistance Mission for Iraq
http://www.hrw.org/en/news/2007/04/11/iraq-us-data-civilian-casualties-raises-serious-concerns
http://www.hrw.org/en/news/2003/10/20/iraq-civilian-deaths-need-us-investigation

4.2 Weapons Causes Civilians Death in Iraq (2003-2008)

A dramatically increases health care needs in Iraq of the effect of the war, with a types of various weapons were attacked to civilian. According to IBC-Iraq Body Count, a nongovernmental organization documents civilian violent in Iraq specially indentify civilian whose deaths are of particular concern from a public health and humanitarian stand point. Even during the sieges of Fallujah in 2004, the US used chemical weapons such as white phosphorus and a napalm derivative, causing indiscriminate harm and unnecessary suffering in the civilian population.[47]

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[47] Los Angeles Times

Number of Iraqi Civilians, Female Civilians, and Children Killed by Particular Weapons in Short-Duration Events of Armed Violence, March 20,2003 through March 19, 2008[48]

Method	Total No.(%) of Civilian Killed (N=60,481)	No. of Event	Mean No. of Civilian killed per Event	No.(%) of Female Civilians (N=2396)	No. of Female / No. of Civilians of known Sex killed (% female)	No. of Children killed (N=2146)	No. of Children/No. of Civilians of Known Age Killed (% children)
Execution							
Any	19,706 (33)	2,844	7±0.2	300(13)	300/6,592(5)	124(6)	124/6,687(2)
with torture	5,760(10)	714	8±0.4	49(2)	49/1,906(3)	16(1)	16/1,882(1)
Small-arms gunfire	11,877(20)	*5,943	2±0.03	660(28)	660/7,220(9)	416(19)	416/7,963(5)
Suicide bomb							
Any	8,708(14)	725	12±1.0	266(11)	266/2,535(11)	340(16)	340/2,734(12)
Bomber in vehicle	5,401(9)	514	11±1.2	142(6)	142/1,440(10)	234(11)	234/1,607(15)
Bomber on foot	3,293(5)	210	16±1.5	124(5)	124/1,086(11)	106(5)	106/1,118(9)
Vehicle bomb	5,360(9)	866	6±0.4	244(10)	244/859(28)	216(10)	216/1,053(21)
Roadside bomb	3,293(9)	1,404	2±0.1	126(5)	126/1,230(10)	149(7)	149/1,409(11)
Mortar fire	2,079(3)	786	3±0.1	170(7)	170/386(44)	231(11)	231/556(42)
Air Attack without ground fire							
Any	2,363(4)	253	9±0.9	258(11)	258/564(46)	277(13)	277/703(39)
Bomb only	479(1)	28	17±3.6	28(1)	28/67(42)	34(2)	34/88(39)
Missile only	357(1)	45	8±2.3	36(2)	36/115(31)	35(2)	35/118(30)
Air attack with ground fire	687(1)	41	17±6.5	63(3)	63/177(36)	66(3)	66/234(28)
Total all methods	**60,481 (100)**	**14,196**	**4±0.1**	**2,396(100)**	**2,396/21,448 (11)**	**2146(100)**	**2146/23,581(9)**

4.3 Soldiers and Civilians were detained as Prisoners of war

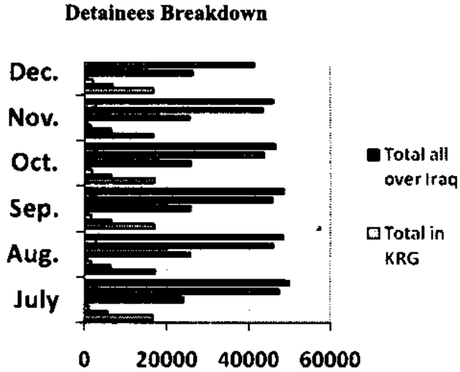
Until August, 2006, the site known as the Abu Gharib Prison was used by both the US-led coalition occupying Iraq and the Iraqi government. The area known as "the Hard site" is under the complete control of the Iraqi government and is used for housing convicted criminals. The prison has been used as a detention facility, holding more than 7,000 people at its peak in early 2004. The current population, however, is much smaller. Many detainees have been sent from Abu Gharib to Camp Bucca.

In March 2006, US Military had decided to transfer Abu Gharib Prison to Iraq Authorities and with 4,500 inmates. In year 2009, Abu Gharib Prison has been changed the name to Baghdad Central Prison with facility and capability on increasing up to 15,000 prisoners.

4.4 Abu Gharib Torture and Abuse of Detainees

Beginning in 2004, accounts of physical, psychsological, and sexual abuse, including torture sodomy, and homicide of prisoners held in the Abu Gharib Prison in Iraq come to public attention. These acts were committed by personnel of the 372nd Military Police Company of the United States Army together with additional US governmental agencies.

[48] The New England Journal of Medicine, Perspective-April 16, 2009, http://www.nejm.org



Detainees Breakdown: July to December-2008							
Seq	**Detention jurisdiction**	**July**	**Aug.**	**Sep.**	**Oct.**	**Nov.**	**Dec.**
1	MOL	16788	17177	17070	16916	16661	16675
2	MOI	5720	6538	6473	6573	6616	6956
3	MOD	1060	1525	1618	1844	1639	1995
4	MOLSA	648	670	657	614	694	623
5	Total Iraq Government	24216	25910	25818	25917	25610	26249
6	MNF-I	23229	20054	20054	17827	17827	15058
7	Total in Iraq except KRG	47445	45964	45872	43774	43437	41307
8	Total in KRG	2640	2675	2655	2780	2718	2707
9	**Total all over Iraq**	**50058**	**48639**	**48527**	**46554**	**46155**	**44014**

Note: MOJ-Ministry of Justice, MOD-Ministry of Defense, MOLSA-Ministry of Labor and Social Affair, MOL-Ministry of Labor

According to the report, Ministry of Justice recorded the detainee of 101,287; Ministry of Defense 9,681; Ministry of Social and Labour Affairs 3,906 and Ministry of Labour 38,876. In a grand total 153,750 detainees under the estimate of the concerned four ministries.

The number of Iraqi detainees in official US and Iraqi detention centers stands at 66,000 but Iraqi MP Mohammad Al-Dainy contends that this is only "one quarter of the total number being held" in Iraq. Al Dainy argues that Iraqi inmates suffer massive human rights violations in the hundreds of secret prison facilities throughout Iraq, many of which are jointly controlled by the US and Iraqi government. (Swissinfo)

4.5 Treatment of Prisoners

Prisoners were subjected to severe physical and psychological abuse. The abuse included using dogs to scare and bite prisoners, death threats and sexual abuse. Death of Manadel al-Jamadi: The prisoner Manadel al Jamadi died in Abu Gharib prison after being interrogated and torture by a CIA officer and a private contractor. The torture included physical violence and strap ado hanging.

Nearly 20, 000 Iraqis in US detention centers like Bucca Camp continue to suffer from the US refusal to implement basic international law. The US denies Iraqi detainees the right to seek legal counsel and even refuses to consider evidence in the process of determining a prisoner's release. (The Nation)The US military holds more than 500 juveniles in detention centers in Iraq, according to the UN Committee on the Rights of the Child. The occupation force has held at least 2,500 children in detention centers since 2002, including eight in Guantanamo Bay. The author notes that the detention of children in adult detention centers violates US obligations under the UN Convention on the Rights of the Child, as well as accepted international human rights norms. (Associated Press)

4.6 US Policy on Interrogations and Torture

Reaction form the U.S. administration characterizes the Abu Gharib torture scandal as an isolated incident uncharacteristic of American actions in Iraq; this vies is widely disputed, notably in Arab countries, but also by organizations such a the International Red Cross, which says that it has been making representations about abuse of prisoners for more than a year.

A former military intelligence officer with experience at Guantanamo Bay and Abu Gharib alleges a systematic failure caused by a combination of inexperienced troops arresting innocent Iraqis, who are then interrogated by in experienced interrogators determined to break these apparent hard cases. The U.S. military's interrogation techniques and treatment of prisoners at Abu Gharib are consistent with its treatment of noncombatants in past conflicts, including for example in Vietnam and with it training of military personnel of U.S. allies.[49]

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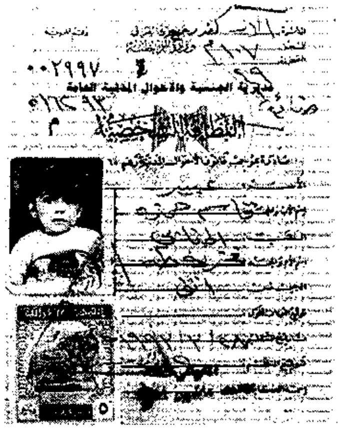
[49] http://en.wikipedia.org/wiki/Baghda

Spc. Charles Graner poses over Manadel al-Jamadi's corpse.



Abeer Qasim Hamza, a 14 years old girl, was raped and murdered by US Army 502nd Infantry Regiment

According to former US Army interrogator Anthony Lagouranis, mid- and low-level officials have shouldered all responsibility for prison abuse in Iraq, despite signals from high level officials justifying the use of torture. Interrogators routinely use dogs, hypothermia, and other "enhancements" while interrogating prisoners, despite clear violations of international law. Colonel Thomas Pappas, the top intelligence officer at Abu Ghraib, admitted authorizing such techniques without regard for the Geneva Conventions. Though US President George Bush has signed legislation banning torture, he asserts the right to interpret the legislation "in a manner consistent with the constitutional authority of the president" as justification for the continued use of torture. (New York Times)

4.7 Rape and Murder: Mamudiyah Case

The Al-Mahamudiyah Killing happended on March 2006 in a small village in the south of Baghdad, Iraq. A five US army soldiers of the 502nd Infantry Regiment were alleged to the crimes. Abeer Qasim Hamza, a 14 years old girl, was'gang-raped, murdered and was set fire to her body before decamping, after her family, father, mother, and two of her younger sister and younger brother, had been murdered.

4.8 Ishaqi Incident

The Ishaqi Incident refers to the reported of Iraqi civilians allegedly committed by US forces in the town of Ishaqi in March 2006. A shooting of 11 people, including 5 children and 4 women were killed by the U.S. forces raid targeted to Al-Qaeda operative believing that present in the house. But really there were no Al-Qaeda members.

4.9 Haditha Killings

The Haditha killings (also called the Haditha incident or the Haditha massacre) refer to the incident where 24 Iraqi men, women and children were killed on November 19, 2005 in Haditha, a city in the western Iraq province of Al Anbar. At least 15 of those killed were noncombatant civilians, and the 24 were killed by a group of United States Marines. It has been alleged that the killings were retribution for the attack on a convoy of United States Marines with an improvised explosive device that killed Lance Corporal Miguel Terrazas.

4.10 Hamdania Incident

The Hamdania Incident refers to an incident involving members of the United States Marines in relation to the shooting death of a possible insurgent Iraqi man on April, 2006 in Al Hamdania, a small village west of Baghdad near Abu Gharib. An investigation by the Naval Criminal Investigative Service resulted in charges of murder, kidnapping, housebreaking, larceny, Obstruction of justice and conspiracy associated with the alleged coverup of the incident. The defendants are seven Marines and a Navy Corpsman. As of February 2007, five of the defendants have negotiated pleas to lesser charges of kidnapping and conspiracy, or less, and have agreed to testify in these trials.

4.11 Wedding Party Massacre (Mukaradeeb killings)

The Mukaradeeb killings better known as the Wedding party massacre, refers to the American shooting and bombing of a wedding party in Mukaradeeb, a small village in Iraq near the border with Syria, on May 19, 2004. 42 civilians were killed. A senior Iraqi police officer told the Associated Press that a helicopter fired at the party early yesterday morning in a remote village close to the Syrian border, killing between 42 and 45 people.[50]

4.12 Women Abduction, Rape, Forced Prostitution and Trafficking

Iraqi women say they are now worse off than they were during the rule of dictator, Saddam Hussein, and that their plight has deteriorated year by

[50] http://www.guardian.co.uk/world/2004/may/20/iraq.rorymccarthy

year since the US-led invasion in March 2003. Iraqi Women have seen their rights eroded in all areas of life, while the world observes from afar.[51] A report by the US-based 'Women For Women International' released in March 2008 said the state of Iraqi women has become a "national crisis" since the March 2003 US-led invasion. 64% of the women surveyed complained that violence against them had increased. 76% of the women interviewed said that girls in their families were forbidden from attending school.

4.12.1 Women killed or abducted and raped during the conflict

Human Rights Watch released a report in July, 2003, titled Climate of Fear: Sexual Violence and Abduction of Women and Girls in Baghdad. Only months after Baghdad fell to US forces, they had already learned of twenty-five credible allegations of the rape and/or abduction of Iraqi women.

4.12.2 Women in custody

The scandal of prisoner abuse at Abu Ghraib focused on the torture, sexual abuse, and humiliation of Iraqi men. A variety of sources suggest that female prisoners suffered similar treatment, including rape. According to a Human Rights Watch report, the secrecy surrounding female detentions "resulted from a collusion of the families and the occupying forces." Families feared social stigma; the occupying forces feared condemnation by human rights groups and anger from Iraqis who saw such treatment of women by foreigners as a special act of violation.[52]

4.12.3 Women Prostitution and Trafficking

There may be 50,000 Iraqi refugee women forced into prostitution. The Organization for Women's Freedom in Iraq (OWFI) has documented the disappearance of some 4000 women and girls since the U.S. invasion in early 2003. OWFI believes most have been trafficked to other countries and forced into prostitution. The U.S. State Department's June 2005 report on the trafficking of women suggested that the extent of the problem in Iraq is "difficult to appropriately gauge" under current chaotic circumstances, but cited an unknown number of Iraqi women and girls being sent to Yemen, Syria, Jordan, and Persian Gulf countries for sexual exploitation.[53]

[51] UN Special Rapporteur, Ms Yakin Ertuerk on December 1, 2008

[52] Thhttp://www.zmag.org/znet/viewArticle/14607e War on Iraq's Women

[53] War on Iraq's Women/ August 28, 2007 By Lucinda Marshall

4.12.4 Pregnant women and mother

The welfare of pregnant women has been particularly deteriorated: Mothers are usually anemic and children are born underweight, as a result of a poor nutrition and lack of pre-natal care, even worse than Saddam Hussein's time. For at least two women in every 12 who seek emergency delivery assistance here, either the mother or her child dies. -Dr Ibrahim Khalil, a gynecologist at Al-Karada maternity hospital.

Maternal Mortality Rate was increased 11.7% (1989) to 65% (2007). By Save the Children,in 1990 the mortality rate for under-fives was 50 per 1,000 live births. In 2005 it was 125. While other countries have higher rates, the rate of increase in Iraq is higher than elsewhere.

4.13 Children became Orphans

Iraq's official government statistics revealed that five million (or 35%) of Iraqi children were orphans. The term 'orphan' applies in Arabic to a child whose father or both his or her parents have died. Jan 2008, the Iraqi Ministry of Labor and Social Affairs released a report estimating that there were 4.5 millions Iraqi orphans, with 500,000 living on the streets without any home or family care. The report further said there were only 459 orphans in governmental houses of orphans while there were 800 Iraqi orphans in American Iraqi prisons.[54]

4.14 Poverty and Hunger

60 % of the Iraqi population is unemployed. One third of Iraqis are living at or below the poverty line, with 5% suffering from extreme poverty. 69% of Iraqi families is affected by non-availability of food. Only 20%of households said they had any savings. 70% often population lack regular access to clean water, and only 60% have access to the public food distribution system. 80% of the recommended daily calorie intake in the form of wheat rice and beans. No meat, vegetables or fruit are included. 58% described reconstruction efforts in the area in which they live as very ineffective, and 9% described them as being totally nonexistent. 64% described their family's economic situation as very bad, up from 30% in 2005. 88% described the availability of electricity very bad, up from 65% in 2004. 69% described the availability of clean water very bad, up from 48% in 2004. 88% described the availability of fuel for cooking and driving as very bad.

[54] War on Iraq's Women/ August 28, 2007 By Lucinda Marshall

4.15 Unlawful Shooting

The Iraqi body is still unidentified, but the defense attorneys of the Marines on trial challenged this, stipulating that the victim was actually Hashim Gowad, a suspected insurgent and the cousin of the Marines' intended target, Saleh Gowad. The charges against the marines were thereafter revised to identify the shooting victim only as " an unknown Iraqi". According to testimony received under various plea agreements, it was alleged that the Marines abducted an Iraqi man, killed him a half hour later, placed an AK-47 and a shovel next to his body along the road, then falsified the formal report of the incident, asserting he was shot while digging a hole for a roadside bomb.

4.16 Damage of Daily Life

64% described their family's economic situation as being somewhat or very bad, up from 30% in 2005. 88% described the availability of electricity as being either somewhat or very bad, up from 65% in 2004. 69% described the availability of clean water as somewhat or very bad, up from 48% in 2004. 88% described the availability of fuel for cooking and driving as being somewhat or very bad. 58% described reconstruction efforts in the area in which they live as either somewhat or very ineffective, and 9% described them as being totally nonexistent. A 2007 survey for the first time asked ordinary Iraqis their view on the highly contentious draft oil law. According to the poll, 76 percent of Iraqis feel inadequately informed about the contents of the proposed law. Nonetheless, 63 percent responded that they would prefer Iraqi state-owned companies - and not foreign corporations-to develop Iraq's extensive oil fields. Finally Resolution 1483 passed by U.N. Security Council voted to lift sanctions against Iraq and to give the US and UK authority to control the oil to help Iraq reconstruction.

4.17 Health Situation

This Brusssells Tribunal (March 21, 2007) article points out that the conditions of Iraq's health system are deteriorating. According to the Iraq Medical Association, 90 percent of hospitals in Iraq lack essential equipment and 18,000 of 34,000 physicians left the country. Further, the report of the NGO Coordinating Committee in Iraq revealed that military forces occupied Mosul Hospital and ambulances have been attacked on a regularly basis in Najaf, Fallujah and other parts of Anbar province. US forces have been also intruding into hospitals daily and Iraqis have refrained from using hospitals for fear of being shot. The US occupation of Iraq has resulted in a massive public health disaster for Iraqis.

4.17.1 Children Health Care

Violence threatens health in Iraq and the country has some of the worst statistics for diarrhea, measles, respiratory infections, malaria and under-nutrition affecting 30 per cent of children under five, contributing to excessive rates of infant and child mortality. Even tuberculosis and cholera have re-emerged after having long disappeared. Dirty water and diarrhea still claim children's lives. One in ten Iraqi children suffers from a chronic disease, and 50 per cent of the children are malnourished. There are reported to be one million cripples and disabled people in Iraq, an increase of 30 per cent since 2003. According to the Iraqi Medical Association, about 10 per cent of Baghdad's total force of 32,000 registered doctors - Sunnis, Shiites and Christians.- left or were driven from work in 2005. 30,000 physicians were registered in Iraq's main medical syndicate, or union, before the war. In 2007 there were 8,000. With the departure of so many, it will take years to rebuild the Iraqi health system.

4.18 Refugee

UNHCR estimated that over 4.7 million Iraqis have been displaced, with 2.7 million within Iraq and 2 million in neighboring countries: Jordan, Syria and Egypt-2008. Roughly 40% of Iraq's middle class is believed to have fled. Most are fleeing systematic persecution and have no desire to return.[55]

5.0 Analysis of International Humanitarian Law

5.1 Jus in Bello in Iraq War 2003

Crimes against Humanity:

The Iraq War is full of horrible, terrible murder, bombardments, torture, rape and destruction of civilian properties. Thus the Hague Convention, 1907; the Fourth Geneva Convention, 1949; the Additional Protocol-I, 1977 are not followed accordingly, even indiscriminately violated by US-led allies. The New England Journal of Medicine, Perspective April 16, 2009, as the report says, since 20 March 2003 to 19 March 2008 total civilian killed 60,481 in 14,196 events, total female civilian killed 2,396

[55] http://en.wikipedia.org/wiki/Refugees_of_Iraq

and children 2,146. UNAMI (United Nations Assistance Mission for Iraq) says 6,787 civilian were killed and 20,178 people injured in the second part of 2008.

The Ishaqi incident- shooting of 11 people included 5 children and 4 women. At Haditha in Al Anbar province 24 people were killed by 12 members of Kilo Company in the 3rd Battalion, 1st Marine Regiment, 1st Marine Division on Nov 19, 2005. 42 civilians were killed known as the Wedding Party Massacre at Mukaradeeb village near Syria border on May 2004.

5.2 Protection of the Civilian Population, Civilian Objects and Precautionary Measures :

As per the Additional Protocol-I, 1977, Chapter II, Art 51(1) the civilian population and individual civilians shall enjoy general protection against dangers arising from military operations....

51(2). The civilian population as such, as well as individual civilians, shall not be the object of attack. Acts or threats of violence the primary purpose of which is to spread terror among the civilian population are prohibited. Attacks against the civilian population or civilians by way of reprisals are prohibited.[56]

Even precautionary measures before attack the civilian areas were not taken. As we see in the Additional Protocol-I, Chapter IV, Article 57 (1) in the conduct of military operations, constant care shall be taken to spare the civilian population, civilians and civilian objects.

US-led allies should have ensured the civil defense before their indiscriminate attack in Iraq as per Additional Protocol-I, Chapter VI, Article 61- the undermentioned humanitarian tasks intended to protect the civilian population against the dangers, and to help it to recover from the immediate effects, of hostilities or disasters and also to provide the conditions necessary for its survival. These tasks are:

(a) warning; (b) evacuation; (c) management of shelters; (d) management of blackout measures; (e) rescue; (f) medical services, including first aid, and religious assistance; (g) fire-fighting; (h) detection and marking of danger areas; (i) decontamination and similar protective measures; (j) provision of emergency accommodation and supplies; (k) emergency

[56] The Additional Protocol-I, 1977, Chapter II, Art 51(6)

assistance in the restoration and maintenance of order in distressed areas; (l) emergency repair of indispensable public utilities; (m) emergency disposal of the dead; (n) assistance in the preservation of objects essential for survival; (o) complementary activities necessary to carry out any of the tasks mentioned above, including, but not limited to, planning and organization;

Apart from this, "Civilian objects shall not be the object of attack or of reprisals. Attacks shall be limited strictly to military objectives. In case of doubt whether an object which is normally dedicated to civilian purposes, such as a place of worship, a house or other dwelling or a school, is being used to make an effective contribution to military action, it shall be presumed not to be so used."[57]

5.3 Protection of Women and Children

"Women shall be the object of special respect and shall be protected in particular against rape, forced prostitution and any other form of indecent assault."[58]

"Children shall be the object of special respect and shall be protected against any form of indecent assault. The Parties to the conflict shall provide them with the care and aid they require, whether because of their age or for any other reason."[59] But the New England Medicine, perspective April 16, 2009 says, from 20 March 2003 to 19 March 2009 2,146 children were killed. Another report says, 1594 children were killed and 376 were injured.[60]

5.4 Rights of Prisoners of War

As per article 47 of The Hague Conventions, 1907 pillage is forbidden. No general penalty, pecuniary or otherwise, shall be inflicted upon the population on account of the acts of individuals for which they cannot be regarded as jointly and severally responsible.[61] All seizure of, destruction or willful damage done to institutions of this character, historic monuments, works of art and science, is forbidden, and should be made the subject of legal proceedings.

[57] The Additional Protocol-I, 1977, Chapter III, Article 52

[58] The Additional Protocol-I, 1977, Article 76(1)

[59] The Additional Protocol-I, 1977, Article 77(1)

[60] UNAMI (United Nations Assistance Mission for Iraq) Report Dec 2008

[61] The Hague Conventions IV, 1907,SECTION III, Article 50

In all circumstances, the accused persons shall benefit by safeguards of proper trial and defense, which shall not be less favorable than those provided by Article 105 and those following, of the Geneva Convention relative to the Treatment of Prisoners of War of 12 August 1949.[62]

Article 124 of the Fourth Geneva Convention says, "Internees shall not in any case be transferred to penitentiary establishments (prisons, penitentiaries, convict prisons, etc.) to undergo disciplinary punishment therein….." According to Article 125 internees awarded disciplinary punishment shall be allowed to exercise and to stay in the open air at least two hours daily. They shall be allowed, if they so request, to be present at the daily medical inspections. They shall receive the attention which their state of health requires and, if necessary, shall be removed to the infirmary of the place of internment or to a hospital. They shall have permission to read and write, likewise to send and receive letters. No internee given a disciplinary punishment may be deprived of the benefit of the provisions of Articles 107 and 143 of the present Convention.

Apart from this, in the aftermath of the September 2007 Blackwater shootings, lawyers for the US State, Justice and Defense departments debate whether private security contractors fall under the same broad definition of "unlawful combatants" which the Bush administration uses to justify detentions in Guantanamo Bay. Legal commentators criticize the Bush administration for failing to clarify the legal status of private security contractors before putting them into military roles.[63]

5.5 Restriction of Chemical Weapons

During the sieges of Fallujah in April 2004, the US used chemical weapons such as white phosphorus and a napalm derivative, causing indiscriminate harm and unnecessary suffering in the civilian population. Although the use of those weapons is banned under several international treaties and the Geneva Conventions, no government or the United Nations has condemned such acts and these crimes remain unpunished. Three years after the sieges, the population of Fallujah continues to face innumerable hazards, living with daily attacks and factional violence and having no access to clean water or health care.[64]

[62] The Geneva Convention-I, chapter IX, Article 49

[63] The Los Angeles Times

[64] The Guardian, April 4, 2007

Though white phosphorous munitions are banned under the 1980 Geneva Convention on Biological and Chemical Weapons, the US has not signed the agreement and instead classifies white phosphorous as a "psychological" weapon. As ZMag points out, there is nothing psychological about a weapon that melts skin to the bone while damaging the nervous system and blocking the circulation of blood.[65]

5.6 Individual Responsibility of Criminal Offense

A person who planned, instigated, ordered, committed or otherwise aided and abetted in the planning, preparation or execution of a crime referred to in articles 2 to 5 of the present Statute, shall be individually responsible for the crime. The official position of any accused person, whether as Head of State or Government or as a responsible Government official, shall not relieve such person of criminal responsibility nor mitigate punishment.[66]

5.7 Responsibility of Superiors

The fact that any of the acts referred to in articles 2 to 5 of the present Statute was committed by a subordinate does not relieve his superior of criminal responsibility if he knew or had reason to know that the subordinate was about to commit such acts or had done so and the superior failed to take the necessary and reasonable measures to prevent such acts or to punish the perpetrators thereof. The fact that an accused person acted pursuant to an order of a Government or of a superior shall not relieve him of criminal responsibility, but may be considered in mitigation of punishment if the International Tribunal determines that justice so requires.[67]

In addition to other grounds of criminal responsibility under this Statute (Rome Statute) for crimes within the jurisdiction of the Court:[68]

(a) A military commander or person effectively acting as a military commander shall be criminally responsible for crimes within the jurisdiction of the Court committed by forces under his or her effective

65 Willy Peter, January 2006

66 The Statute of the International Criminal Tribunal for the Former Yugoslavia, 1993, Article 7(1)(2)

67 The Statute of the International Criminal Tribunal for the Former Yugoslavia, 1993, Article 7

68 The Rome Statute of the International Criminal Court, 1998, Article 28

command and control, or effective authority and control as the case may be, as a result of his or her failure to exercise control properly over such forces, where: (i) That military commander or person either knew or, owing to the circumstances at the time, should have known that the forces were committing or about to commit such crimes; and (ii) That military commander or person failed to take all necessary and reasonable measures within his or her power to prevent or repress their commission or to submit the matter to the competent authorities for investigation and prosecution.

(b) With respect to superior and subordinate relationships not described in paragraph (a), a superior shall be criminally responsible for crimes within the jurisdiction of the Court committed by subordinates under his or her effective authority and control, as a result of his or her failure to exercise control properly over such subordinates, where: (i) The superior either knew, or consciously disregarded information which clearly indicated, that the subordinates were committing or about to commit such crimes; (ii)The crimes concerned activities that were within the effective responsibility and control of the superior; and (iii) The superior failed to take all necessary and reasonable measures within his or her power to prevent or repress their commission or to submit the matter to the competent authorities for investigation and prosecution.

5.8 Superior Orders and Prescription of Law

Article 33 of the Rome Statute says, "The fact that a crime within the jurisdiction of the Court has been committed by a person pursuant to an order of a Government or of a superior, whether military or civilian, shall not relieve that person of criminal responsibility unless: (a) The person was under a legal obligation to obey orders of the Government or the superior in question; (b) The person did not know that the order was unlawful; and (c) The order was not manifestly unlawful. 2.For the purposes of this article, orders to commit genocide or crimes against humanity are manifestly unlawful."

The fact that the Defendant acted pursuant to order of his Government or of a superior shall not free him from responsibility, but may be considered in mitigation of punishment if the Tribunal determines that justice so requires.[69]

[৬৯] The Nuremberg Charter, Article 8

Iraq's Foreign Minister Hoshiyar Zebari has formally notified the UN Security Council that it wants the US-led multinational force (MNF) to remain in place. Resolution 1637 said the Council would terminate the MNF's mandate at the request of Iraq's government. The letter's release coincided with a five-hour visit to Baghdad by US President George W. Bush (13 June 2006 Reuters). But UN and US nobody pay heed to the words of Iraq.

6.0 US Role to Drag the Alleged Soldiers under Justice

6.1 Rape and Murder: Mamudiyah Case

In the case of Abeer Qasim, a 14 years old girl in the south of Baghdad, was raped and murdered by US army 502 Infantry Regiment on 12 march 2006. The army also killed all family, father, mother, and two her younger sister and younger brother. After the legal proceedings, as of May 2009, five soldiers namely; Barker, Spielman, Cortez and Howard have been convicted and sentenced for this crime and Green has been convicted.

6.2 Hamadania Incident: Charges and Investigation

The Marines involved, members of Kilo Company, 3rd Battalion, 5th Marines, 1st Marine division, have been placed in confinement in Camp Pendleton pending possible charges. Press reports noted it was unusual for Marines to be placed in the brig before charges have been filed, suggestion concern by authorities the men may be considered a flight risk. Under military law the defendants could face the death penalty. These Marines were brought back from Iraq with no restraint and had stops along the way back to Camp Pendleton.[70]

6.3 Wedding Party Massacre

Iraqi officials report 13 children were among the dead. 27 members of the extended Rakat family were killed. The U.S. military took the stance that the location was a legitimate target. Brigadier General Mark Kimmitt, the coalition deputy chief of staff for U.S. operations in Iraq: "We took ground fire and we returned fire. We estimate that around 40 were killed. But we operated within our rules of engagement."American fire included both bullets and bombs, leaving behind craters. Although a senior Iraqi police officer told the Associated Press that a helicopter fired at the party early last day morning in a remote village close to the Syrian border,

70 http://en.wikipedia.org/wiki/Hamdania_incident

killing between 42 and 45 people.[71] Finally no criminal charge has been framed against the alleged soldiers in this case.

6.4 Isaqi Incident Case

The discrepancy of reported of US army and US press briefing about the assessment and the number of the civilian were killed and the lack of evidence appeal to US Army decided to opening up an investigation.[72]

6.5 Legal Proceedings

The intentional killing of noncombatants is prohibited by modern laws of war derived from the UN Charter, the Hague Conventions and the Geneva Conventions, and constitutes a war crime. The Marines and officers are subject to possible courts martial under American military law, the Uniform Code of Military Justice.

As of June 17, 2008, six defendants had their cases dropped and one was found not guilty. The exception is SSgt. Wuterich, whose trial date has been postponed. At least three officers have been officially reprimanded for failing to properly initially report and investigate the killings.[73]

7.0 Why US cannot be dragged under International Criminal Court

ICC has the jurisdiction over those facts of member states that the states are unwilling or unable to try in the domestic Court but the state wants to try the case. As ICC is a complementary Court of the domestic Court of law and the USA is not a member state of ICC, uptil now International Criminal Court has no jurisdiction over the offenses committed by US government or their soldiers. Although the appointment of prosecutor by UNSC, primary investigation of the case by the prosecutor, approval of the pre-trial chamber, provisions of appeal to the trial chamber ensure much of the transparency of International Criminal Court, US has not yet ratified the Rome Statute.

Apart from this, the George W Bush Administration "unsigned"[74] the Clinton signature on the Rome Statute, sought through bilateral diplomacy to persuade or coerce other states into exempting US personnel from the coverage of the ICC, delayed UN peace keeping

[71] http://www.guardian.co.uk/world/2004/may/20/iraq.rorymccarthy

[72] http://en.wikipedia.org/wiki/Ishaqi_incident

[73] http://en.wikipedia.org/wiki/Haditha_killings

[74] David P. Forsythe, Human Rights in International Relations, 2nd Ed 2006, Cambridge University Press, Page-107

deployments until the Security Council exempted any participating US personnel from any review by the ICC, and in almost every way imaginable tried to undermine the ICC. In 2005, however, the USA abstained on a UN Security Council resolution that authorized the ICC prosecutor to open investigations about possibly indicating certain Sudanese leaders for atrocities in the Darfur region of that country.

International Criminal Court Prosecutor Luis Moreno Ocampo announced that his office will not investigate war crimes committed in Iraq by coalition forces. The Bush administration has staunchly opposed the ICC claiming it will "unfairly target" US military personnel. Ocampo's decision gives evidence of the court's impartiality.[75]

However Congress passed the so-called American Service Members Protection Act, which among other provisions authorized in advance the US military action to free any US national detained abroad in connection to ICC proceedings. President George W Bush signed it, despite considerable foreign criticism.

8.0 Conclusion

In the run up to the 2003 invasion of Iraq, the question of whether the invasion would be a just war was posed. Many of those on both sides of the debate framed their arguments in terms of the Just War. They came to quite different conclusions because they put different interpretations on how the just war criteria should be applied. Supporters of the war tended to accept the US position that the enforcement of UN resolutions was sufficient authority or even, as in the case of the Land Letter that the United States as a sovereign nation could count as legitimate authority. Opponents of the war tended to interpret legitimate authority as requiring a specific Security Council resolution. They also asserted that the US had neither exhausted its diplomatic options nor allowed international efforts to run their course and take effect.

According to Pope John Paul II, however, the Iraq war was clearly not a just one.[76] One of Spain's leading judges on war crimes and terrorism-related cases, Baltasar Garzon, ranks the 2003 US-led invasion of Iraq among "the most sordid and unjustifiable episodes in recent human history." The judge criticizes US President George W. Bush and his allies,

[75] Citizens for Global Solutions: Ocampo Turns Down Iraq Case: Implications for the US (February 2006)

[76] http://www.foxnews.com/story/0,2933,80875,00.html

including British and Spanish Prime Ministers Tony Blair and Jose Maria Aznar, who supported the attack "despite having doubts and biased information." Garzon's condemnation of the leaders reflects growing disenchantment worldwide with the Iraq catastrophe.[77]

Furthermore, in a German court an army major has successfully argued that the US and the UK did not legally invade Iraq, therefore he broke no laws in refusing to obey a military order. The author concludes that such decisions set a precedent for the recognition of the Iraq war as an act of aggression, and therefore a war crime - of which the British government should be very wary.[78]

A prosecutor of Nazi war crimes at Nuremberg, Benjamin Ferenccz, believes US President George W. Bush's aggressive war in Iraq constitutes a "supreme international crime" capable of prosecution in an international court. Claiming that the atrocities of the Iraq war were "highly predictable," Ferenccz points to the UN Charter, which unequivocally states that no nation can use armed force without UN Security Council permission. He convincingly argues that, due to his invasion of Iraq and the subsequent acts of the US military, Bush should face charges for war crimes along with Saddam Hussein.[79]

On the eve of the Security Council's quarterly discussion on the situation in Iraq, a group of NGOs has written the Council to voice their concern. Several disturbing reports have been released by Secretary General Kofi Annan, the United Nations Assistance Mission for Iraq (UNAMI), and human rights organizations. These reports have highlighted significant violations of international human rights and humanitarian law, especially in the area of detention practices. In response, the NGOs ask the Council to break its pattern of pro forma review, "accept its responsibility" and "substantially review the mandate it has given to the MNF."[80]

In this interview, former United Nations Assistance Mission for Iraq (UNAMI) human rights chief John Pace discusses sectarian violence, US military operations, and the legality of the war. According to Pace, ongoing US military operations have led to widespread civilian displacement and destruction, and along with the rise in sectarian militias

[77] World Socialist Website, March 27, 2007

[78] The Guardian, Oct 17, 2006

[79] The One World, Aug 25, 2006

[80] NGO Letter to the Security Council on Iraq (March 14, 2006)

contribute most to instability in Iraq. Furthermore, US detentions violate the Geneva Conventions and as many as 90 percent of all Iraqi prisoners are innocent. "Normalization," Pace says, cannot go forward in Iraq so long as the US military occupation remains.[81]

A group of 27 NGOs points out that the US-led Multinational Force (MNF) in Iraq has seriously violated international law, including bans on the use of torture, illegal detentions, siege tactics against population centers, and "indiscriminate and especially injurious" weapons. Furthermore, the MNF is responsible for failing to address patterns of corruption and mismanagement in Iraq's development fund and reconstruction programs. Citing numerous official reports and legal texts, the letter urges Council members to "substantially reconsider, revise or terminate" the MNF's mandate to bring it into conformity with international law.[82]

In a statement ahead of a Council meeting July 14, 2006 reviewing the mandate of the Multinational Force (MNF), Amnesty International USA calls on the UN Security Council and the Iraqi government to hold to account "those who commit crimes under international law in Iraq, including members of the US-led MNF." Amnesty demands that the Council not extend the immunity from legal proceedings for abuses by the MNF or their contractors and concludes that "the Iraqi criminal justice system should be able to exercise jurisdiction over any crime committed in Iraq."

Although US and Iraq government has already dragged some of the alleged soldiers and civilians under justice, there are still many offences caused by US military forces or George W Bush Administration, and Iraqi soldiers and suicidal bombers which are still beyond justice as per the Rome Statute of the International Criminal Court, 1998 as US and Iraq are not the member states of International Criminal Court. Apart from this it depends on US and Iraqi governments how they will be capable of applying their domestic humanitarian laws regarding the offences committed since Iraq war 2003 to until now.

[81] Democracy Now !, 28 Feb 2006

[82] Global Policy Forum, Letter to the Security Council (May 19, 2006)

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Health Expenditure and Gross Domestic Product in Bangladesh: *A Time Series Analysis*

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Abstract: *The paper explores the time series behaviour of health expenditure and gross domestic product in Bangladesh during the period 1981-2007. The Augmented Dickey Fuller (ADF) test has been applied to asses whether the data suffer from unit root problem. Unit root test results indicate that both health expenditure and gross domestic product are non stationary. Granger causality test has been used to identify the direction of causality between the variables. The results show that there exists one-way causality running from gross domestic product to health expenditure. The Johansen cointegration technique is employed to sift the long run relationship between the variables. The findings show that there exists a long run relationship between the variables. Finally error correction model is used to analyse the short-run behaviour of the variables.*

1.0 Introduction

Expenditure on health is one of the most crucial issues that needs to be adressesd for its universality of appeal in an underdeveloped country like Bangladesh. In view of the growing population, health expenditure is increasing with the growing gross domestic product which can play a vital role in maintaining everburdening healthcare system but there is a great apprehension whether this increment has been a feed back effect. Recently the relationship between health expenditure and gross domestic product has been a major concern for health economists because recognising the basic determinants of resource allocation on health care at national level might sugnificantly help policy makers to utilize the resources more efficiently. Time series analysis between health expenditure and gross domestic product have also been focus of research in order to understand the key determinants of health expenditure and

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such state of art knowledge can play a pivotal role from the policy formulation point of view. Cointegration and direction of causation between health expenditure and gross domestic product have also been important instrument of policy implications for health care planning and development since 1980's (Newhouse,1977). If there exists unidirectional Granger causality running from GDP to health expenditure, it may be implied that health care expenditure may be increased without deteriorating economic growth of the economy. On the contrary, if unidirectional causality running from health expenditure, reducing health expenditure lead to plunge in GDP. In general, the overwhelming majority of the variation in health care expenditure can be explained by gross domestic product. Most studies show that there is a positive correlation between gross domestic product and health care expenditure of any contury which are based on country-by-county and panel data. Now a days, health economists have devoted a great deal of attention to analyze the time series pattern of health care expenditure and GDP in different countries. There is an extended version of literature on the issue of health expenditure and gross domestic product. Almost all the studies showed unanimous results examining different data series.

MacDonald and Hopkins (2002) analyzed the unit root properties of health care expenditure and GDP for OECD countries. They found that both HCE and GDP are non-stationary and a co-integrating relationship between HCE and GDP.

Kiymaz *et.al.* (2006) argued that all series under consideration are nonstationary at level form but become stationary after differencing. There are cointegrating relationships between the health care expenditure and gross domestic product. They also found that there is one way causality running from income to various definitions of the health care expenses.

Gerdtham and Lothgren (2000) observed that health expenditure and GDP are non stationary and cointegrated by using country-by-country and panel tests for the period 1960-1997 of 21 OECD countries.

Hansen and King (1996) found that there is no long-run relationship between health care expenditure, GDP, and a selection of non-income variables or between HCE and GDP alone for most OECD countries. They also observed that panel data estimations of the GDP and health expendidure may be spurious.

Johnson *et.al.* (1992) showed that national health care expenditure is dependent on per capita gross domestic product, level of urban development and some other health related factors for 19 industrializd countries.

However, there has not been any study on the relationship between health expenditure and gross domestic product in Bangladesh. For this reason this study is undertaken to fill this vacuum.

1.1 Objectives

The main objective of this paper is to examine the time series behaviour of health expenditure and gross domestic product during the period 1981 to 2007.

2.0 Methodology

2.1 Sources of Data

The secondary data used in this paper are on health expenditure (HE) and gross domestic product (GDP), which is a proxy to economic growth for the period 1981 to 2007. The data on health expenditure are taken from various issues of key indicators for Asia and the Pacific by Asian Development Bank and the data on gross domestic product are also taken from various issues of Bangladesh Bureau of Statistics (BBS) and Bangladesh Economic Review and key indicators for Asia and the Pacific by Asian Development Bank. In this study, health expenditure(y) and gross domestic product (x) are measured in billion taka. The gross domestic product is defined as the money value of all final goods and services in a particular year and the health expenditure is the sum of general government health expenditure in a given year calculated in national currency units in current prices. On the other hand, health expenditure is measured in terms of billion taka and gross domestic product is measured in billion taka.

Table-1: Health Expenditure and Gross Domestic Product of Bangladesh, 1981 to 2007

Year	Health Expenditure (Billion Taka)	Gross Domestic Product (Billion Taka)
1981	1.5	231.4
1982	2.1	350.9
1983	2.4	395.5
1984	2.9	475.2
1985	3.7	548.5
1986	3.7	628.4
1987	3.9	726.8
1988	4.7	804.9
1989	5.5	889.1
1990	6.2	994.2
1991	7.2	1097.0
1992	8.3	1188.9
1993	11.1	1249.9
1994	14.2	1342.4
1995	15.4	1512.1
1996	15.8	1648.4
1997	17.7	1807.0
1998	14.8	2001.8
1999	21.1	2197.0
2000	23.2	2370.9
2001	22.8	2535.5
2002	23.9	2732.0
2003	24.8	3004.9
2004	28.9	3329.7
2005	31.3	3707.1
2006	34.6	4157.3
2007	39.5	4724.8

Source: Asian Development Bank, Key Indicators for Asia and the Pacific, 2008 and 1999
Government of Bangladesh, Bangladesh Economic Review, 2009, 2006 and 2005

Table 1 shows the health expenditure and gross domestic product of Bangladesh. The health expenditure of Bangladesh increased significantly from 1981 to 2007. It increased from 1.5 billion taka to 39.5 billion taka during 1981 to 2007. From 1981 to 2007 the gross domestic product of Bangladesh increased from 231.4 billion taka in 1981 to 4724.8 billion taka in 2007.

2.2 Empirical Analysis

2.2.1 Unit Root Test

A situation of practical relevance is observed when health expenditure and gross domestic product are interrelated and integrated but the researcher mistakenly believes there is a relationship between these variables. In time series analysis the data series must be stationary for standard regression analysis. If the data series are not stationary, standard distribution theory does not apply and the OLS estimators can be biased.

Moreover, the conventional interpretation of goodness of fit statistic is not valid if the dependent variable is nonstationary. So, the estimated regression suffers from spurious or nonsense results. In that case Durbin-Watson statistic is near to zero and R2 is greater than d statistic. The unit root test for time series have been widely used as a way of testing stationarity. For a stationary time series, mean, variance and autocovariance (at various lag) of that data remain the same over the period. This implies that the mean and variance do not vary over time.There are various approaches to test for stationary of data series, namely Dickey-Fuller (DF), Augmented Dickey-Fuller (ADF), Phillips-Perron (PP) and Kwiatkowski-Phillips- Schmidt-Shin (KPSS) unit root test. Augmented Dickey-Fuller (ADF) unit root test is employed in this study. The test can be carried out with the following regressions:

$$\Delta y_t = \beta_1 + \delta y_{t-1} + \alpha_i \sum_{i=1}^{m} \Delta y_{t-i} + \varepsilon_i \qquad (1)$$

$$\Delta x_t = \beta_1 + \delta x_{t-1} + \alpha_i \sum_{i=1}^{m} \Delta x_{t-1} + \varepsilon_i \qquad (2)$$

where, Δ is a first difference, and ε_i is a error term and it is serially independent.

When the Dickey-Fuller (DF) test is applied to equation (1) then it is called Augmented Dickey-Fuller (ADF) test. The Augmented Dickey-Fuller (ADF) test follows the same asymptotic distribution as the Dickey-Fuller (DF) statistic, so the same critical values can be used. For a unit root test, the null hypothesis that the unit root $\delta = 0$ or $\alpha = 1$. If the coefficient δ is statistically different from 0 or the coefficient $\alpha < 1$ then the null hypothesis that depandent variables contain a unit root is rejected.

2.2.2 Granger Causality

The concept of causality is introduced by Granger (1969). It shows how much of dependent variable can be explained by its past value and past value of the other variables. Granger causality implies causality in the prediction sense rather than in a structured sense. Causality equation can be written as follows:

$$x_t = \sum_{i=1}^{n} \alpha_i y_{t-i} + \sum_{j=1}^{n} \beta_j x_{t-j} + u_{1t} \qquad (3)$$

$$y_t = \sum_{i=1}^{n} \lambda_i y_{t-i} + \sum_{j=1}^{n} \delta_j x_{t-j} + u_{2t} \qquad (4)$$

where u_{1t} and u_{2t} are zero mean, serially uncorrelated, random disturbances, and t denotes the time period and i and j are the number of lags .

If α_i coefficients as a set are statistically different from zero i,e. $\sum \alpha_i \neq 0$, then it may be concluded that x depends on past values of y, hence changes in x are caused by hanges in y. The same is applicable for y causing x when $\sum \delta_j \neq 0$.

There are four possible outcomes of Granger test. These are given below:

i) Unidirectional causality: x Granger causes y, but not vice versa. When only $\sum \alpha_i = 0$ and $\sum \delta_j \neq 0$

ii) Unidirectional causality: y Granger causes x, but not vice versa. When only $\sum \alpha_i \neq 0$ and $\sum \delta_j = 0$

iii) Bi-directional causality: x Granger causes y and y Granger causes x. When both $\sum \alpha_i \neq 0$ and $\sum \delta_j \neq 0$

iv) Independence: neither variable Granger causes the other. When both $\sum \alpha_i = 0$ and $\sum \delta_j = 0$

2.2.3 Test of Cointegration

The concept of cointegration is proved to be instrumental technique in helping to distinguish between genuine and spurious rgression. From the strategic point of view, testing of cointegration is only one part for model building and it is justified in advancing further if there is cointegration. It is worth mentioning that cointegrating regression is not spurious, that is, if the variables health expenditure and gross domestic product are cointegrated then the regeression is not spurious. Moreover, if there is cointregration, one is justified in estimating not only equilibrium relationship but also the dynamic relationship that incorporates short-run adjustments to that equilibrium.The theory of cointegration developed in Granger (1987) and elaborated in Engle and Granger (1987) addresses this issue of integrating short-run dynamics with long-run equlibrium. Cointegration analysis is used to identify the long run relationship between the variables. If the individual time series are found to be integrated of same order after the unit root tests, then these variables may be cointegrated. Alternatively if the two or more series are themselves non-stationary, but a linear combination of them is stationary, then the series are said to be cointegrated. The cointegration test is to be applied only for the same order integrated services. Cointegration implies that the two integrated series never drift far apart from each other, that is they maintain an equilibrium. Cointegration of two or more data series suggest that there is a constant long-run relationship between them but there may be disequilibrium in the short run.

The long run relationship can be written as:

$$y_t = \beta_1 + \beta_2 x_t + u_t \tag{5}$$

The error u_t represents the deviations from long term relationship.

The disequilibrium error can be written as:

$$u_t = y_t - \beta_1 - \beta_2 x_t \tag{6}$$

If these deviation are stationary then the two series are having cointegrated relationship and estimation is not spurious. There are several methods available for conducting the cointegration test. The most widely used methods are the residual-based Engle-Granger test, the maximum likelihood-based Johansen test, and the Johansen-Juselius test. Johansen test is used to determine the cointegration vector in this study. The presence of distinct cointegration vectors can be obtained by determining the significance of the characteristic roots of Π. The Johansen test can be expressed as:

$$\Delta y_t = \mu + \sum_{i=1}^{k} \Gamma_i \Delta y_{t-i} + \Pi y_{t-k} + \varepsilon_t \tag{7}$$

where $\Pi = \sum_{i=1}^{k} A_i - I$ and $\Gamma_i = \sum_{J=i+1}^{k} A_j$

The null hypothsis for r cointegrating vectors is:

H_0: Π has a reduced rank r π k

Where Π is $k \times k$ matrix of unknown parameters Π. The reduce rank condition implies that the process Δy_t is stationary and y_t is non stationary. If Π is zero, there is no cointegration, and if Π has a full rank which implies that all the variables in y_t are sationary otherwise it has a unit root. In addition, if the rank of Π is between r and k, the y_t variables are cointegrated and there exist r cointegrating vectors.

Johansen (1988) uses trace test and the maximum eigenvalue test for determining the number of cointegrating vectors. These two tests are used to determine the significance of the number of characteristic roots that are not different from unity and can be expressed as follows:

$$\lambda_{trace}(r) = -T \sum \ln(1 - \lambda_i) \tag{8}$$

and

$$\lambda_{\max}(r, r+1) = -T \sum \ln(1 - \lambda_{i+1}) \tag{9}$$

where λ_i is the estimated values of the characteristic roots obtained from the estimated Π matrix, r is the number of cointegrating vectors, and T is the number of observations.

2.2.4 Error Correction Model

Estimating the long-run equilibrium relationship as well as adjustment with the changing environment has to be modelled as an error correction model. Error correction model incorporates adjustment to lagged disequilibrium and contemporaneous changes to show how informative an economic theory practically is. Having established cointegration as a long-run property of the data obviously follows an error correction model with a view to reconcile short-run and long-run behaviour between gross domestic product and health expenditure as an appropriate system of manuevering dynamic adjustment. The error correction machanisim was first introduced by Sargan (1964) as a way of capturing adjustments in a dependent variable which depend not on the level of some explanatory variables but on the extent to which an explanatory variable deviated from an equilibrium relationship with the dependent variable. Later it was corrected for disequilibrium and popularized by Engle and Granger. The error correction model, however, is particularly powerful since it allows an analyst to estimate both short term and long run effects of explanatory time series variables. An error correction model is a dynamic system with the characteristics that the deviation of the current state from its long run relationship will be fed into its short run dynamics because it involves lags of the dependent and explanatory variables.The coefficient on error correction term indicates the speed of adjustment back to the long-run relationship among the cointegrating variables. The usual stationary regression theory applies to the error corection model. The error correction model can be written as:

$$\Delta y_t = \gamma_1 + \gamma_2 \Delta x_t + \gamma_3 u_{t-1} + \varepsilon_t \qquad (10)$$

where u_{t-1} is the one-period lagged value of the residual, and ε_t is the error term with zero mean and a constant variance. The coefficients of error correction model can be estimated by ordinary least squares method.

3.0 Empirical Findings

The first step of this paper is to examine the test of stationarity of the data by using ADF test. The second step is to identify the cointegration between the variables and the last step is to examine the existence and direction of causal relationship between the variables.

3.1 Unit Root Test

In this section, the time series properties of the data have been analyzed. The results of the Augmented Dickey-Fuller (ADF) unit root test are presented in Table 2. It is found that the data series are non-stationary at their level form. Because the ADF test statistics of their level form of the two variables are less than their respective critical values (in absolute terms). So, the null hypothesis that non-stationary is accepted at the 10 percent level of significance. The results of the Augmented Dickey-Fuller test can be presented in Table 2.

Table- 2: Results of the ADF Test for Unit Root

Variable	**Test Statistic (Level)**	**Test Statistic (First Difference)**
Gross Domestic Product (GDP)	2.243335	3.213752
Health Expenditure	2.256870	-4.586883
Significance Level	Critical Value	Critical Value
1 percent	-3.711457	-3.724070
5 percent	-2.981038	-2.986225
10 percent	-2.629906	-2.632604

Mackinnon critical values for rejection of hypothesis of a unit root.

The test is performed using EViews 4

The results of the first difference variables health expenditure and gross domestic product show that the ADF test statistics for the two variables are greater than the critical values at 10% level of significance (in absolute value). So, the null hypothesis that non stationary is easily rejected at the 10% level of significance. It can be said that the first difference of health expenditure and gross domestic product series does not have a unit root and the two variable series are stationary

3.2 Granger Causality

The Granger test is applied to determine the direction of causality between health expenditure and gross domestic product. The causality results are reported in Table 3. The result of Granger causality shows that the null hypothesis health expenditure does not Granger causes gross domestic product is not rejected because the estimated F value is insignificant. But the null hypothesis that gross domestic product does not Granger causes health expenditure is rejected at 5 percent level of significance because the estimated F value is significant.The results of the Granger causality test of health expenditure and gross domestic product series are given in Table 3.

Table-3: Granger Causality Test For Health Expenditure and Gross Domestic Product based on the Difference Data

Null hypothesis	Observation	Lag	F Statistics	Probability
Gross domestic product does not Granger cause health expenditure	24	2	4.97103	0.01835*
Health expenditure does not Granger cause gross domestic product	24	2	0.00426	0.99575

Notes: *donotes the level of significance at 1%

The test is performed using EViews 4

Therefore, Granger causality runs from one-way from gross domestic product to health expenditure without feedback effect. This means that gross domestic product leads to health expenditure with the absence of feedback effect in Bangladesh.

3.3 Cointegration

In this paper Johansen (1991) rank based cointegration test is carried out to sift the long-run relationship. The number of cointegrating vector is determined by using the trace and max-eigen value test. The results of cointegration is presented in Table 4 with lag 1 and intercept term.

Table 4. Johansen Cointegration Test

Null Hypothesis	Alternative Hypothesis	Eigen value	Trace Statistic	5% Critical value	1% Critical value	Max-Eigen Statistics	5% Critical value	1% Critical value	Hypothesis
H_0: r = 0	H1: r =1	0.500564	24.59159	15.41	20.04	16.66262	14.07	18.63	None**
H_0: r $\leq$ 1	H1: r =2	0.281345	7.928972	3.76	6.65	7.928972	3.76	6.65	At most 1**

**denotes rejection of hypothesis at 1% significance level. Trace test indicates that 2 cointegrating equation(s) at both 5% and 1% significance level

The test is performed using EViews4

The results that appear in Table 4 suggest that the null hypothsis of no cointegration (H0:r =0) can be rejected at 1% level of significance in case of both the trace and max-eigen statistic due to the trace statistic and max-eigen value is greater than their critical value. In that case, there is a stable long-run relationship between health expenditure and gross domestic product. On the other hand the second row tests the null hypothesis of at most one cointegrating vectors (H0: r 1) can be rejected at 1 % level of significance in case of both the trace and max-eigen statistic which implies that these variables have with more than one cointegrating equation.

3.4 Error Correction Model

The error correction process is used to reconcile short-run and long-run behaviour among the variables.The results of error correction model can be presented in the following manner:

$$\Delta y_t = 0.265129 + 0.007091\Delta x_t - 0.436183\hat{u}_{t-1}$$

t = (0.542336) (3.10689) (-2.492296)

$R^2 = 0.413202$ d = 2.065717

The aforesaid regression establishes the relation between the change in health expenditure to the change in gross domestic product and the equilibrating error in the lag period.The results show that short-run change in gross domestic product have significant positive effect on health expenditure and that about 0.43 of the discrepancy in equilibrium will be eliminated or corrected in each quarter and the coefficient of adjusted term is significant at 5 percent level because the p value is 0.0203. The coefficient of first differenced gross domestic product is statistically significant at 1 percent level. The results of error correction model show that the independent variable explains over 41 percent of variation in dependent variable. The results reveal that more than 43 percent of the deviation from the equilibrium level can be corrected for health expenditure in each period and in case of gross domestic product, the deviation from the equlibrium will be closed very speedily in the short period. The estimated results of the short-run dynamic error correction model demonstrate that two variables have expected apriori sign which indicates the speed of adjustment back to the long-run relationship between the variables.

4.0 Conclusions

This paper systematically examines the stationality, causality, cointegration, and error corection model of health exapenditure and gross domestic product in Bangladesh for the period 1981-2007. The Augmented Dickey-Fuller unit root test is applied to check stationarity of health expenditure and gross domestic product data series. Empirical findings show that health expenditure and gross domestic product are nonstationary at level form and integrated of order one. Johanson cointegration technique are applied to examine long-run relationship between health expenditure and gross domestic product. The results of cointegration reveal that there is a significant long-run relationship between health expenditure and gross domestic product. The results of error correction model reveal that more than 43 percent of the deviation from the equilibrium level can be corrected for health expenditure in each period and in case of gross domestic product, the deviation from the equlibrium will be closed very speedily in the short period. The causation between health expenditure and economic growth in Bangladesh is examined using the Granger causality test.The findings show that there exists one-way causality running from gross domestic product to health expenditure in Bangladesh without feedback effect. From this analysis it can be said that the health expenditure does not cause GDP growth and GDP appears to be the main factor in determining the level of health expenditure. Only about 1 percent of the GDP has been allocated to the health sector against the WHO target of 5 percent of GDP. The implications of the study suggest that GDP growth would lead to increase health expenditure in the country. As a policy implication the government should increase expenditure on health according to world standard level for better human resources development which will further enhance GDP to a great extent.

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