The Journal of Animal & Plant Sciences, 25(3 Supp. 2) 2015 Special Issue Page: 334-340
ISSN: 1018-7081

SOCIO-ECOLOGICAL ASSESSMENT AND LOCAL COMMUNITY PERCEPTION TOWARDS WILDLIFE CONSERVATION AROUND MANGLA DAM, AJK

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ABSTRACT

The present study aims to determine socio-ecological profile of the local communities around the Mangla dam and their perception for wildlife protection and conservation. Socio-ecological data was collected by PHRIA (Participatory Human Resource Interaction Appraisals for the communities) methodology for determination of resource management, economy, human resource, education, demography and wildlife conservation perception of villagers from May, 2011-April, 2014. The seven villages i.e. Mohra Malkan, Panyam, Bohar Colony and Kharek were selected from Tehsil Mirpur while ThubJagir, Unah and Siakh were selected from Tehsil Dadyal for this purpose. The 392 (158 female and 234 male) participants from populationof 18219individuals were interviewed fromselected villages**.** Highest literacy rate was observed in males as compare to females. 11.36% were involved in boating by profession, 10.8% were laborers at brick clink, 7.95% were fishermen, 6.81% were landowners and 21.5% were unemployed. 37% people were using public transport as main source of transportation, 24% were using motorcycles, 3% used animal driven carts and 5% were using cycle. Livestock keeping is also very common among villagers. People wanted to conserve the wildlife, 21.42% supported ban on hunting which is major cause of wildlife decline. 9.43% considered that local community should involve in ward and watch of wildlife. 12.75% demanded to improve the livelihood of the residents. 11.98% felt that education and awareness should be the integral part of conservation activities. The local people also thought that ecotourism should be promoted in area as source of income. The 18.87% community supported boating, 16.83% bird watch and 14.79% fishing as main attraction for tourists. The results also revealed that educated people were more concerned about wildlife conservation. Low literacy rate, unemployment, lacking of health care services, unsustainable fisheriespractices and lacking trained field staff increased the pressure on natural resources and wildlife. Conservation of wildlife on long-term could be accomplished by awareness of masses, ecotourism and proper management strategies.

Key words: Socio-ecology, Wildlife Conservation, Local Community, Ecotourism

INTRODUCTION

The assessment of local community attitudes for study of wildlife conservation and their perceptions towards natural resource conservation is an important feature for sustainability (Newmark *et al.* 1994). The success of wildlife conservation depends on perspective of people for conservation (Osmond, 1994; Katrina, 2000). Same is the case with assessment of causes which influence their outlook. This is equally important to help wildlife managers to apply such approaches that draw favors of stakeholders and local community. It is very useful to seek out active involvement of potential stakeholders not in the technical effectiveness of conservation strategies but to satisfy cultural, political and social needs for conservation of environment. This will in return help to change the attitudes of native people towards wildlife survival and conservation (Nji, 2004).

Human utilization of natural resources is increasing tremendously for last century without realizing its importance. Planning and development sector in Pakistan constantly ignoring the vitality of biodiversity and their function for human stabilization environment. The Mangla dam is most neglected wetland of international importance which has not been assigned the status of wetland, even it fulfill the criteria to be a Ramsar site. This wetland is representing a wide variety of biodiversity among them the most prominent are its migratory avian diversity which are tribute to Pakistan.

The evaluation of local community's knowledge and approaches about conservation is vital for wildlife conservation and for determination of conservation projects success (Soto *et al*. 2001; Sundaresan *et al*. 2012). The acknowledging of local's knowledge and understanding towards wildlife conservation, is an integral part of the procedure which help to engage native communities for development of positive relationships among inhabitants and manager of protected area (Allendorf *et al*. 2012).

To understand the efficiency of any management policy for conservation of resources on long-term basis, it is significant to get insight into parameters that conclude general peoples' current optimistic perceptions towards conservation of wildlife. This will also explain their imitation regarding activities of management

(Ormsbyand Kaplin, 2005). The communities around area of concern adopted such tricks which allow them to get resources from that area for their existence. Globally native ecological perceptions towards wildlife conservation are getting a lot of attention. Local ecological information is important in those areas where communities are inhibiting around and within protected areas (Trakolis, 2001; Gandiwa *et al*. 2012).It is matter of human nature if they are getting advantages from business economically which relays on native natural resources, in such cases they take instant attention to manage and save those assets sustainably (Salafsky *et al*. 2001).

The area of Mangla dam is property of Government of but its surroundings are in possession of public. The Dam is declared protected and placed in list of Game Reserve in 1972. There is no management policy to check erosion the major threat to dam life due to deforestation in catchment vicinities and protection of its biotic resources. This natural resource rich wetland is neglected in all aspects of conservation. The objectives of present work were to access the degree of interaction between to local community and dam resources, to understand the impact of community livelihood, education and professions on biotic resources depilation and conservation. These finding will be helpful to design a management policy for sustainability of biotic resources in future.

MATERIALS AND METHODS

Study Site: The seven villages in two Tehsils i.e. Mirpur and Dadyal of District Mirpur, AJK were selected for current work. The Mangla Dam (33.12 °N, 73.39 °E (is a multipurpose dam in the Mirpur District. The area covered by dam is of 26,500 ha and was constructed in 1967 on river Jhelum (Fig-1).

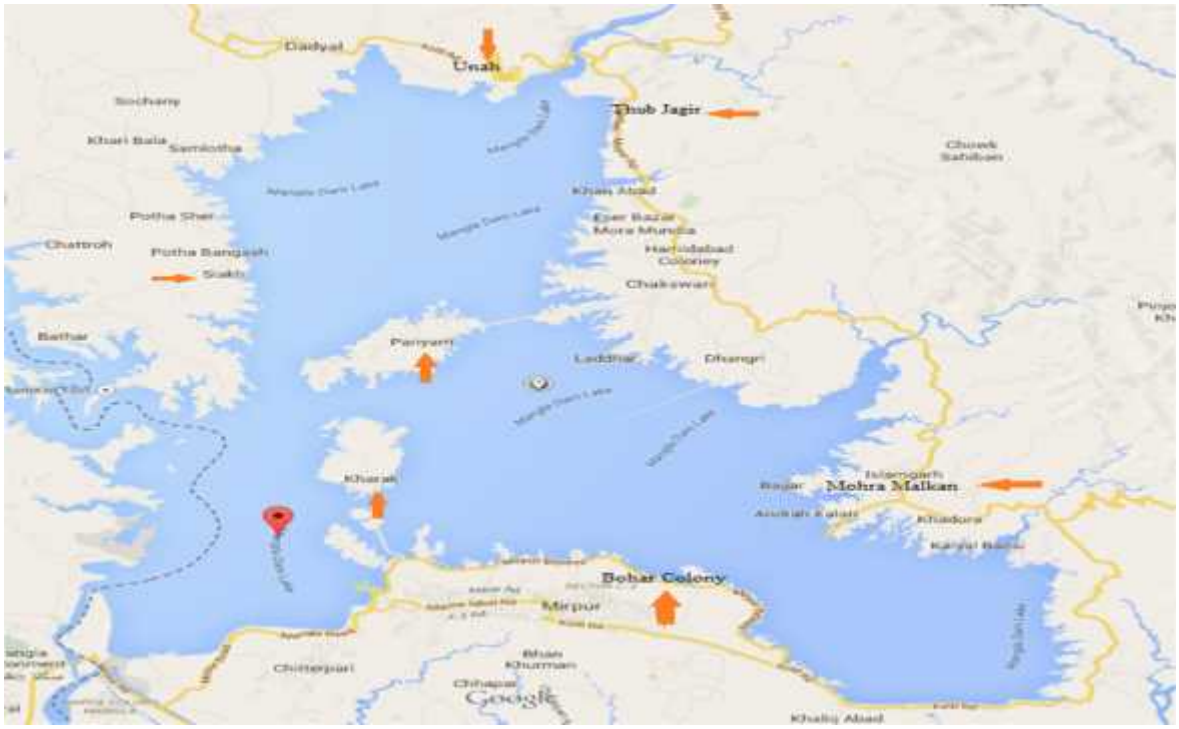

Fig.1: Study Site on Mangla Dam

Villages: The villages were selected around the dam which have close interaction with the dam, i.e. Mohra Malkan, Panyam, Bohar Colony and Kharek in Tehsil Mirpur while ThubJagir, Unah and Siakh from Tehsil Dadyalas shown in figure1.

Survey Methods: To access the socio-ecological profile of community PHRIA (Participatory Human Resource Interaction Appraisals for the communities) methodology (Scherl and Forte, 2000) were applied to determine the resource management, economy, human resource, education, demography and wildlife knowledge of the village form May, 2011-April, 2014.

Data Collection: Sample Size: The sample size was determined according to the method described by Yamnae, (1967). The 392(158 female and 234 male) participantsfrompopulation of 18219individuals of seven villages were interviewed**.**

a) Age of Participants: Both males and females were interviewed from age group of 10-79years**.**

b) Socio-ecological Profile: To collect the data by participatory human resource interaction appraisals for the communities, formal and informal meetings, surveys, trainings and workshops were arranged for students, Govt. employees, farmers, livestock holders, landowners, fishermen, brick clink workers and old people.

c) Boat survey: To collect the data from Kharek and Panyam Villages the motor and paddle boatswere used.

d) Meetings with Hunters and Fish Contractor: To generate the data for hunting and fisheries practices informal meetings with hunters and fish contractor were also arranged.

RESULTS AND DISCUSSION

Socio-ecology: During the course of study 392 villagers from different age groups were selected. Among these 392 participants 40.3% (n=158) were females while 59.7% (n=234) were males. The religion of all participants was Islam as far as the matter of their languages is concerned 20.45% were speaking Sindhi (from Sindh came for fishing, hired by fish contractor), 46.02% were speaking Kashmiri and 33.52% were speaking Potohari Urdu. As shown in fig-2 the participants were belonging to all age groups. The highest percentage of male respondents was i.e.16.45% belonging to 10-29 years of age group, while in females the participants of 30-39 years age group were maximum i.e. 14.28%. The least respondents (2.27%) were of 60-69 year age group in females but 5.27% from 50-59 years age group were male participants.

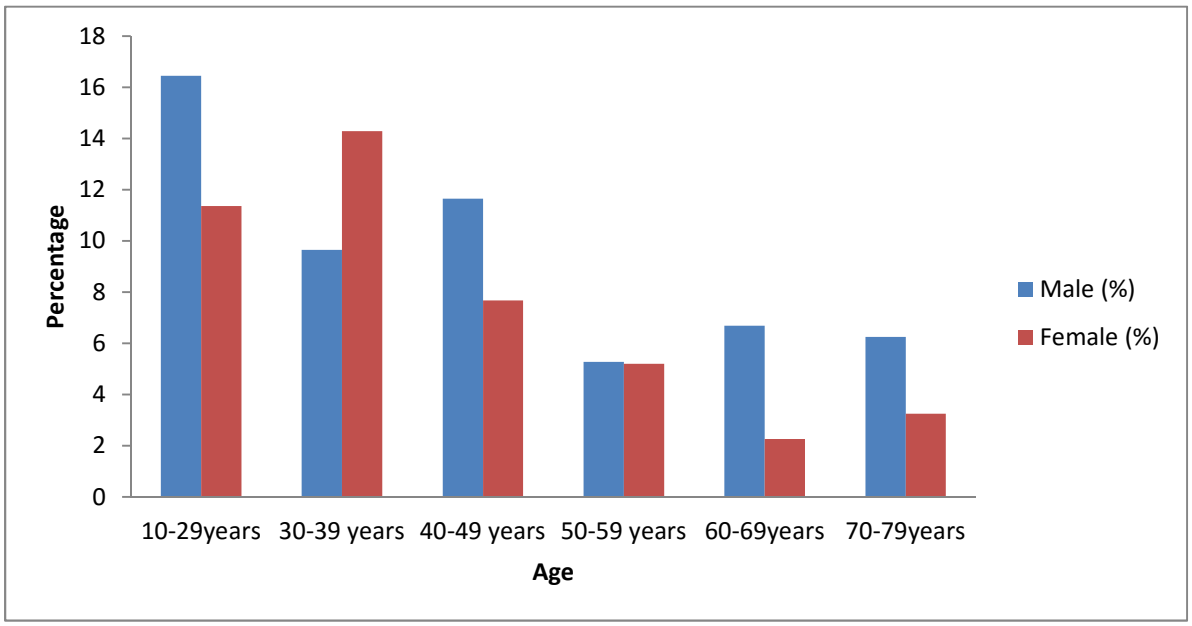

Fig.2: Age Structure of Participants

The education level of respondents was also determined. The illiteracy rate (25%) in females was higher than that of male participants (18.18%) as given in fig-3. The highest percentage of middle level education 9.09% was observed in female participants although it was lower than 15.34% of male respondents. In all villages except Thub Jagir of study area schools up to middle level were present but for higher education they have to move to Mirpur.

The results revealed that literate participants were supported the sustainable management of natural resources of Mangla dam. Males were more interested than female to participate in conservation activities. The same findings were also obtained by Badola *et al*. 2012 during their study at mangrove forests of Indian east coast.

The most of respondents were associated with boating 11.36%. The boat owners easily earn Rs.200-350 per day. Some villagers in Panyam and Siakh were using boats as mean of transportation. The fish contractor also owned a large no. of boats for fishing and boating. Army has also built Mirpur Boating Club; therefore a big number of people were earning their livelihood from boating. Winter and spring are highest earring seasons.

The 10.8% people were associated with brick clinks because the house construction is one of the most loving hobby of the people settled in UK, therefore due to high demand of construction material brick clinks were

present throughout the district Mirpur. Businessmen were 9.09% the main business was factories and small industries. 7.95% were involved fishing. A contract among fish contractor and department of Wildlife & Fisheries, AJK is signed annually, the contractor hired the fishermen from Sindh, Gujrat, Gujranwala, Sialkot, Gujar Khan and Rawalpindi but this business is very seasonal. The people earned through fishing only from September to April. Bibi *et al*.2013 observed the same at Taunsa Barrage Wildlife Sanctuary. According to Mirza *et al*.2012 the commercial fishing is an important biological source of Mangla Dam.

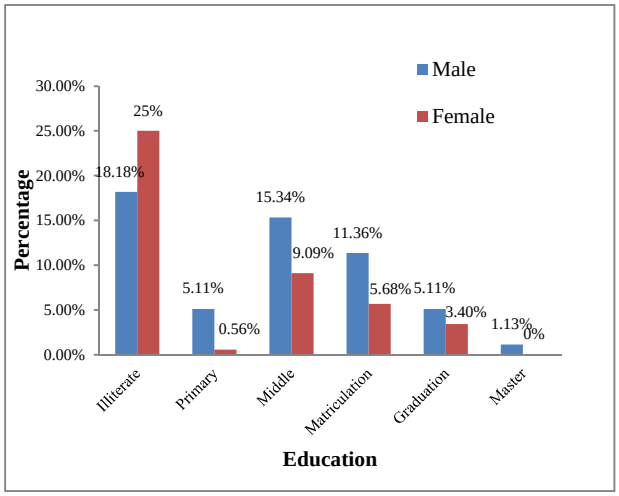

Fig.3: Education Level of Participants

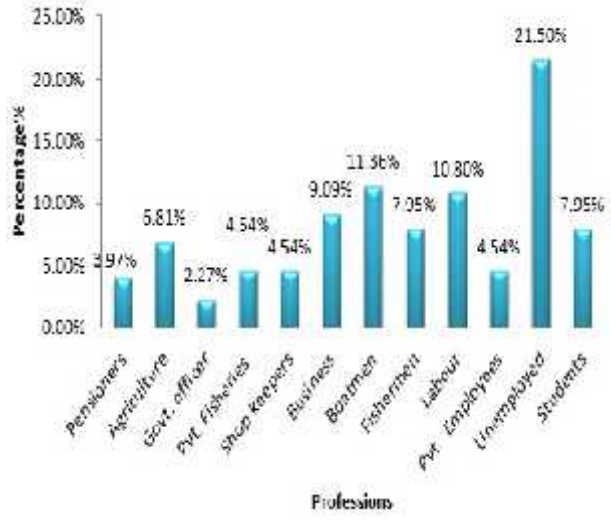

Fig.4: Professions of Male Participants

The average fish catch reported by him was 130 mt per year. In fish catch 83.4 per cent was contributed by *Cyprinuscarpio*, *Gibelioncatla*, *Speratasarwari* and *Wallagoattu*. In many biodiversity rich areas subsistence agriculture is main livelihood, in present study agriculture activities were 6.81% the land exposed by dam is used for agriculture.

These crops were mainly utilized for personal consumption. Unemployed were 21.5% because earning opportunities were less.

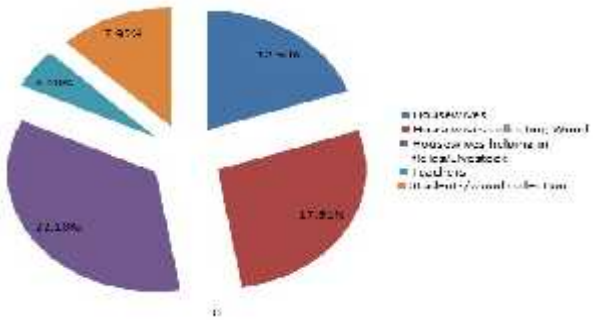

Fig.5: Activity of Female Participants

Females were mostly involved household activities they helped in wood collection, farming and livestock rearing as shown in fig-5. They spent eight hours daily to collect the wood from forest due to this they got less rest and suffering from joints pain. They observed that vegetation cover of the forest is decreasing day by day, therefore alternative source for fuel should be provided. Some women also pointed out that due to reduced number of trees many small animals and birds they were observing during wood collection have been vanished now. Only 3.40% female were involved in teaching and 7.95% were students.

Means of transportation have shown in Figure.6. The 24% people were owned motorcycles, 37% were travelling through public transport, and 3% community is using animal driven carts. 16 % individuals were having cars as means of transportation. The relatives of United Kingdom settled community were rich and possessing double cabins/Jeeps/Jaguar. The "RENT a Car" is very successful business because during holidays when people came back from UK they hired precious and costly cars. But the local community is poor they used cycles, boats, motorcycles and public transportation for their travelling.

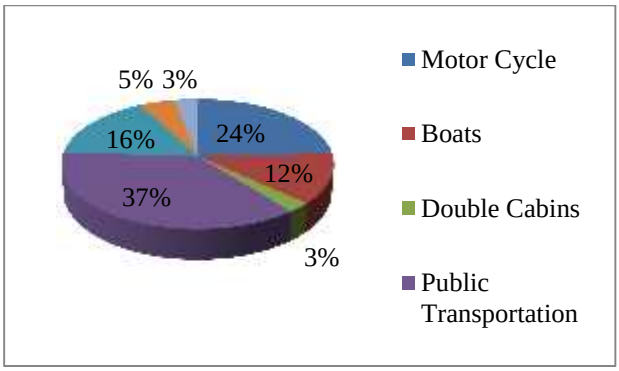

Fig.6: Means of Transportation

The community in Mirpur is divided in two groups, one who lived in European countries especially in United Kingdom are rich and enjoying dual nationality. They visit their home town annually and spent luxurious life, having good will in society. The second group is migrated from occupied Kashmir and settled on banks of Mangla Dam on the purchased land of WAPDA Pakistan. This group is mainly poor and depends directly and indirectly on resources of Mangla dam. The data has shown that only those members of community had positive relationship with dam and its management who were gaining high benefit from it, therefore the provision of better life quality and alternative earning options could be helpful for successful management of this manmade freshwater wetland.

Perception towards Wildlife Conservation: The native community perception for wildlife conservation has indicated that their area should be preserved for the maintenance of natural resources but their livelihood should also be improved as well. To change the perception of native people for wildlife existence, it is very important involve them for policy making along with all stakeholders. Only in such conditions a management plans will be of some success.

Many important issues with their causative agents were unveiled in this paper as given in Table.2. To determine the native people attitude different affirmatives were accessed. Different responses were received. When people were asked "There should be ban on hunting" N= 84 agreed because hunting is major threat for conservation of wildlife. The study has shown that 60% hunters were outsider especially rich people how can afford this expensive game while 40% were native basically these people were facilitating the hunters by marking the wildlife rich site, provision of boat and help in netting/trapping. The boatmen and fishermen were very much supportive for hunting of migratory birds for money; the basic reason behind this was their poverty. Secondly the weapons like 12bore, repeater and revolver were easily available. The license fee for hunting was just Rs. 1500 per year for5-7 hunts. The hunting was mainly for recreation only 30% were used for household. The hunted animals were sold only 3% within the village while 15% was sold outside. The hunting was year around but it significantly increased in winter when dam is full with migratory birds. The population of wildlife is decreasing rapidly due to many reasons but hunting was predominant (Khan and Ali, 2015).

The environmental education is a vital tool to change the community attitudes toward the wildlife and protected area. 47 individual considered awareness as a significant factor to sensitize the community. As mentioned above the educated people were more concerned for wildlife conservation and protection (figure.3). The people possessing higher education generally prefer to work in offices and to run their business but people with basic education involve in agriculture, fishing and boating they may affect wildlife directly or indirectly same was observed by Anthony, 2007. The 9.43% Participants felt that local community should involve in wildlife conservation. This participation may be paid or voluntarily for anti-poaching, supervision and tourist activities. The 7.65% considered that Wildlife and Fisheries Department should be strengthened as the department lacking trained field staff, speed boats and speedy transportation. Proper ward and watch by department is missing was noticed by 3.82% participants.

Table-1: Local Community Perception toward Wildlife Conservation around Mangla Dam

Affirmatives	N	Percentage
There should be ban on hunting.	84	21.42%
Awareness of masses.	47	11.98%
Involvement of community for Wildlife conservation.	37	9.43%
Strengthen and increase the concerned Department.	30	7.65%
Popper ward and watch	15	3.82%
Ecotourism	11	2.80%
Improve the livelihood of community	50	12.75%
Causing damage, there is no need to save them	16	4.08%
Habitat should be preserved	9	2.29%
Control pollution	10	2.55%
The Mangla Dam is of no importance to us.	77	19.64%
Ecologist and Research may help us to conserve Wildlife and Environment	6	1.53%

The 12.75% people thought that the balance among the nature and native people could only be maintained by improving the livelihood of local community. Hökby and Söderqvist, (2005) described that unemployed and illiterate individual living around protected areas are involved in wildlife crime, therefore

by provision of better earning opportunities pressure on wildlife may be controlled. The 2.80% thought that ecotourism in area could improve the livelihood of the community. The 19.64% of respondents felt that Mangla dam has not any important role in their life. The 4.08% people associated with agriculture ware thinking that wildlife especially birds are pest for crops they killed largenumberof birds by mixing poison in baits. According to WWF-CFP annual report, 2008 it is common practice of native tribe in protected areas " primarily to killing wildlife by keeping dangerous chemicals mixed with food crops and an irresistible poaching notion if their crops are destroyed by wild animals and secondly if no benefit is derived from wildlife resources".

The figure.7 is indicating the different attractions for visitor to enhance the ecotourism according to respondents. It was found that boating, fishing and Bird watch may support ecotourism in area. People around protected area practiced many activities which allow them to get benefit from site for their livelihood; the most frequent utilization is ecotourism. These sustainable activities realized the community to value their wildlife heritage for generation of income and future generation (Goodwin, 1996).

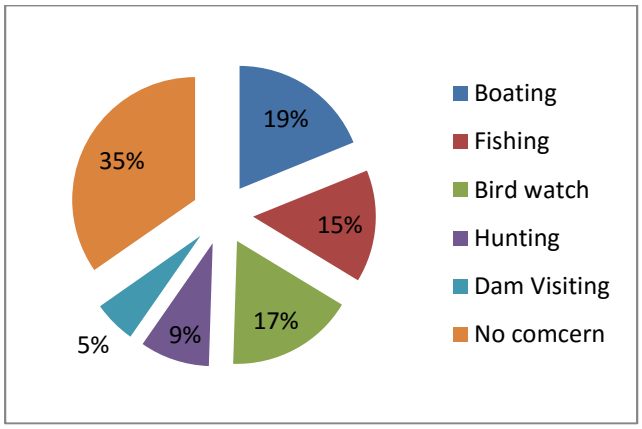

Fig.7: Possible options for Ecotourism at Mangla Dam

Conclusion: This study concluded that local communities of Mangla dam are interested to support sustainable use of biological resources by opposing hunting and supporting ecotourism. The lack of basic necessities of life cause increasing pressure on natural resources conservation. It will be of great importance for conservation managers (both government and non-governmental organizations) to jointly create better education & health plans for community directly in contact with Mangla Dam along with biotic resource management by utilizing knowledge of native about migratory birds, fisheries and forest.

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