



ISSN NO. 2320-5407

Journal homepage: <http://www.journalijar.com>

INTERNATIONAL JOURNAL
OF ADVANCED RESEARCH

RESEARCH ARTICLE

FLOOD DISASTERS AND ITS IMPACTS ON CHILD EDUCATION IN SINDH (A CASE STUDY OF 2010 FLOOD).

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Manuscript Info

Manuscript History:

Received: 12 April 2013
Final Accepted: 13 May 2013
Published Online: May 2013

Key words:

Disaster,
Sindh,
Horrible,
Flood, Child education
Development.

Abstract

The occurrence of natural disasters has shown a negative trend as annual incidents of disaster events have increased in the Pakistan. Approximately more than 20 million people in Sindh province has affected due to floods of 2010. Present study was carried out in the districts of Sindh province such as Sukkur, Skikarpur, Ghotki, Khairpur, Larkana, Qambar-Shahdadkot, Jacobabad, Kashmore-Kandhkot, Naushehroferoze, Shaheed Benazir Abad, Dadu, Jamshoro, Matiari, Badin and Thatta during the year of 2010. Schools in the Sindh province are hampered in their operation when the disaster occurs. During the horrifying flood disaster of 2010 many schools were unable to opened due to flooding, students were transferred to other schools while others dropout of the school system. Access to safe water, sanitation, quality of education and health awareness are desperately needed, along with micro-economic development to bring the population up to a livable standard. This study investigates the horrifying disasters in the Sindh province and analyses their impacts on child education and national development.

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Introduction

We live in a world that is increasingly affected by horrifying disaster incidents. Recent decades have seen significant growth in the many numbers of havoc disasters reported in the world including Pakistan such as floods, cyclones, drought and Tsunamis. Many numbers of peoples are being adversely affected by these incidents, with Asia particularly hard hit by rapid onset emergencies (Mitchell et al., 2009) and the negative impacts persist into the long-term, well beyond initial mortality and infrastructural damage to include negative impacts on health, education, economy, nutrition, agriculture, livestock and morbidity (OXFAM 2009). The science tells us that these trends are likely to be exacerbated by climate change globally. Today's children will bear a disproportionate share of the impacts, both in the immediate and long-term effects, as documented by a many numbers of recent observations (Save the Children Sri Lanka, 2006). Children all over the world are highly vulnerable and mostly affected by

climate change and horrifying disaster impacts, while those of them living in marginal environments and situations of poverty are more vulnerable still (Wisner, 2006). When the disaster witnessed the high mortality and morbidity rates among the children during and after extreme events was particularly evident following the 2010 horrifying flood disaster in Sindh province, where the largest numbers of fatalities were women and those under the age of fifteen. Impacts of climate change are projected to increase the numbers of children affected by disasters, from an estimated that more than 66.5 million people per year badly affected in the late 1990s, to as many as 175 million people per year in near future decades (Stern, 2007). The agencies forming the children in a Changing Climate Coalition (CCC) recognized that the immediate and greater steps must be taken to reduce the risks to children from the horrifying disasters (Tanner et al., 2009). More recently, several initiatives have worked to facilitate children's active participation and agency in efforts to prevent, prepare for, cope with and adopt to climate change and when extreme events will come

suddenly. Such initiatives cover curriculum development in schools, teacher training, knowledge-transferring through a range of media and increasingly they must enable child participation through their rights-based approaches, children's participation in concerned policy spaces and child-centered risk communication (Munawar et al., 2003). These approaches could be stress children's ability to participate in DRR activities in their homes, schools and communities, whilst learning and aware about the disasters and climate change and extreme events. They also acknowledge children's role in communicating risks of disasters to their peers and relatives as well as providing practical and creative ideas to help their families and communities recover from extreme events and havoc disasters (Tanner et al., 2009).

Natural hazards are not occasional phenomena with unfortunate consequences. Floods, wind and storms, earthquakes, drought, volcanic eruption, and tsunamis lead to about 400 national disasters, an average of 74,000 deaths and more than 230 million people affected every single year (CRED, 2008). Each time a disaster occurs, masses of children are excluded from school, many never to return. Floods alone affect upwards of 500 million people per year. Worldwide, 450 cities each with a population over 1 million face recurring earthquakes. Cyclones, typhoons and hurricanes are amongst the deadliest and costliest of disasters. Droughts and desertification now affect 250 million people and threaten 1.2 billion in 110 countries (UNESCO, 2007).

The UN Convention on the Rights of the Child (1990) recognizes that every child has both the inherent right to life (Article 6) and the right to education (Article 28). Known, expected and recurring hydro-meteorological and geophysical hazards threaten both of these rights. Today as the global commitment to the Millennium Development Goals (MDG) is avidly pursued, including achievement of universal primary "Education for All" by 2015, deliberate proactive steps are needed to ensuring that every school is a safe school, and that children's education includes the knowledge they need to keep themselves and future generations safe. Approximately 11,906 schools attended by more than one million children have been affected- either used as shelter (2,674 in Sindh) or damaged (9,232 schools) in Sindh (8,820), Baluchistan (297) and Punjab (115), impeding the resumption of teaching and learning activities (NDMA 2010).

The nature and intensity of natural disasters has changed significantly over the period of time. The July and August floods have surpassed the physical destructions ever caused by all the disasters in

Pakistan. Around 300,000 houses have been damaged, more than 1,445 deaths, thousands injured and missing, and millions displaced and stranded in the flood water. The catastrophe has impacted a wide population in Indus river basin starting from North in Gilgit-Baltistan crossing Khyber Pakhtunkhwa, and Punjab and hitting down the Sindh Province, where the magnitude of its impact is still assessed. The unprecedented natural disaster of late July and early August 2010, heavy torrential rains and flash floods have severely hit the human lives, livestock, infrastructure, crops and livelihoods particularly in Khyber Pakhtunkhwa. The dynamics of this disaster was such that life losses were less but the damaged to public and community infrastructure were beyond imagination.

The World Education Forum's Dakar Framework for Action: Education for All (EFA) (UNESCO, 2000) acknowledged that natural hazards pose significant challenges to countries in meeting their EFA goals, and would require international level support. Worldwide 875 million school children live in high seismic risk zones, with 32 million of these children newly enrolled in primary education (Wisner et al., 2004). As this threat has continued to grow, neither national nor international commitments have kept pace with the huge numbers of children affected. Damaged schools disrupt hard won educational rights. When instruction time is lost, ultimately quality of education drops. When there are no plans for alternative locations and students are denied continuous schooling, many will never be able to catch up and will drop out permanently. When educational records are missing, students may fail to matriculate and go on to further education. These disasters can all be mitigated with knowledge and planning, physical and environmental protection measures, and response preparedness.

IMPACTS OF DISASTERS ON EDUCATION:

Disaster slow down and hinderers the progress towards the achievements of Millennium Development Goals (MDGs) (UN, 2001). Disaster mostly hit the communities, who often fail to send their children to school, for example in Sindh province most of affected schools were close down due to heavy floods in 2010. Aspects regarding the extreme environment that surrounds the schools, quality of education, financing, efficiency effectiveness and development had to be addressed with urgency. The effect of horrifying disaster is evident everywhere in the affected districts of Sindh province, from the desperate faces of the displaced people living in camps and their once beautiful homes float in water of heavy floods. The most depressing effect of the floods is to be found in

schools and the students who try to make their way in the affected areas. For students going to school is a nightmare, they have to either wade through flooded fields or board canoes that are dangerously rowed through the floating water. It's risky for pupils to keep crossing from the canal or river in boats but they have no other option to go there, pupils have to endure hunger the whole day, as they cannot cross the canal or river daily to go for their feeding purpose. At the time of disaster the cost of travelling daily to go their school has risen as pupils have to pay higher amount for boat rides in the morning and evening every day. After disaster most schools throughout the affected areas are in pathetic situation and disheartens to educationist. For example a school consists of six or ten classrooms in two or three blocks, if the school is fortunate, the oldest block will have been built sturdily in that region, though newer blocks, often built by the community seem temporary in the affected areas. These blocks will vary in quality from mud and cement block used in construction of new building in the disastrous areas. They often suffer from the inadequate maintenance and compounds are usually dusty. The additional students from the affected districts, leads to hundreds of pupils to squeeze into poorly-lit rooms usually designed for not more than forty some without chairs and desks. In the affected areas an appropriate school environment provides adequate level of inputs, like as: personnel, learning materials, physical facilities and other facilities that must accompany the teaching learning process for its efficiency and effectiveness. In school system the greater the quality and quantity of inputs the better quality of outputs could be achieve which will satisfy the expectation of the society and government. In the affected districts although the problem has been faced by the Ministry of Education and government, little has been done to address it and so students' performance was remained hampered because of the very paucity of teaching learning environment of schools. This kind of situation has greatest negative effects on the performance of students who are below the average performance or who need special attention for improve their study. Mostly the weak students will always repeat the same grade severally without improvement in their grade which results in dropping out of the school system. Educational attainment that is a fundamental determinant of human vulnerability and marginalization in the school cycle. Basic literacy and numeric skills enable individuals to become more engaged and adopt in their society. The destruction of schools which is direct way in which disasters can inhibit educational attainment but perhaps more important thing is that the drain on household resources that slow and sudden onset

disasters inflict in the affected areas. If heavy flood came the households frequently have to make difficult decisions on expanding resources on survival and coping with poverty or high expenditure on investments (such as education and health care) to alleviate human vulnerability and enhance long term development in the affected region. Unfortunately, for the poorest, there is no choice a human vulnerability deepens as resources are targeted towards survival of people thus ignoring the call to enroll their participation for increasing their numbers and retain their children in schools due to high opportunity cost of education. In the worst disasters the schools are directly affected because they cannot direct operate effectively without key human resources pillars. Disasters which may exacerbate factors that cause children to drop out from the school system. After disasters the qualified teachers may find it very difficult to take up teaching jobs in this affected areas thus causing perennial shortage of qualified staff. Ultimately, this shortage of qualified staff will affect enrollment, quality of education, overall performance of the students and the schools. Education plays vital role to enhance sustainable development in the nation, this might be considered when planning policies and making operational decisions concerning with primary and secondary education (Anderson, 1985).

IMPACTS OF DISASTERS ON NATIONAL DEVELOPMENT:

Disasters have directly, indirectly and secondary effects on the national development and socio-economic sector. Direct damages include all damages to fixed assets, capital and inventories of finished and semi-finished goods, raw materials which available simultaneously or as a direct consequence of the natural phenomenon causing a horrifying disaster (CRED, 1997). During the disaster indirect damages relate to the effect of flows of goods that will be produced and services that will not be provided after the heavy floods. They are measured in monetary, rather than physical terms in the disaster region. After the heavy floods the indirect damages may increase operational expenditure following the destruction of physical infrastructure or inventories and additional costs for the provision of services. Disasters can also effect on the non-provision of goods as services, losses of income resulting from the non-provision of services in utilities and losses of personal income in the case of total or partial loss of the means of production in the disasters, business, agriculture and livelihood. Disasters can affect poverty reduction in several ways: like as they have macro-economic impacts, directly through physical damage to infrastructure, productive capital and stocks but also

indirectly by affecting productivity, growth and macro-economic performance in the affected areas. These effects badly hit the poor people hardest because they will not be able to access adequate social amenities at affordable prices in the disaster region (Lavell, 1999). The government will also lose tax revenue after the disaster due to the diversion of resources into disastrous regions. After the disaster high frequency hazards, such as floods trigger immediate food crisis, but can also have long-term effects which can impede recovery in the interim periods especially when combined with other pressures such as flood borne diseases, poor governance and conflict between the flood affected communities (Adams, 1990). After the disasters, the floods are almost accompanied by a wide range of health hazards such as malaria, cholera, typhoid and bilharzias, that situation leads to strain on medical facilities. The situation is usually made worse after the heavy floods due to overcrowding in the camps; leading to deaths in the flood relief camps. In the flood relief camps toilet facilities although not common among the people of affected areas, which exist are submerged by the floods and hand-dug wells at higher grounds collapse thus water becomes a bigger problem (Mango, 2003). After the disasters which could leave women and girls with heavier responsibilities and over workloads and often poorer health of people (Cuny, 1983). After disaster mostly children are in great danger in floods landslides and lightning regions because they fall victim of drowning, starvation and disease. Affected areas of disaster directly cause disease and damage to health infrastructure, while indirectly lowering disease resistance by heightening poverty, malnutrition and reduce survival rates. Heavy floods which cause increase the rural-urban migration and in cities disproportionately affect slum dwellers in the region, which cause to street children (who ought to be at school) in the big cities of Sindh such as: Karachi, Hyderabad, Sukkur, Mirpurkhas, Larkana and Shaheed Benazir Abad. Large scale disasters have significant in the affected areas significant humanitarian, social security, political and economic implication that undermines human security. Heavy floods cause large numbers of illness, disabled, widowed, orphaned, displaced or suffer from the post-traumatic stress disorder (Basu et al., 2002), thus human development is increasingly being threatened by disasters.

1.1 A partial list of recent impacts of disasters on schools:

- 2008 Myanmar 2,250 schools completely collapsed in cyclone Nargis. Another 750 were severely Damaged.

- 2008 NW China an estimated 10,000+ children died in their schools. An estimated 7,000 classrooms were destroyed.
- 2007 Bangladesh cyclone destroyed 496 school buildings and damaged 2,110 more.
- 2006 Philippines super typhoon durian caused \$20m USD damage to schools including 90-100% of School buildings in three cities and 50-60% of school buildings in two other cities.
- 2006 Leyte Island, Philippines 245 children and their teachers died in a mudslide that buried the village elementary school after 5 days of rain had ceased.
- 2006 Uganda 13 children died in a school dormitory fire where children were using candles for lighting.
- 2005 northern Pakistan, Kashmir 17,000 students died at school, and 50,000 were seriously injured, many disabled. 10,000 school buildings destroyed. 300,000 children affected. In some districts 80% Of schools were destroyed.
- 2005 Gulf states, USA 56 schools were destroyed and 1,162 were damaged. 700 schools were closed and 372, 000 children displaced. 73,000 college students displaced. \$2.8 billion was spent to educate displaced students for a year.
- 2004 Indian Ocean a tsunami destroyed 750 schools in Indonesia and damaged 2,135 more. 150,000 students without schools. 51 schools were destroyed in Srilanka, 44 in Maldives, and 30 in Thailand.
- 2000 Cambodia severe floods directly affected between 500,000 and 1 m students in 1,000 – 2,000 schools in 8 provinces.
- 2004 Bangladesh 1,259 school buildings were lost to floods and 24,236 were damaged. 2004 Tamil Nadu, India 93 Children died in a fire due to explosion of a cooking gas cylinder.
- 2003 Bam, Iran 67 of 131 schools collapsed, the remaining were heavily damaged. (10,000 school children and 1,200 teachers died and more than 32,000 students were adversely affected).
- 2003 Bingol, Turkey 84 children and teachers die in collapsed school building in a moderate earthquake. 4 schools collapsed. 90% of schools were impacted and education disrupted.
- 2003 Xinjiang, China 900 classrooms in dozens of schools collapsed in earthquake 27 minutes before thousands of children

returned to their classrooms. Middle school collapsed killing at least 20 students.

- 2003 Dominican Republic 18,000 students lost their classrooms.
- 2003 Boumerdes, Algeria 103 schools destroyed, 753 severely damaged. Cost of rehabilitation \$79 million.
- 2002 Abgarm 16,500 students education disrupted when 8 schools collapsed and 137 were damaged.
- 2002 Molise, Italy 26 children and 1 teacher died in a school earthquake collapse.

METHODOLOGY:

In this study the information is based on a variety of different sources and is aimed at providing an overall picture of impacts on child education related to disaster risk reduction issues in the affected districts of Sindh province and at sharing a few good practices which can be used to determine the main recommendations of future activities. For collection of data the meeting were held and direct communication was established with key representatives of national and international organizations and authorities which were actively participated in disaster risk reduction and disaster management and other United Nations agencies. In this study the first-hand information was supplemented by a desk review of existing studies by international agencies, governments, governmental and non-governmental organizations and data from a wide spectrum of sources. Data on disasters due to natural hazards was principally taken from Provincial Disaster Management Authority (PDMA), National Disaster Management Authority (NDMA) and complemented with data from other sources of NGOs. Previous disaster data on the number of disaster events, including number of people killed and affected and economic losses incurred was also assessed and information examined from global databases including the disaster risk index tool of the United Nations development programme (UNDP) and World Bank Statistics information was provided by key representatives of National Disaster Management Authorities (NDMA) and national and international organizations active in disaster risk reduction.

For collection of data for this study the United Nations agencies were consulted in addition to those provided by UNICEF and UNISDR, numerous other documents, and ASIAN Disaster Reduction Centre (ADRC) country reports were examined. It should be noted that during the collection of data from the affected areas given the limited availability of information the activities which are included should be considered as representative. Due to the vast

number of international organizations and regional sectors, this report covers only the, PDMA, NDMA, UNICEF and UNISDR engagement in the disaster region. The report provides a solid assessment of exposure to disaster risk at country's affected areas and at the regional level, including the examination of current legislation and institutional mechanisms towards disaster prevention and a review of disaster risk reduction activities undertaken in targeted affected regions and the role of child education.

This report of flood affected region provides for each heavily affected districts of Sindh brief expositions of its disaster risks hazards and vulnerabilities and institutional framework for disaster management. Disaster Risk Reduction (DRR) activities related to child education and those undertaken by national authorities and international and national organizations have also been portrayed and presented in this report. The presence and areas of engagement of other United Nations agencies and national and international partners has been viewed to explore possible areas of collaboration and to avoid the risk of duplication and overlapping in flood affected areas of Sindh. The conclusions and recommendations are the result of a careful analysis of information collected from disastrous areas and interviews held with stakeholders, both governmental and non-governmental.

RESULT:

OVERVIEW OF THE SINDH PROVINCE

2.1 GEOGRAPHY

The Province of Sindh is located in the South-Eastern part of the country (between Lat 23-35 and Lat 28- 30 N). Its gross geographical area is 140,914 Sq. km which is 18% of the country. The geographical area is 14 million hectares out of which almost 8.0 million hectare is cultivable, and the remaining area is not available for cultivation mostly lying in the northern hills of Khirthar Range, eastern desert of Thar Desert and Achharo Thar and the riverine area. Sindh's 60% land area is arid. Annual average precipitation is 5 inches yearly. The mighty River Indus flows in the middle of the province. There are seasonal streams which become active in the monsoon season, they emanate from the Khirthar hill range from west of province, which fallout in River Indus and Arabian Sea. The boundaries of Sindh are touched by Arabian Sea in South, India in east and Punjab in north and Balochistan in west. Administratively Sindh province is divided in 23 districts, 119 Talukas (Tehsils), 1100 Union Councils, 1439 Tapas and 5,871 Dehs (Mauza)

having 66,923 human settlements, as per 1998 census.

The province took its name from River Sindh (as per the Greeks). Predominantly, it is an agricultural and pastoral economy. Lately minerals have been identified like petrol, gas, coal granite and cut stone etc. These are being exploited which contribute substantially to the national produce. Besides the province has industries of various kind which include textile, chemical , cement, steel and others. Most of the industries are located in three Cities- Karachi, Kotri/ Hyderabad and Sukkur. There are two modern sea ports: Karachi Port and Bin Qasim Port, both of which are situated in Karachi and serve the entire country including Afghanistan.

2.2 DEMOGRAPHY

The 1998 Census of Pakistan indicated a population of 30.4 million; the current population can be estimated to be in the range of 36 to 38 million using a compound growth in the range of 2% to 2.8% since then. With just under half being urban dwellers, mainly living in Karachi, Hyderabad, Sukkur and Larkana. It is 23% of national count. Male population is 16.098 million and female population is 14.342 million. The literacy ratio is 45.29%- male 54.50% and female 34.78%. Rural area 25.73% - male 37.89% and female 12.23% whereas, urban - 63.72% - Male 69.75% & female 56.66%. Agriculture & fisheries workers counts 34.84% out of which 65.56% is rural population, Elementary occupation and service sector and business count 43.65%.

2.3 DISASTER RISKS IN THE PROVINCE

The province of Sindh has historically suffered from both natural and human induced disasters. The high level of risk is mainly from floods/heavy rains, cyclones in coastal area, sea intrusion, droughts, earthquakes, epidemics etc.

2.4 FLOODS/RAINS

The topography of Sindh province is almost flat and located at the bottom of Indus basin. The surplus water of Indus River and its tributaries including monsoon has to pass through Sindh. Hill torrents which emanate from Balochistan are also adding up to the pressure on both account, till its outfall in the Arabian sea. The River Indus in Sindh is dangerous, because it flows at ridge. In case of breach the out flowing water cannot be drained back into the river at any point. The Indus River is also popular for changing its course. High floods since the creation of modern irrigation network in 1932 are being monitored. The river Indus is contained by flood

protection embankments which are 1400 miles, so as to protect irrigation network emanating from three barrages having 12.8 million acres' of command area. Besides, there is a large network of surface drainage and 6000 public tube wells, roads, railways network, cities/towns, rural settlements etc. The high floods occurred during 1942, 1956, 1957, 1958, 1973, 1975, 1976, 1979, 1992, 1994, 1995, 2003, 2005 and 2007. Rains of 2003 monsoon in Sindh have affected around 411,000 acres of crop area, while 18,500 kilometers of road infrastructure suffered huge losses. Roughly losses are estimated around 45 billion rupees. This estimate includes crop damage, damage to health, education and road infrastructure, damage to houses and destruction of irrigation and drainage facilities.

2.5 CYCLONES

The coastal districts have also been adversely affected by heavy rainfall and cyclones. The districts of Thatta and Badin have been badly affected on several occasions. Cyclones not only wiped out human settlements and resulted in the huge losses of human and animal lives, but they also destroyed and damaged fishing boats, therefore badly affected the livelihood of the majority of residents of these two districts (Fig 1 and Fig 2).

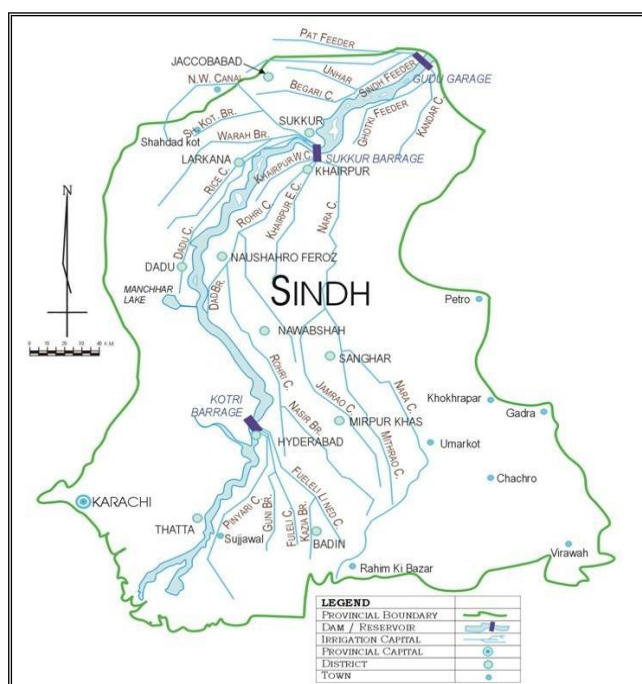
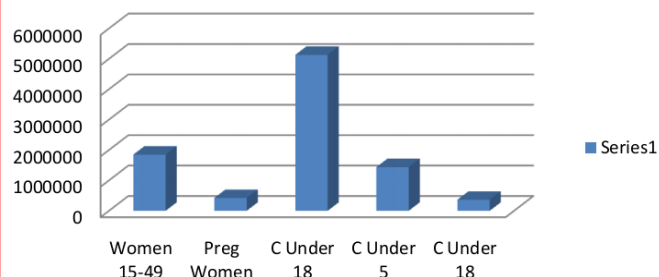
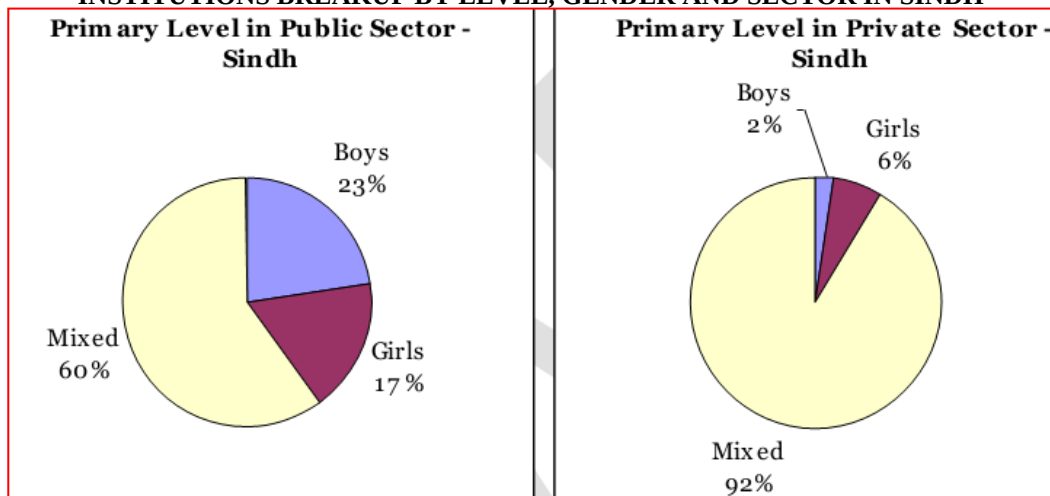
Historically, the tropical cyclones formed over the Arabian sea and making landfall at the coastal areas of Sindh. Major cyclones reaching Sindh during the last 100 years happened in May 1902, June 1926, June 1964. Nov. 1993, June 1998, May 1999 and June 2007 (Cyclone- 02A). Ketu Bunder town was wiped out four times in recent history.

2.6 THE SUPRA FLOODS 2010

The floods of 2010 were the history's ever devastating floods witnessed in Pakistan. The flood in Sindh, which began in first week of August in the wake of particularly heavy monsoon rains claimed 414 lives and destroyed more than 850,000 houses, beside devastating farmland and major infrastructure in large parts of the Sindh. The breaches in Tori and Ghouspur bands in Sindh actually triggered the worst disaster enveloping the vast areas in north Sindh and PB Bund and Surjani Bund breaches in Southern Sindh rendered several hundred thousand shelters less. More than twenty million people were affected in terms of loss of source of livelihood, and went through a traumatic experience.

Table. 1. Shows the loss of flood 2010

Sr. No.	Sector	Physical Loss	Financial Loss (Rs. In Billion)
1.	Agriculture	2,894,551 M. Tons	136.20
2.	Livestock	191,311 Nos.	11.44
3.	Housing	1,021,000 units	134.34
4.	Roads	8061 kms. 411 Bridges/Culverts	35.67
5.	Irrigation		52.00
6.	Health	100 THQs, BHQs, RHUs	3.90
7.	Education	4602 School Buildings	30.56
8.	Urban / Municipal Infrastructure		40.00
9.	Government Infrastructure		10.00
TOTAL			454.11

**Fig. 1a. Show the canal system of Sindh Province****Estimated number of women and children affected by flood****Fig 2. Source : NDMA And PDMAS 2010****INSTITUTIONS BREAKUP BY LEVEL, GENDER AND SECTOR IN SINDH**

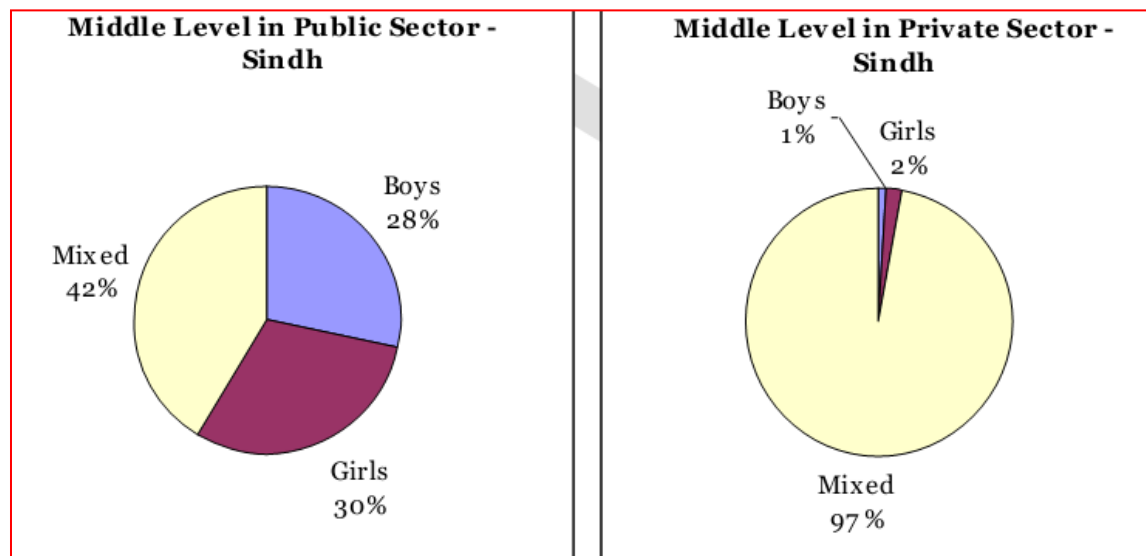


Fig 3 : Source national education statistics 2009

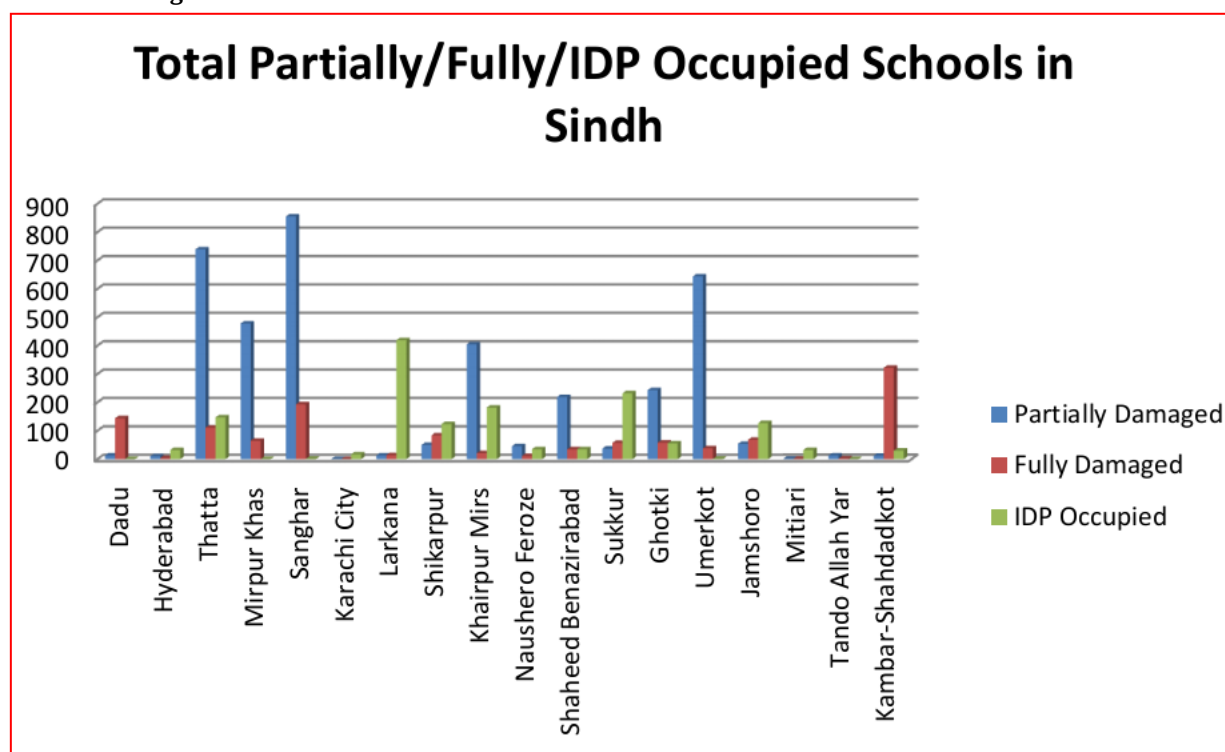


Fig 5 : Reform support unit RSU rapid assessment survey 2010

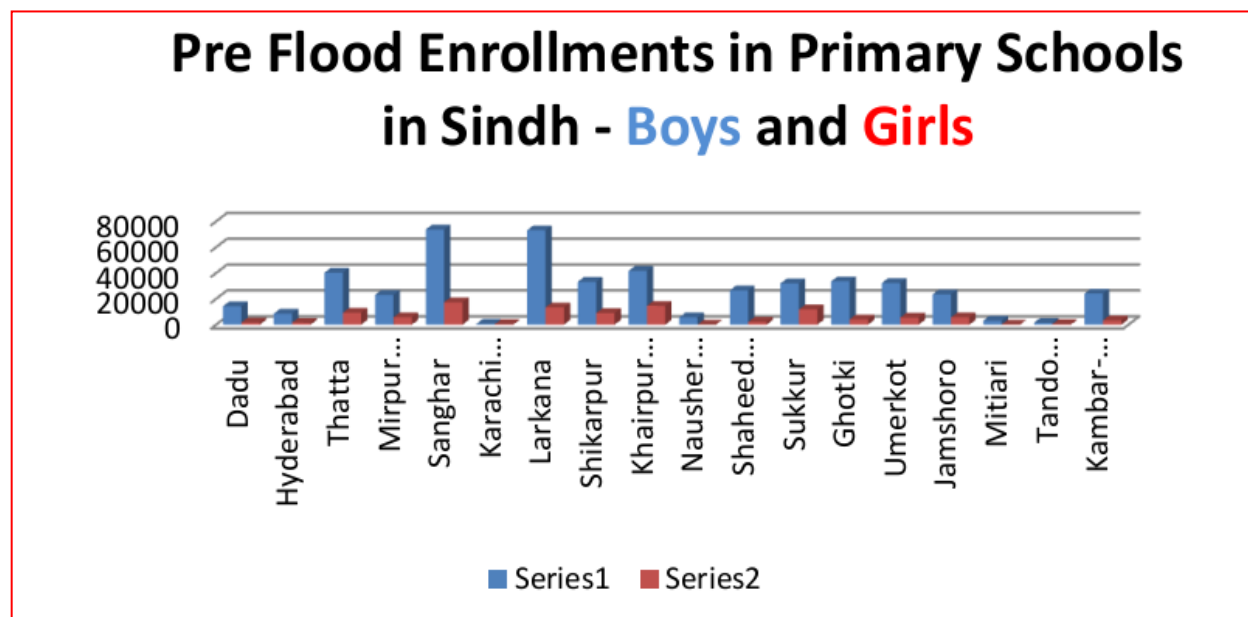


Fig.6. Source: reform support unit RSU rapid assessment survey 2010

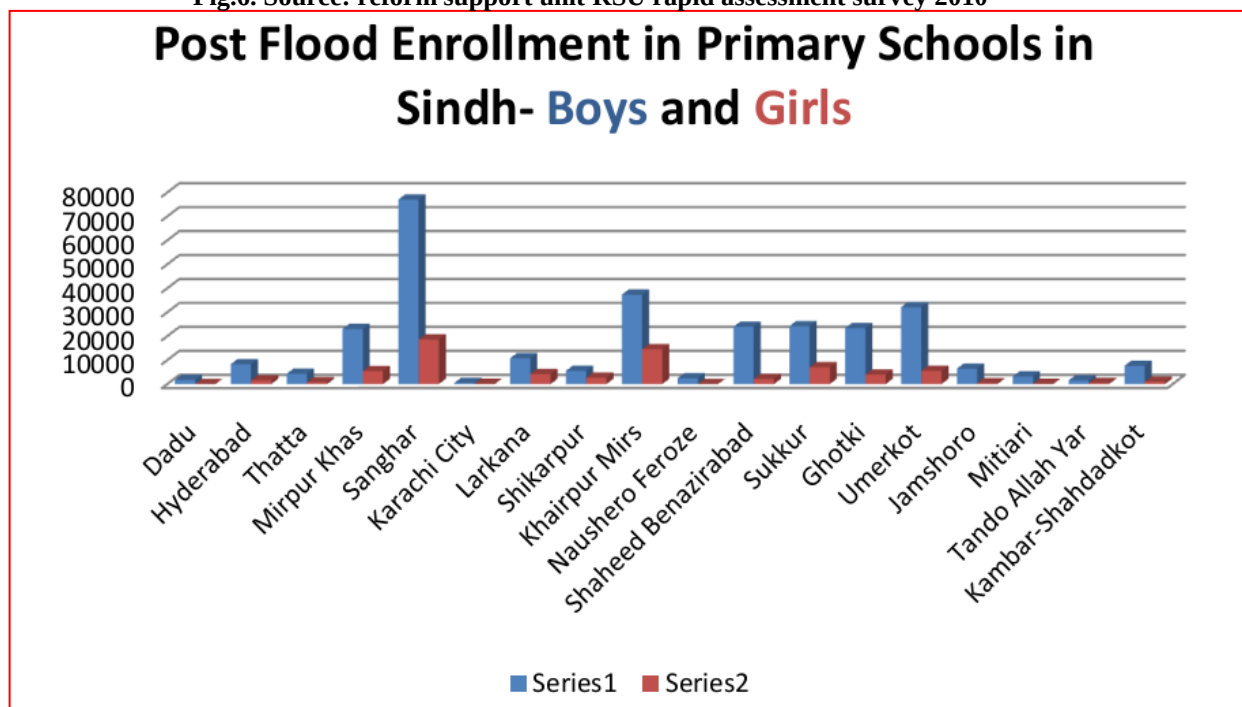


Fig 5. Source: reform support unit RSU rapid assessment survey 2010

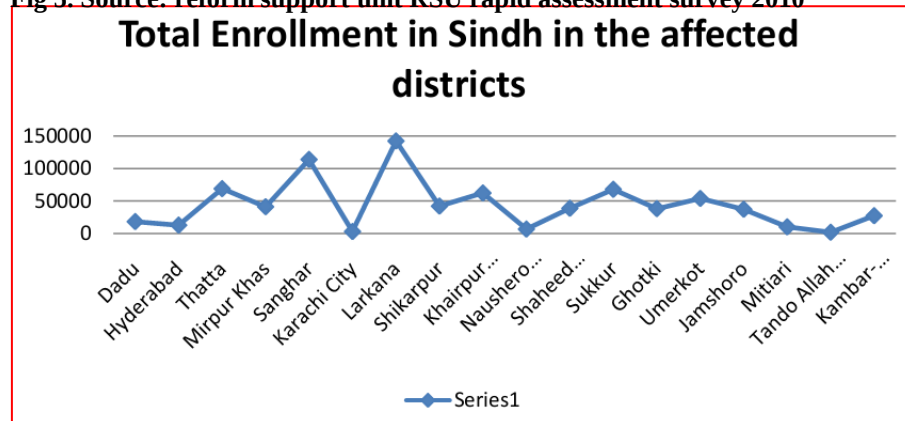


Fig.6. Source: reform support unit RSU rapid assessment survey 2010

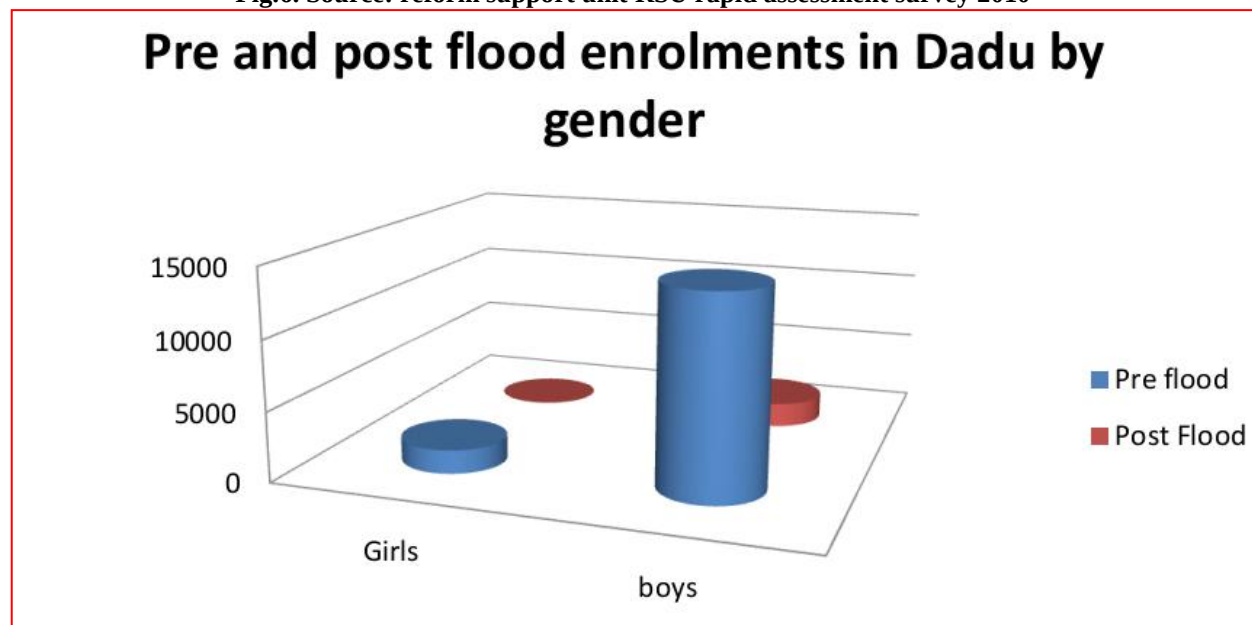


Fig.7. Source: reform support unit RSU rapid assessment survey 2010

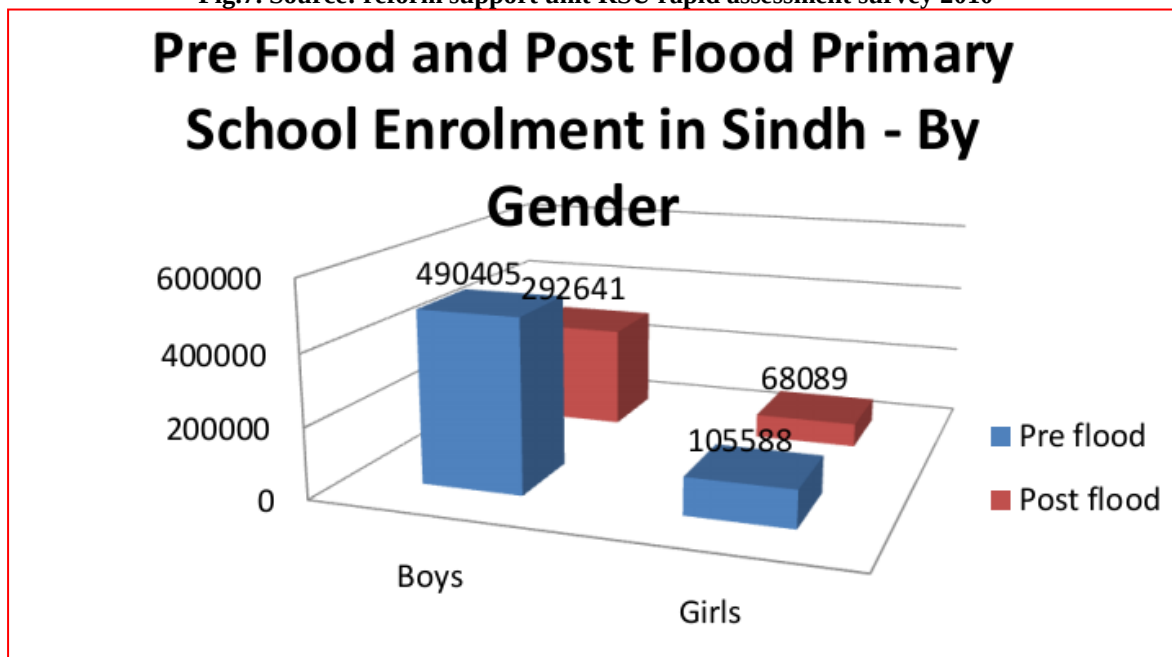


Fig 8. Source: reform support unit RSU rapid assessment survey 2010

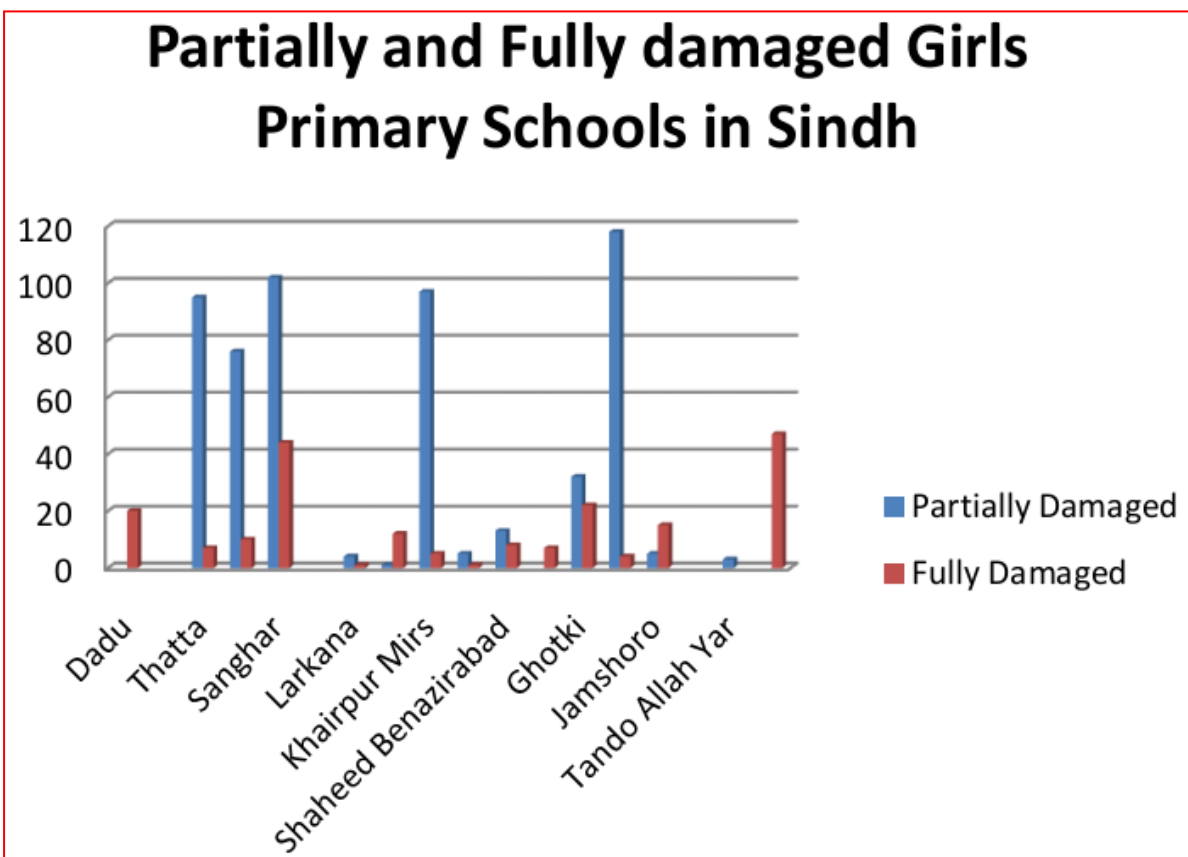


Fig 9. Source: reform support unit RSU rapid assessment survey 2010

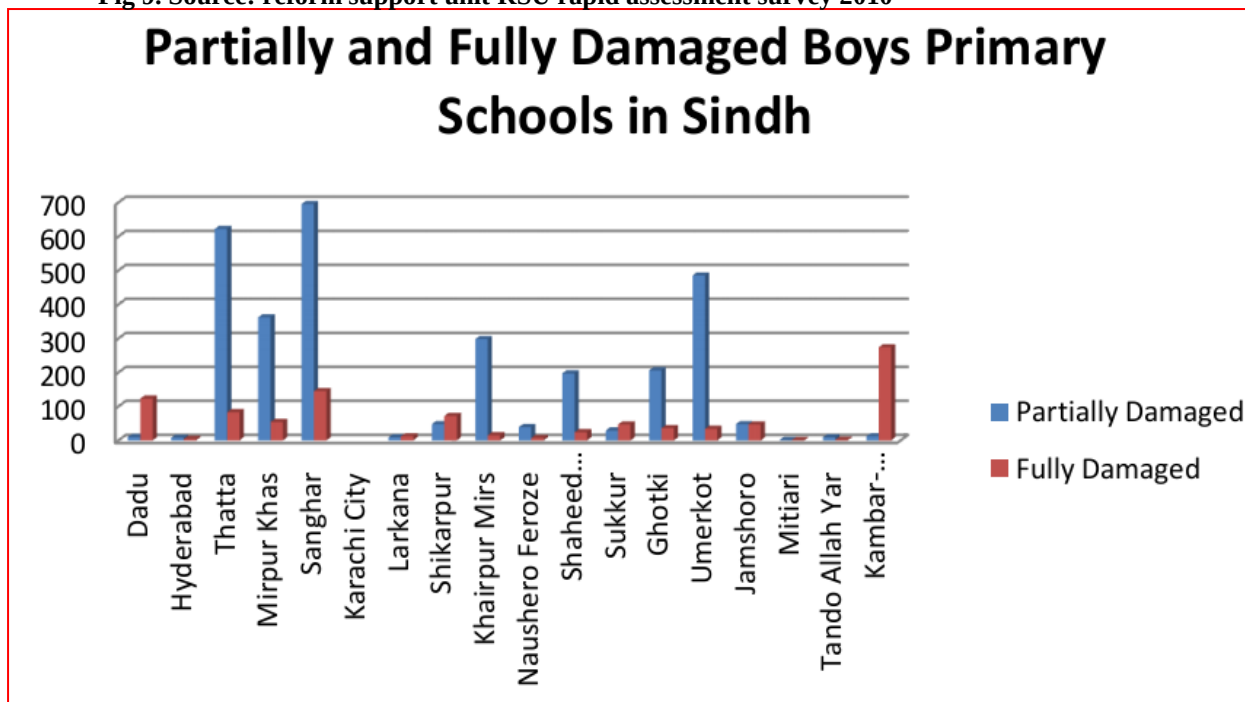
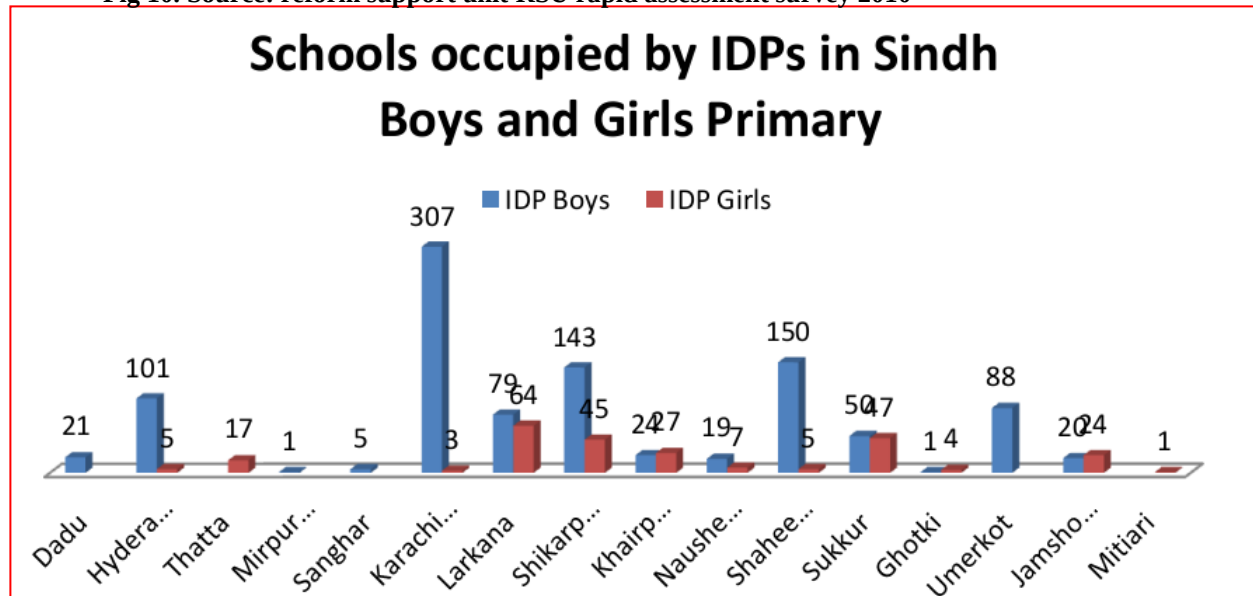


Fig 10. Source: reform support unit RSU rapid assessment survey 2010

2.7 AFFECTED AREAS

The 15 districts of Sindh were affected by the heavy floods. However, in disaster of 2010 fifteen districts were worst affected, which included Jacobabad, Kambar, Kashmore, Sukkur, Shikarpur, Nau Shehroferoze, Shaheed Benazirabad, Dadu, Matiari, Thatta, Jamshoro and other affected districts included Ghotki, Khairpur and Larkana (Table 1, Fig 1a, 1b).

IMPACTS OF FLOOD ON EDUCATION IN SINDH

Flood-affected children's education suffered; Thousands of children in the flood-affected areas of Sindh, who were without formal or non-formal education, became prone to security and welfare issues on a daily basis. The current situation went serious because the major focus being given on the relief and immediate rehabilitation activities of the flood victims has compromised the security and safety of children. Since these children do not have any activity to keep them engaged, their vulnerability to security risks has multiplied manifold. Most the children who were affected by heavy floods and are still living in camps are deprived of proper education. Some NGOs have been running non-formal educational services for them. After the latest floods, a large number of children have lost two years of their education. Meanwhile, the schools which were not damaged by the flood waters were used as shelter by the flood-affected people. The furniture was used as fuel for fire and other infrastructure of these schools was completely damaged by these refugees,

and there is no chance that these schools could be used for education purpose without complete reconstruction.

The districts of Sindh province have suffered varying impact. According to the Provincial Disaster Management Authorities (PDMA) Sindh, Badin, Mirpurkas, Sangar, Shaheed Benazir Abad, Tando Allahyar, Tando Mohammad Khan, Tharparker and Umerkot are the most severely affected to date. Dadu, Ghotki, Kambar Shahdaskot, and Naushahro Feroze sustained significant impact, while Hyderabad and Thatta sustained moderate impact. According to the government of Sindh reports; Approximately 11,906 schools attended by more than one million children have been affected- either used as shelter (2,674 in Sindh) or damaged (9,232 schools) in Sindh (Figure. 2. shows the areas badly affected by flood, where the children education is still challenge to come at normal).

Today, more than ever before, children faced with increasing and chronic degradation of natural resources, greater prevalence and severity of natural disasters and the growing necessity for force and migration. There are also concerns about water borne diseases coupled with Malaria in the districts where water is still not receding. Although people are seeking refuge in the high lands of the districts, majority of the people are in road side settlements without safe drinking water, shelter or food. There are gender disparities in supply side factors in Sindh including availability of schools for the girls and boys (Fig 3). Pre-flood institution break up by gender, level and sector shows that at the primary level there are 60% mixed schools in public sector and 42% mixed schools at middle level. At the

primary level parents are quite comfortable with sending their girl child to mix school; however there is reluctance when it comes to middle school when the girls attain puberty, the dropout rates are also highest at that point and majority of the dropouts occur when girls move from primary to middle level. The post flood damage to the institutions have been divided into three categories namely partially damaged, fully damaged and IDP shelters (Fig 4). In all the three categories the schools are not immediately functional. Children in the affected areas will not have access to schooling and moreover due to the occupation of the schools by the displaced population the children of the host communities are also suffering and will not be able to avail the basic right of education. Girls' lack of access to education isn't always related to scarcity of schools however the unavailability of this supply side factor can play a major role in decreasing access to education along with the availability of female teachers. Economic costs, social traditions, and religious and cultural beliefs also limit girls' educational opportunities particularly when it comes to middle and high level schooling. In terms of the total damage to schools in Sindh, there are certain districts that have been hit very badly. In case of partial damage Thatta, Sanghar, Mirpurkhas and Umerkot in 2010, have large number of schools that have been partially damaged (Fig 5). The same districts also have high number of fully damaged schools with the exception of Dadu and Kambar-Shahdakot where the damaged schools outnumber the partially damaged and IDP shelters. In terms of gender disparities in the primary education, the pre flood (Fig 4 and 5) and the post flood enrolments show some interesting trends. Enrolments have dramatically dropped for girls in Dadu, Thatta, Larkana, Naushero Feroze, Sukkur and Jamshoro. For boys the major drop in enrolments is significant in Dadu, Thatta, Shikarpur and Naushero Feroze.

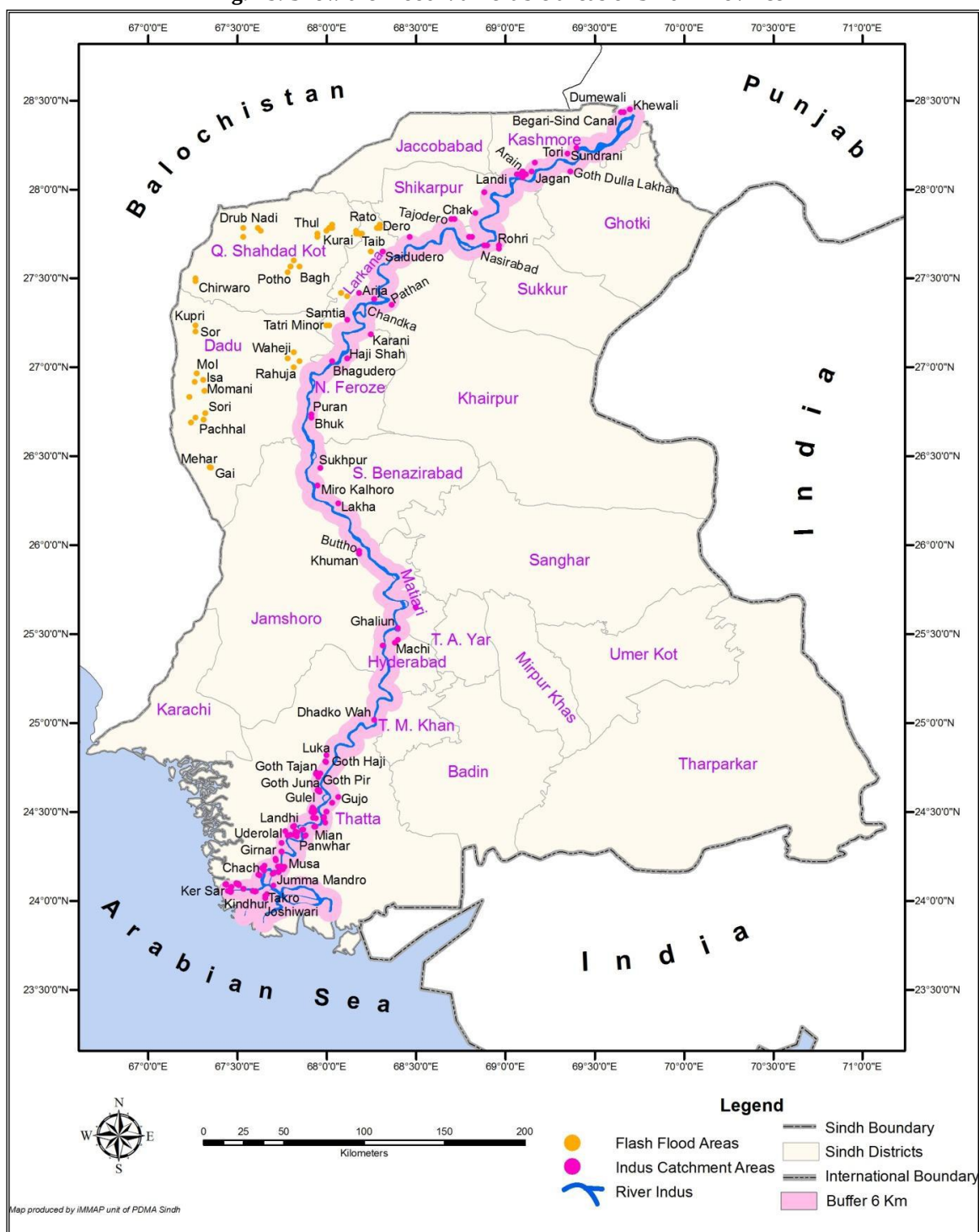
However, the total enrolments in Larkana, Sanghar, Sukkur and Khairpur have the highest figures (Fig 6). Some of the districts have shown major loss in enrolments for both boys and girls for example Dadu where the drop in enrolment has been around 64% for boys and 97% for girls (Fig 7). The disparity in enrolment prevails in districts like Thatta where the drop in enrolment is 85% for boys and 99% for girls. In majority of the affected districts drop in girl's enrolment are much higher than the boys. Overall there is a drop in enrolment for both boys and girls however for girls the total drop at all levels is 36% while for boys the drop is around 41% (Fig 7). While the primary school damage Thatta, Sanghar, Mirpurkhas, Umerkot and Ghotki show a major loss

of schools both for boys and girls (Fig 8 and 9). These districts will need focus in terms of early recovery activities. For the IDP shelter schools a large number of boys schools at primary level have been converted into shelters due to the occupation by the displaced population (Fig 10). Although in majority of the district's the usual argument is that the numbers are high due to the greater number of schools available for boys, it is interesting to note that as these estimates are for the public sector schools and according to the National Education Statistics at primary level in Sindh there were 17% boys and 23% girls' schools before the flood while the remaining were mix schools.

Some of the districts including Sanghar, Thatta and Umerkot that have lost majority of the primary schools show similar trends in terms of disparity when it comes to partially and fully damaged schools (Fig 11). Pre flood data shows that Sindh had disparity in the teaching force in both the public and the private sector (Fig 11). When it comes to the post flood scenario availability of the female teachers will be a major issue that will need to be addressed particularly

DISCUSSION:

This study on the heavy floods was carried out in the districts of Sindh province such as Sukkur, Shikarpur, Ghotki, Khairpur, Larkana, Qambar-Shahdadkot, Jacobabad, Kashmore-Kandhkot, Nausheroferoze, Shaheed Benazir Abad, Dadu, Jamshoro, Matiari, Badin and Thatta during the year of 2010 and all these districts were witnessed badly affected. In the disaster of 2010 the heavy floods have surpassed the physical destructions ever caused in history by all the disasters in Pakistan. More than 300,000 houses have been damaged, more than 1,445 deaths, thousands injured and missing and millions displaced and stranded in the flood water. The unprecedented natural disaster of late July and early August 2010, the heavy torrential rains and flash floods have severely hit the human lives, livestock, infrastructure, crops and livelihoods particularly in Sindh province. The dynamics of this disaster was such that life losses were less but the damaged to public and community infrastructure were beyond imagination in the history of Pakistan (Mehreen, 2010).

Fig. 1b. Show the Flood Vulnerable areas of Sindh Province

In Sindh with the existing disparity in teaching force coupled with the loss due to the flood emergency there is a need to explore avenues for supporting female teachers. Economic incentives in term of child care centers by the public sector can have a powerful

effect on the work behavior of the female teachers. In this way the mothers may get relaxed from child-care duties and could participate in economic activities and can enhance their contribution in the formal labor market. Rehabilitation and Early Recovery activities,

when it comes to the fully, partially damaged schools and IDP shelters, the early recovery activities should be designed keeping the focus on the disparities in the districts like Thatta, Sukkur, Umerkot, Sanghar etc. (IDR 2008). The gender disparities in these districts require focused analysis in addressing the disparities to ensure that each and every girl child and boy child get to avail their basic human rights.

It is the real fact that the education is seen as a human right, a key to civilization and enlightenment and as source of wealth, power and to adopt successfully in the world. Education is the cornerstone of the growth and play major role in development of any country's socio-economic and political institutions. Disasters have led many schools to be closed, students dropouts have increased, properties of people destroyed, infra-structure damaged, all these aspects have a direct effects to the development of our nations. Education in Sindh province faces several hindrances that challenge affected communities desire to educate and invest in education due to horrifying disasters that have increased in numbers and occurrences. In the affected areas of Sindh the disaster risk reduction has not so far received serious attention as a fact of development, despite the increasing seriousness of disaster impacts on our educational sector and general development.

Recommendations:

Education play crucial role to advancing further development in any country. No sustainable development can take place without a concerted focus on education in natural disaster prone areas of Sindh. It must be acknowledge that the government of Sindh has made strides towards achievement of education for all communities of our nation but more needs to be done in severely affected areas of Sindh. To promote excellent education in the affected areas of Sindh and the development of the nation, the study recommends the following suggestions for improvements of child education:

- The Ministry of education should establish mobile boarding schools in the disaster areas of Sindh which can accommodate both the students and teachers in order to reduce the trend of dropouts and wastage among school in the province.
- The ministry of education should provide the learning materials and facilities e.g. books, uniform, laboratories equipment's, AV aids, Furniture, school fees waiver rather than depending on parents who are already financially stricken by disasters.
- Disaster reduction initiatives should be rooted in schools of affected areas and in educational programmes, but also should be

involved in social community programmes and activities.

- The government of Sindh should explore the scope for promoting financial instruments for risk management for example affordable insurance schemes for affected communities to transfer disaster risk, including through partnership arrangements with private sector financial services providers.

4.1 International Declarations on Quality of Basic Education

The Jomtien declaration of EFA, 1990: a landmark document for the promotion of basic education emphasized that 'the focus of education must, therefore, be on actual learning outcomes rather than exclusively on Enrolment'.

The World Education Forum, Dakar Framework of Action 2000: Emphasis on Quality of Education is included as one of the six goals: "Improving all aspects of the quality of education and ensuring their Excellence of all so that recognized and measurable learning outcomes are achieved by all especially in literacy, innumeracy and essential life Skills" (article 7(vi)). The Expanded commentary on the Dakar Framework of action Includes Following Two Articles On Quality: i). Evidence Over The Past Decade Has Shown That Efforts To Expand Enrolment Must Be Accompanied By Attempts To Enhance Educational Quality (Article 43). ii). Government and all other EFA partners must work together to ensure Basic education of quality for all, regardless of gender, health, location, language, or ethnic origin (article 44). The Recife declaration of UNESCO E- 9 project (education for all in the nine Most populous developing countries), of January 2000, reaffirms commitment to the enhancement of quality of basic education through adopting several Measures. The Beijing declaration of the e-9 project on ICT 1 and EFA (August 2001) reiterated its commitment to raise the quality of education through using Information communication technology (ICT) and better training of teachers and administrators.

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