37th STP

UNPRECEDENTED FLOODS AND ITS IMPACT ON FRAGILE ECONOMY OF PAKISTAN

Directorate General of Training and Research
(Inland Revenue)

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The summer of 2010 saw the Pakistani nation battling one of the largest catastrophes it has ever faced. With more than 20 million people rendered homeless, almost two thousand dead and a total estimated damage of $9.7billion to the infrastructure, the floods, followed by heavy monsoon rainfall, have left little for the nation to build upon. The magnitude of the disaster can be gauged from the fact that at one point, at least one fifth of Pakistan's total land area was submerged under flood waters. No wonder, the agriculture and livestock sectors were the worst affected. The United Nations estimated that this humanitarian crisis was larger than the combined impact of the three worst natural disasters to strike in the past decade which include the Asian tsunami and the major earthquakes that devastated Kashmir and Haiti.

The floods, resulting from unprecedented monsoon rains were the worst that have been seen in almost 80 years. Due to extensive damage to the infrastructure, communication was destroyed with massive blockages of roads and the breakdown of bridges. In addition to this, there was also a break down in the provision of health care facilities with thousands of people suffering from water-borne diseases and scores more at risk. Containing diseases like Cholera with limited resources further exacerbated the situation. A brief overview of the past floods in Pakistan ever since the inception of the country is as below;

Historical Floods In Pakistan[1]

Year	Fatalities	population Affected
1950	2,190	10,000
1956	160	11,609
1957	83	4,498
1973	474	9,719
1976	425	18,390
1978	393	9,199
1988	508	1,000
1992	1,008	13,208
1995	591	685
2001	219	50
2003	484	4,376
2004	85	47
2005	59	1,931
2007	918	2 million
2010	1,985	20 million

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“In the worst affected areas, entire villages were wiped away without warning by walls of flood water”, a Red Cross official said in a statement and rightly so as almost 1,400,000 acres of cropland area were destroyed by flood water. This situation was particularly upsetting as Pakistan’s fragile economy is heavily dependent on agriculture and with the destroyed crops, livestock and crop land; the major source of income for the majority of the people in Pakistan was swept away. Therefore, the impact of the flood on Pakistan’s economy was huge on several levels, to be discussed later in this paper.

With a view to the proper evaluation of the disaster, a historical perspective on this issue becomes imperative. The geography of the region suggests that it has always been prone to floods. The floods in the Indus valley drowned entire civilizations like the Indus Civilization of Moen Jo Daro & Harappa. It can easily be inferred that the construct of the area along with the climatic conditions make it more conducive to retain water and hence encourage flooding. Before analyzing the impact of floods on the economy of the country it may be pertinent to discuss the nature of Pakistan’s economy and the construct of its subdivisions i.e. the primary, secondary and tertiary sectors. Once we determine what Pakistan’s economy primarily revolves around, it would be easier to understand the impact of floods on the economy[2].

Pakistan is essentially an agrarian economy, owing to its fertile land and efficient water provision system. But alongside that, having an agrarian economy also means that Pakistan is in its development stage and does not have ample cushion to counter any blows to the already fragile economy that relies on low value added agricultural products. According to the Economic Survey of Pakistan (2009-2010)[3], “agriculture is accounting for over 21 percent of GDP, and remains by far the largest employer, absorbing 45 percent of the country’s total labor force. Nearly 62 percent of the country’s population resides in rural areas, and is directly or indirectly linked with agriculture for their livelihood.” The primary sector also includes dairy farming which is actually a significant industry in Pakistan. In fact, Pakistan is the fifth largest milk producer in the world. This gives us a fair idea of how important agriculture or the primary sector is to the maintenance and growth of the economy as well as its very survival.

In contrast, the Economic Survey of Pakistan (2009-2010)[3], while discussing the secondary sector, reports that “Manufacturing is the third largest sector of the economy, accounting for 18.5 percent of Gross Domestic Product (GDP), and 13

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percent of total employment" implying thereby that the secondary sector does not have as important a role to play in the economy as agriculture does.

The services sector essentially includes industries like insurance, communications, finance and transport which accounts for 24% of Pakistan's Gross Domestic Product. The tertiary/services industry is continuing to improve with better technology and improvements in the IT industry[3].

From the above discussion, it is obvious that Pakistan's agricultural sector is its second largest sector. Even though there has been significant diversification in terms of the economic activities being carried out in Pakistan, the importance of agriculture can in no way be undermined, especially when it comes to providing income to the poor residing in the rural areas of the country. With majority of the cropland being wiped away along with the loss of livestock, the agricultural framework suffered a major setback thereby directly affecting the economy of Pakistan. The loss to other sectors including the manufacturing and services sectors, although huge, wasn't as significant as the loss to the agricultural sector.

This now brings us to the analysis part of this paper where we will make use of real statistical data to corroborate our thesis statement which discusses the impact of the flood on the economy of Pakistan. However, to understand the data that we will use and in order to hold it in perspective, we first need to evaluate the situation of the economy before it was impacted by the floods and then compare it to the condition of the economy afterwards. This will enable us to judge exactly what the extent of impact to the economy was and thereby provide us with the right tools to evaluate future policy options to rectify the situation. For the sake of simplicity, we will use the period 2009-2010 to evaluate the situation of the economy and use the period 2010 to date in order to evaluate the economic environment after the floods. Therefore, what follows next in this paper is a discussion of five basic indicators of the health of the economy; the Gross Domestic Product (GDP), poverty, inflation, revenue collection and budget deficit, before and after the floods occurred.

The GDP is primarily a measure of the total market value of everything that is produced in an economy over the course of a year and therefore measures all goods and services in terms of their value. The GDP is therefore an extremely accurate measure of the health of the economy because it shows how efficiently goods and services are being produced in a year and how much their value is. The better the economy is doing, the higher the GDP and if we look at the financial year 2009-2010, the Economic Survey of Pakistan tells us that the "growth in GDP (inflation adjusted) was recorded at a provisional 4.1%". The survey also explains how exactly the economy grew and what the growth primarily was based on. It says that

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the agricultural sector grew at 2%, industrial output expanded by 4.9% and the services sector grew at 4.6%. Therefore, there was an overall growth in the GDP based on all three sectors[3].

Before the floods, according to The State Bank of Pakistan for FY 2010-2011[4] the GDP growth rate was expected to be 4.5%.However, in the wake of devastation caused by the floods, the projected GDP growth rate has been reduced to 2-3%. Therefore we see that from a GDP growth rate of 4.1% in FY 2009-2010, the floods reduced it to a mere 2-3% in 2010-2011 which implies that it was actually reduced by almost 2% of what it used to be thereby representing a significant reduction.

Poverty is a good measure of the society's well-being and income equality and therefore it is important for us to see how the poverty levels changed after the floods in order to consider the direct impact of the floods on people. The State Bank of Pakistan has predicted an increase in the poverty levels as indicated by the GINI coefficient. With millions of people rendered homeless, without jobs or a stream of income, some people have already fallen below the poverty line. This number of people living below poverty line is predicted to rise up to 40 percent of Pakistan's population and it is up from about 33 percent before the floods[5]. So, this rise in poverty level can be attributed to a certain extent to the recent floods.

We need to know how the increase in prices changed after the floods so that we can effectively gauge the extent to which the purchasing power of consumers changed. This gives us an idea of how others, not directly affected by the floods, were actually affected indirectly. Looking at the Economic Survey of Pakistan, we see that inflation stood at 11.5% in the financial year 2009-2010[3]. A projection by the state bank of Pakistan shows that there would be further rise in inflation. It says that the average inflation is expected to be 13.5% to 14.5%[4] as a result of the floods which indicate that there will be a reduction in the` purchasing power of consumers with fixed incomes and rising prices throughout the country. Hence, just like poverty and GDP growth rate, the floods had a negative impact on the inflation which is projected to rise further.

According to the official national budget of Pakistan for the FY 2009/10[6], the budget deficit was estimated at 4.9%. The deficit essentially shows the excess of expenses over revenues and is a representation of how well or how poorly the two are managed. After the floods, the estimated budget deficit for 2010-2011 is estimated at 6.9%, which is a whole 2 % higher than what it was the year before. This indicates that after the floods, the revenue generation dropped and the expenses rose, as a result of which, the gap between the two widened resulting in a

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greater expected budget deficit for the following year. This also shows that a loss of basic labor force and agricultural area would translate into less production and hence less revenue generation.

After the floods, the Federal Board of Revenue has announced that the revenue collection will be short by over Rs.62 billion and only PRs. 1604.4 billion will be collected by June 2011. With more being spent on flood relief, the government has imposed a one-time flood surcharge of 15 percent for tax year 2011. It is likely to generate additional revenue of PRS.53 billion[7].

After discussing impact of floods through the analysis of different economic indicators, it is now necessary to establish the root causes for the floods that have caused such widespread and massive destruction. It is imperative to understand causes firstly to know why the floods occurred and secondly to reveal those factors that aggravated the extent of damages. Now, these are essentially two different things because the former is something that is beyond human control while the latter is something that can be influenced and controlled through efficient disaster management.

After the floods, several scientific studies of the natural disaster have concluded that climate change is one of the biggest causes of such unprecedented floods in Pakistan. Pakistani scientists claim that there has been a gradual shift in monsoon rains pattern from the north western mountainous region of Pakistan towards the southern part of the country which is incapable of handling the inundation due to its topography. These regions of Pakistan are more densely populated as well which is why the extent of damage was this huge. According to a Pakistani scientist Azmat Hayat Khan, who works at the Pakistan Meteorological department, the pattern of monsoon rains have been changed over the years and they have shifted about 40-60 miles northwest of the country in the past thirty years.

"The negative impact of this shift is that the floods have moved from eastern rivers – where there are four major rivers capable of absorbing these levels of rain – to western rivers, where there are fewer and they are less able to cope with this water,"(Khan, 2010)[8].

Another major and more obvious reason for flooding is deforestation and illegal logging, especially in Khyber Pakhtunkhwa. Deforestation obviously makes an area more likely prone to floods with little water absorption and little resistance to the forceful flood water. The deforestation situation in Pakistan is such that in the Malakand district, more than 70 percent have been cut down by a 'timber mafia' that is hard to control. The purpose of trees and their importance in curtailing

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floods is simple. They essentially prevent soil erosion because their roots keep the soil bound and that helps retain water. Deforestation is also contributed to by the overgrazing by livestock as it leads to the removal of the top, absorbent layer of soil and stunts plant growth and thereby causes soil to be washed away into water body which in turn, diminishes their ability to hold water.

Moreover the inefficiency of disaster control institutions aggravated the extent of damages of floods. The Federal Flood Commission (FFC) was created in 1977 with the intention to minimize the devastation caused by floods in 1973 and 1976[9].The Federal Flood Commission (FFC) was established solely to manage floods and yet failed to pay any attention to flood-plain zoning which is extremely vital for management of floods. In the absence of flood plain zoning, there had been large scale construction along the length of the rivers and hence the damage was greater than it would have been, had the FFC done its job. The FFC reacted once the flood had already occurred instead of when the Meteorological office issued a clear warning prior the occurrence of the floods. Despite heavy expenditures of about PRs. 87.8 billion (about 900 million USD) [10] the FFC has proved itself inefficient. FFC documents show numerous projects initiated, funded and completed, however reports indicate that these projects were just paperwork.

The NDMA is supported by the Federal Government. It is supposed to take measures for the prevention of disaster, the mitigation, and the preparedness and capacity building for dealing with disaster situations as necessary. Its vision was "To achieve sustainable social, economic and environmental development in Pakistan through reducing risks and vulnerabilities, particularly those of the poor and marginalized groups, and by effectively responding to and recovering from all types of disaster events." In the case of the floods, the NDMA's role was not played up to the mark because of which a lot of avoidable damage took place. Firstly, due to a shortage of resources and secondly, due to the magnitude of the floods the NDMA was inefficient and could not even manage the given resources properly. Actions that needed to be carried out with time being an important factor were not done properly, for example, rescue operations for people stuck on their rooftops were crucial in terms of the time taken to conduct them but a failure on the part of the NDMA to do this caused the loss of several lives. In addition to this, there was very little coordination between the provincial and the central authorities. Such mismanagement resulted in time lags because of which the extent of damage increased manifold.

Moving ahead, another cause of such massive flooding in Pakistan is the structure of our irrigation system. Irrigation from the Indus River and its tributaries

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constituted the world's largest contiguous irrigation system, capable of watering over 16 million hectares. But it was required to be properly maintained and timely repaired as this was not the case in genuine so, the blame goes to inefficient land management and obsolete irrigation systems that need to be upgraded and maintained. The problem with the irrigation system, regarding floods, is that the Indus River has been channeled out into various streams of canals (irrigation channels) in order to provide water to greater agricultural land. This has encouraged people so far to reside in areas close to these irrigation channels and they are hence more vulnerable to be laid up by floods. Many of the main irrigation canals that take water from the Indus River were flooded, pouring water onto agricultural lands. This situation was compounded by additional heavy rains, and breaching of major canals and embankments and diversion of the water in an attempt to prevent flooding of the urban areas. This is primarily why the death toll of the floods was high since a large number of people were living too close to the water bodies. Additionally, these channels were needed to be cleared of silt every four to five years but there has been a clear lack of maintenance.
The five major eastern rivers of Pakistan need to be embanked. The problem with the irrigation system, as regard the floods, is that the Indus River has been channeled out into various streams of canals (irrigation channels) in order to provide water to greater agricultural land. This encourages people to reside in areas close to these irrigation channels and they are hence more vulnerable to be debilitated by floods as the irrigation channels as well as the rivers are not properly embanked. This is primarily why the death toll of the floods was high since a large number of people were living too close to the water bodies

Unauthorized diversion of flood water and breaches in the embankment of barrages and canals by vested interest groups further intensified the devastation of floods. This activity was mainly reported in areas of southern Punjab and rural Sindh, where vested interest groups diverted the flood water and made breaches in dykes to save their agricultural land at the cost of the agricultural land of the poor tenants. Some cases related to this issue are still pending at Supreme Court level.

The connecting links between the federating units and the center have been victim of many political and social issues at local as well as provincial level. Reportedly these issues of ad hoc importance have tossed a domino effect on diversion of certain national issues of prime importance. Resultantly weak political structure floats to surface which neither got strength from inside nor got trust of the international community.

The inability of previous government to construct more dams and reservoirs is also believed to be a contributing factor. Whether this was because of resistance by the

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locals or because of any other reason, it is the responsibility of the state to do what is best for the people. In the given circumstances, when Pakistan is facing increasing amounts of monsoon rainfall every year, the holding capacity of water should have been increased in Pakistan. However, dams like the Kalabagh dam have been disputed for years now and there has been little action to actually see any practical application of discussions on these dams. Not only do we need these dams to avoid floods and retain water but also for the generation of electricity, which makes the construction of these reservoirs all the more vital for Pakistan.

The floods being the natural calamity could not be avoided yet its effect got exasperated because of poor domestic economic conditions. The situation became even worse primarily due to the fact that Pakistan could not receive timely aid from the foreign countries as they were also suffering from global economic recession, and secondly when aid was received there was not any disbursing institution to distribute aid properly. Accordingly EAD (Economic Affairs Division) was tasked to assist NDMA (National Disaster Management Authority) in aid distribution.

It will now be appropriate to discuss the damage and destruction caused to individual sectors within Pakistan. The recent spate of floods that hit Pakistan in August 2010, not only affected human, physical and economic resources at every level, it also left deep-seated repercussions, that will be felt way after the immediate catastrophic management is in place.

As discussed earlier the recent floods have hit hard the agriculture production cycle that is dependent on crops and health of those crops. In terms of cost, agriculture sector is accounting for a full 50 percent of the estimated cost of overall damages. With an estimated 34 percent of area under rice and 21 percent of area under cotton crop damaged by flood waters, rice and cotton output may fall 2 to 2.5 million tonnes and by about 2 million bales, respectively[11]. In addition, there were significant losses to the sugarcane, fruits, vegetable and other minor crops. The overall damages and losses to the agriculture sector are estimated to be around PRs. 429 billion. This damage may bring down the agricultural production by 15%.

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The details of crop destruction in different parts of the country are as under; NDMA

Field Crops (damages in hectares) [12]

Federating unit	Cotton	Sugar cane	Rice	Maize	Pulses	Fodder crops	Summer Vegetables	Others	Other Orchards	Total
Punjab	315,769	64,487	72,056	2,752	50,865	110,565	5,005	14,411	25,655	536,637
Sindh	99,930	20,072	217,07	0	0	2,934	6,044	7,254	3,150	357,458
KPK	206	41,956	36,542	92,205	6,807	0	5,137	391	4,745	191,020
Baluchistan	0	0	41,455	15	0	4,932	35,722	10,245	0	92,359
Other federating units	0	0	113	9,474	0	0	152	152	177	11,242
Total	415,935	125,525	35,727	104,477	57,672	113,431	58,204	32,513	33,758	1,313,755

This sector too has suffered some heavy losses as in many areas of Khyber Pakhtunkhwa; Baluchistan and Sindh flood took villages by surprise making it impossible for farmers to save their animals. About 1.5 million animals and about 10 million poultry birds were lost. Nonetheless, the overall direct and indirect losses in livestock sector are reportedly estimated to be of PRs. 48 billion.

The details of livestock loss are as under; NDMA report

Livestock losses (head of livestock)[12]

Federating Unit	Died in flood	Indirectly affected	Sold at at low Prices	Animal Sheds destroyed	Fisheries	Poultry Farms/Birds	Govt. Veterinary	Extension dept. Field Offices
Punjab	62,765	4,381,000	9,800	10,700	916	459,000	13	17
Sindh	54,084	7,376,,115	NK	33,000	NK	NK	9	0
KPK	105,042	739,429	NK	NK	23	NK	NK	NK
Baluchistan	51,740	1,621,144	NK	NK	NK	NK	NK	NK
Other federating units	723	229,00	1,900	2,700	NK	NK	NK	NK
Total	274,334	14,325,688	11,700	46,400	939	459,000	22	17

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While rural areas have borne the brunt of flood devastation, the industrial sector has not been directly affected by floods, as small industrial units, largely cotton ginning and rice husking mills, were damaged. But indirectly it has caused severe damage to our exports. At least 30% of the cotton crop has washed away, which is bound to adversely affect the textile industry and force it to import more cotton to feed the mills. It may negatively affect large –scale manufacturing and exports by 25%.

Due to the impact on agricultural and industrial income, demand for output of services sector is likely to weaken, thus adversely impacting the growth of the sector. Moreover, large-scale damage to the private housing, transport infrastructure, and banking sector along with disruptions in economic activities in other areas, will also contribute to an overall slowdown in economic growth. These dampening impacts are likely to be partly offset by higher construction and public administration activity as rehabilitation efforts get underway.

Aid agencies had predicted about the outbreaks of diseases, such as gastroenteritis, diarrhea, and skin diseases due to lack of clean drinking water and sanitation. The total reported deaths were 1,985. In the two worst affected provinces, Khyber Pakhtoonkhuwah and Sindh, about 11percent of total health facilities in the affected districts were damaged or destroyed, followed by 8percent in FATA. Damage to health facilities in the rest of the country's flood-affected areas was nearly 2percent or less.

The details[12] of human capital loss are as under:

Province	Deaths	Houses/dwellings damaged	Average workers/rural household	Poverty adjustment factor	Estimated workers affected
Baluchistan	54	75'261	2.58	0.966	187'619
Khyber Pakhtunkhwa	1156	200'799	2.31	1.049	486'583
Punjab	110	500'000	2.52	1.038	1'307'250
Sindh	411	1'058'862	2.91	1.077	3'317'302
AJK	71	7’108	2.52	1.038	18'584
GilgitBaltistan	183	2'820	2.31	1.049	6'834
Total	1985	1'844'850			5'324'172

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The power infrastructure of Pakistan also took a severe blow from the floods, which damaged 10,000 transmission lines and transformers, feeders and power houses in different flood-hit areas. Flood water inundated Jinnah Hydro power and 150 power houses in Gilgit. The damage caused a power shortfall of 3.135 gig watt. Floods have damaged an estimated 2,433 miles of highway and 3,508 miles (5,646 km) of railway. Cost estimates for highway damages are approximately 158 million USD, and railway damages are 131 million USD. Any unique or particularly large infrastructure damages will increase these estimates. Public building damages are estimated at 1 billion USD. Aid donors have presented an estimate that 5,000 schools have been destroyed. . Many people got cutoff from the main stream and remained confined in the mountainous northwest, where roads and bridges had been swept away.

Data given below will accentuate the extent of damages and losses[13] in detail:

Sectors	Total damage	
	PKR millions	**USD millions**
Social infrastructure		
Housing	135,014	1,588
Health	4,222	50
Education	26,464	311
Physical infrastructure		
Irrigation & flood management	23,600	278
Transport & communication	112,911	1,328
Water supply & sanitation	9,306	109
Energy	26,300	309
Economic sector		
Agriculture, livestock &fisheries	428,805	5,045
Private sector &industries	23,932	282
Financial sector	57,251	674
Cross cutting sectors		
Governance	5,976	70
Environment	992	12
Total	**854,771**	**10,056**

There was nothing that could be done to tame nature's fury, as it was lack of proper home work on the part of disaster management authority to handle that huge disaster. So, damages hit hard the fragile economy of Pakistan. To handle the calamity recovery and relief programs were made at public and private level to support the affected people in their hour of need. However, the government adopted a 5 step approach[1] to mitigate the disaster of 2010 flood. Firstly, it was

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planned to ensure public health of the flood affected population. Secondly, it was decided to provide them with the basic food assistance and take other social assistance measures to improve their lives. Thirdly, proper shelter with basic housing needs was also made available to them. Fourthly, restoration of the agricultural activities along with other connected livelihoods was done and finally re-establishment of basic community services and systems was focused upon. The relief and recovery processes completed successfully whereas rehabilitation agenda is still on the move to support the flood affected community.

Despite the horrifying death and destruction saga, both domestic and international donors have been found reluctant to donate funds for the flood affected people. Many reasons can be attributed for this apathy.

i) International recessionary trends
ii) Donors fatigue as a result of natural disasters in recent years like Tsunami, Haiti and the 2005 earthquake in Pakistan.
iii) International community's distrust over Pakistan Government
iv) Corruption of ruling elite.

The international community has offered financial and technical assistance to the Government. Pledges from sixty-eight bilateral and multi-lateral donors totaling US$ 1,870.2 million in the form of grants and in-kind contributions, have been committed to the Government for the relief and recovery phases.

Funding requirements[12] to meet the resulting relief and early recovery needs are:

Early recovery	Relief	Relief/Early Recovery	Total Requirements
$956,550,640	$928,579,763	$53,076,875	$1,938,207,278

The Pakistan Initial Floods Emergency Response Plan requested $460 million for projects in seven clusters. Initial funding for the response plan was swift, with commitments and pledges for the plan totaling more than $307 million by the end of August (67% of initial requirements). An additional $490 million had been pledged or committed outside the inter-agency plan by that time, for total humanitarian contributions of $797 million[12]. Although the pace of contributions decreased significantly during the first two weeks of September, funding for the Response Plan increased to $412 million (89.6% of original requirements) by 15 September.

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Total requirements increased substantially during the response plan revision, highlighting significant funding gaps in several clusters, including agriculture, community restoration, and education which were added during the revision.

The Government of Pakistan (including provincial governments) launched rescue and relief operations conducted by the NDMA at the federal level and relevant agencies at the provincial level, assisted by the Pakistan military and various UN agencies. Over 20,000 army troops including medical teams, along with dozens of helicopters, several C-130 aircraft and over a thousand boats, were mobilized to Undertake flood relief and search and rescue operations throughout the country; and to distribute relief supplies to displaced and isolated populations. Call centers were established to receive and respond to emergency calls. Simultaneous work was undertaken to strengthen banks vulnerable to floods. In some places breaches were engineered to control floods and disrupted communication networks were quickly restored by temporary structures.
The overall leadership for donor coordination rests with the Economic affairs Division (EAD), whereas the NDMA is responsible for overall coordination of the disaster response efforts by both the Government and the international community.

As of 26 October 2010, the NDMA reported the distribution of over 1.1 million blankets; 184,035 tons of food items; and the rescue of almost 1.4 million people. To provide ready cash to the flood-affected population, the Government of Pakistan in collaboration with NADRA has distributed 977,570 Watan Cards (PKR. 20,000 per family) throughout the country[12].

A brief overview of the key achievements of the government is as under;

Helicopters deployed	61
Boats deployed	1238
People rescued	1.4 million
Tents provided	310,000
Relief camp established	5,392
Health services provided	4.7 million people

On the economic front, the Federal government constrained by lower than target tax collection amid fast growing expenses due to the flood rehabilitation initiatives, has reduced its public sector development program for the FY2010/11 from PRs. 280 billion to PRs. 150 billion. Cumulative development budget of the provinces have also been cut to PRs. 240 billion from PRs. 373 billion[13].

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Most recently, to meet Government expenses, increase the revenue and lower the current account deficit, the Government through a presidential order has promulgated an amendment in the income tax Ordinance , 2001, by levying 15% flood surcharge, on the taxable income of all tax payers. Secondly, through another ordinance, sales Tax exemptions have been withdrawn on all agriculture inputs. Additionally, the five (5) zero-rated sectors namely, Leather, surgical instruments, Sports goods, Carpet and Textile manufacturers, will now pay sales Tax on their local supplies[7].

The Pakistan military is one of the major national organizations active in the disaster relief operation. More than 60,000 troops remained busy in the relief and rehabilitation efforts at various levels in the whole country including 2,500 international troops deployed upon the request of the Government of Pakistan

The response of international and national non-governmental organizations (NGOs) to the flood emergency was immediate, rapid and extensive. A broad range of NGOs worked with the Government to provide emergency relief support to the affected populations throughout the country. Much of the emergency relief had been in the form of clean water and water purification kits, food, kitchen sets and shelter items, sanitation kits and hygiene supplies, doctors and medical supplies, mobile and basic health care units. In addition, some NGOs had established child-friendly and female-friendly areas as a comfort zone for children and women to interact among themselves.

The private sector - individuals, corporations and foundations - had contributed over US$17 million to the flood relief effort, with the majority of the funds passed on to various UN organizations and NGOs.
The overall external economic position of Pakistan improved notably when external current account deficit declined to 2 percent of GDP in 2009/10 and along with this foreign exchange reserves reached to $13.1 billion by end-June 2010. This economic activity showed signs of acceleration with real GDP growing by 4.1 percent in 2009-10.Unlike the previous situation current fiscal performance has got deteriorated and is posing a threat to economic stability. The 2009-10 fiscal deficit target, which was revised upwards to 5.1 percent of GDP only in March, was missed by a wide margin-1.2 percent of GDP--owing to a considerable over-run in electricity subsidies and other public spending and a shortfall in tax revenues. Scarcity in structural reforms caused delays in mobilizing budget support from the donors, which caused the Pakistan's economy has been struggling to regain stability since enduring the external and internal Shocks in 2007-08. Even prior to the floods, there were increasing concerns about the health of the fragile economy. While Pakistan's Government resorts in borrowing from the central bank to finance

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its substantially higher fiscal deficit. Expansionary fiscal policy and monetization of government debt has added to inflationary pressures and year-on-year inflation has rebounded to 12-13 percent.[11]

The unprecedented floods have knocked down the estimated revenue generation for the tax year 2010-2011. The situation was not encouraging because of the traditional patterns employed for realization of revenue. It is obvious as the first quarter of the fiscal year is quite slow, and generates around 17-18% of the target. Whereas thrust in revenue collection starts from the second quarter. The last two quarters generate more than 60% of the revenue. The fluctuated nature of revenue generation is because of the seasonal trend which contributes major part in revenue generation during a fiscal year. The overall growth of real GDP prior to the floods was anticipated to be over 4 percent during FY: 2010-11, is now prone to fall in real terms to 2-3 percent range. The same was 4.1 percent during the last year. Though, activities of reconstruction during the process of rehabilitation could provide some boost to the growth rate, but it is likely that any positive upshot will only be apparent in FY: 2011-12 and beyond, and even then it may not be sufficient to bring the growth rate back to the 2009 level of 4 percent for several years. While considering all propositions and rationalizing overall budgetary framework of the government, Federal Board of Revenue revised its target of 1667 billion with 1604.4 billion.

The data below[11] clearly explains the comparison of two fiscal years in respect of revenue collection.

Tax Heads	**Collection**	**Projections**	**Growth (%)**
	FY: 09-10	**FY: 10-11**	
Direct Taxes	526.0	656.3	24.8
Sales Tax	516.3	633.8	22.8
Federal Excise	124.8	141.0	13.0
Customs Duty	160.3	173.3	8.1
All Taxes	1,327.4	1,604.4	20.9

Tax revenue collection during July-November recorded around 10 percent growth over the same period of 2009 but it has fallen short of target by PRs. 5 billion[14]. It is anticipated that with levying of flood surcharge of 15 % and exemption of sales Tax withdrawn on certain items, Tax revenue collection for the current Fiscal Year will improve substantially.

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This now brings us to a detailed economic analysis of the impact of the floods. As mentioned earlier on in the paper too, the economy of Pakistan is already a fragile one owing to the fact that it is primarily an agrarian economy and does not have a strong industrial backing or support. Therefore, any fluctuation or set back to the agricultural system immediately results in damage to the economy, which was the case with last year's flooding. At one point in time, one fifth of Pakistan was under water and this primarily comprised the agricultural land that was alongside the Indus river system. With the irrigation and agricultural systems devastated Pakistan's economy has little to build upon.

The floods, as mentioned before, impacted all sectors of Pakistan's economy but destroyed the primary sector to the largest extent. As a result if this, the industries based on primary products were also affected, for example, the textiles industry being one of Pakistan's largest, came to a halt once the cotton crops were destroyed completely. Rebuilding from the very start is a big challenge for Pakistan now. However, Mr. Mohiuddin Aazim an economic analyst, in his article dated 21.10.2010, claimed that cotton production up to September 15, 2010, stood at 47,596 bales of cotton[15]. Food Ministry officials say that cotton output may reach 11.5-11.7 million bales of cotton at best, against the initial target of14 million bales of cotton. Accordingly, we would need to import more cotton to make up for shortfall of 2-2.5 million bales of cotton. This would be in addition to the import of those items that we need immediately for kick-starting the agricultural activity in flood-hit areas and for rehabilitating flood survivors and reconstructing infrastructure. As far as infrastructure is concerned, losses to it could require tens of billions of Rupees by way of productivity and reconstruction costs. Finally the cost of relief operation and resettlement would have to be borne by the exchequer, which will further balloon the fiscal deficit[15].

The GDP growth rate after the floods is estimated to be around 0 to 2 percent with 25% cotton crop loss and inflation as high as 25%. The GDP growth rate was actually 4.5% last year and with that in mind, 2% growth seems to be a major setback to the entire economy. Pakistan's GDP is primarily driven by agriculture having a share of 25% and 60% of population is employed in agriculture sector. Pakistan's agriculture growth has been stagnant in the recent years. In view of the current circumstances and the number of districts inundated the sector could potentially contract by 3-4% when would be a major blow to the economy and could translate to 0.7% being knocked off from the already low targeted low GDP Growth rate.[16]

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As far as exports are concerned, the textiles industry makes up 50% of total exports but with a 25% loss of cotton crops, exports will also be reduced significantly and this will directly upset the balance of trade of Pakistan, with more being imported and less value added products being exported. A negative trade balance might eventually upset the exchange rate of the rupee negatively and this is a loss that our economy can no longer afford with the rupee already depreciating in the foreign exchange market. However, it is believed that exports grew 21 percent to about $1.772 billion from $1.462 billion dollars, primarily driven by 24 % increase in export earnings from textiles. But overall export earnings in August 2010 declined by 1% from July, the major reason being the disruption in transport of export cargo after the floods, bad security situation in Karachi and traditional slowdown of economic activity in the month of Ramadan. [17]

Inflation is also a big concern for Pakistan. The target for the financial year 2010-2011 was 11.5% but it is now estimated to reach 13.5% with a lot of it being food inflation according to IMF projection.[16]Once prices of essential food items rise, prices of other goods are also likely to rise. Pakistan should therefore hope that prices of food items in the international market go down so that after importing them, prices in Pakistan also go down. This will reduce the chances of inflation rising to 25%. It is also noted with concern that inflation in 5 months to November remained higher than in the same period last year due to expansion in the fiscal deficit after effects of the floods, withdrawal of subsidies from power sector, spikes in international prices of commodities and increased government borrowing from State Bank. However, economic analyst Mohiudin Aazim claims that, with majority of sugar mills now crushing cane , prices of sugar have come down which should help in controlling food inflation also, the prices of edible oil have fallen in domestic markets after some easing in their global prices that should help keep food inflation down[16].

The impact of floods on poverty has already been discussed earlier on in the paper so we will now move on to the unemployment. Close to 68% of Pakistan's population lives in the rural suburbs and most of them have agriculture as their only sources of income. It is anybody's guess that with their primary source of income destroyed, more and more people have been rendered unemployed. Not only this, most of the poor population of Pakistan resided in the flood affected areas, so after this natural calamity, whatever their sources of income were, got washed away by the flood water. Now, with increased unemployment and fewer opportunities, the incidents of theft and robberies are more likely to increase unless these people are provided with sources of income. The unemployed and impoverished youth can be an easy prey for the extremist forces active in the

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country. Therefore, it is high time that the Government took measures to reduce the inflation rate and to provide for the livelihood of the youths in these areas[18].

The above historically abnormal floods affected the entire length of Pakistan causing maximum damage in provinces of Khyber Pakhtunkhwa (KPK), Punjab and Sindh. The magnitude is so huge both in scale and destruction that it is more than twice than the Pakistan Earthquake 2005, Cyclone Katrina 2005, Indian Ocean Tsunami 2004, Cyclone Nargis 2008 and Haiti Earthquake 2010, all put together in terms of geographical space and population affected.[19]

Data given below explains the gravity of situation

	Pakistanflood august 2010	Pakistan Earthquake October2005	Katrina Cyclone USA August 2005	Nargis Cyclone Myanmar May 2008	Indian Ocean Basin Tsunami Dec 2004	Haiti Earthquake Jan 2010
Population affected	20,251,550	3,500,000	500,000	2,420,000	2,273,723	3,200,000
Area affected (sq km)	132,000	30,000	N.A.	23,500	N.A.	13,226
Deaths	1,767	73,338	1,836	84,537	238,000	230,000
Injured	2,865	128,309	N.A	19,359	125,000	300,000
Household damage	1,884,708	600,152	200,000	450,000	N.A	250,000

Suggestions and Recommendations.

1. Early warning system

Keeping in view the unprecedented floods of 2010 and its widespread destruction, there is a dire need to install an early warning system which can forecast the climatic changes in advance. Flood warning systems are systems designed to give forewarning of the likelihood of flooding in order to save lives and property. It is pertinent to quote the example of Jamaica[20], country in South America which experiences frequent flash flooding, usually with insufficient lead time to affect adequate response. On average, there is at least one disastrous flood every four (4) years in Jamaica.

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2. Reforming the Federal Flood commission (FFC)

The Federal Flood commission was formed after the devastating floods of 1973 and 1976 and it was tasked with integrated flood management on country wide basis. The recent floods have shown the ineffectiveness of this department to analyze in advance the flood situation. The FFC should receive daily water flow levels and rainfall updates in different parts of the country from the provincial irrigation departments and federal meteorological department respectively. The FFC can then devise plans to counter any eventuality.[21]

3. NDMA as a sole coordinating unit

There should be a single integrated Disaster management authority headed by NDMA having its regional offices in the federating units for effective control and supervision.

4. Overhauling of the irrigation system

The irrigation system of Pakistan constitutes the world largest contiguous irrigation system. During high water season, these canals are flooded with water, threatening the life and property of the village population. There is a dire need to embank the river system. Secondly, dredging techniques need to employ to increase the water capacity of the major rivers. An SOP needs to be established during high water season for making breaches in dykes.

5. Construction of water reservoirs on the mighty Indus

It is the need of the hour to devise a water policy, whereby the government should start working on a short term and long term plan. As regard the short term plan, latest dredging techniques should be employed on all the major dams to improve their storage capacity. Secondly, multiple small dams can be constructed on the river Indus, which will have two-fold advantages. Firstly, it will address the energy crisis of the country and secondly it will store water during flood season. The air of mistrust among the provinces needs to be quelled and a joint effort filled with sincerity and patriotism is required to make a couple or more major dams.

6. Forestation Campaign

Deforestation along the major rivers contributed to the destruction caused by this summer's massive flood in the opinion of the experts. The loss of dense woodland made stream and river banks much more prone to erosion. Riverside forests that could have stemmed the force of raging floodwater were gone. A forest policy needs to be devised. Only 5% of Pakistan land area is covered with forest. This has to increase by at least 20-25%. Increase in forest area will stem the raging floods destruction and will help in minimizing soil erosion and mud flow.

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7. Increasing domestic resource Mobilization

The post-flood economic situation of the country should be an eye opener for the economic managers of the country. The government needs to increase its revenue collection in order to be less reliant on foreign aid and try to achieve self-sufficiency. This can only be achieved through a broad and effective tax regime. The government should broaden the tax net for more revenue and tax the agriculture income of the affluent landlords. Secondly, subsidies, exemptions and lower rates should be abolished[11].

8. Austerity Drive

Another far-reaching step, which every Government must take, is to initiate genuine austerity drive rather than taking cosmetic measures to reduce Government expenses. Reducing the cabinet size, cutting the size of foreign trip delegations can help in reducing Government expenses.

9. Capacity Building of the Farmers

Agriculture is the main stay of Pakistan's economy. Efforts should be made to educate the common farmer so that per acre yield could be enhanced and make Pakistan self-sufficient in domestic consumption and exports.

10. Increment in the Exports

The first quarter of the Fiscal year 2011, export projection is targeted at $8.88 billion and imports are targeted to be $15.37 billion[11].

There is an immense need to increase exports in Pakistan, which could contribute towards decreasing the deficit in the balance of payments. Moreover organizations, which promote Pakistani exports and organize the development of the Pakistan export market like the Export Promotion Bureau need to, expedite their efforts.

11. Reducing the Import Bill

The import bill of Pakistan mainly comprises of petrol and petroleum products. This is primarily due to the reason that major Independent Power Plants and government owned power Plants are running on furnace oil and are contributing a major chunk of power supply to the energy sector of the country. The country needs to minimize its heavy dependence on petrol by building new water reservoirs for hydroelectric power generation and exploring alternate sources of energy.

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12. Settlements

Settlements along the major rivers of Pakistan have been there for a very long time. Keeping into consideration the climatic changes and global warming trends around the world, the Government should be prepared for any kind of natural upheavals.
The first step the government machinery should take is to relocate all the settlements to safe places. This will go a long way towards saving lives and property.

13. International Community

Funds in cash and in kind need to be disbursed on urgent basis, in order to enable the state of Pakistan to cope with the reconstruction and rehabilitation of the flood affected areas, as well as the economy.

14. Exploiting Thar Coal

In order to further decrease the import bill Thar coal needs to be exploited on war footing basis which would decrease reliance on furnace oil for the power plants.

Conclusion

Conclusively, the recent spate of calamitous floods has left a deep-seated impact on every arena of the Pakistani society; be it economic, social, physical or political. We feel that since natural disasters can't entirely be prevented, the way they are managed is what should primarily be focused on. The role of disaster management authorities like the NDMA and the Federal Flood Commission (FFC) is crucial to such situations because every second counts in saving lives of victims of natural disasters. Therefore, in order to coordinate private and public efforts for flood relief, the flood management authorities should be better organized and more focused thereby maximizing the efficiency of flood relief efforts.
The government needs to play a central role and take responsibility for everything that goes on during such relief efforts. It should ensure that the conditions of relief camps are improved so that the health of the people is not compromised and more aid is channeled towards their health needs. In addition to this, the government also needs to establish an efficient communication system and SOS help lines for the victims. This will ensure timely as well as more efficient responses on the part of the authorities. Such a system will also account for a better damage assessment data and so resources can be channeled in the right direction. Additionally, the law and order situation is a major problem in the flood affected regions and in order to rehabilitate the people, the government, the army and the security agencies need to play a vital role.

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The major problem lies in the poor coordination between the Pakistani government and the international NGOs because of which even the aid that is actually coming in is not being channeled well. Most NGOs prefer operating without the help of the government due to a lack of trust but this is not what the problem is. The problem is the overlapping of relief efforts and aid being given to areas that are already being taken care of as opposed to those that still need help. This is the only part where the two sources of aid need to coordinate so as to expand their scope of operation.

One of our most important recommendations is the need of agricultural damage assessment because of predicted food shortages. We need to do this now to avoid food shortages and price hikes in the future, with most of our crops and agricultural land destroyed. Activities like hoarding of essential food items to increase prices later are likely to take place by opportunist businessmen and this is something that the government needs to monitor in order to avoid putting additional pressure on the poor flood victims.

Rebuilding infrastructure is also extremely important for the rehabilitation of our people and our systems which should receive utmost attention of the government. The need to diversify our exports in term of items, their stages of development and in terms of destinations cannot be overemphasized. This will take care of the risks involved and put the economy on a sound footing.[22]

The crux of the matter is that we need to learn the right lessons from our past experiences and mistakes and put in place systems that could efficiently deliver in time of natural calamities. At the same time, our economy needs to be put on a sound footing for which we may have to take some tough decisions. Needless to mention, a sound economy will surely help us in coping with any disaster in future.

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