



Adverse Health Impacts of Mercury Contained in Skin Whitening Creams Mahmood A. Khwaja and S.Waqar Ali*

The use of the third most hazardous chemical, mercury, in various cosmetic products, particularly for its skin whitening effects, has been in practice since the nineteenth century (US National Institutes of Health 1996). Such products continue to be easily accessible in the markets and are most commonly used all over the world including many developing countries. The obsession for fair skin in the subcontinent is believed to have emerged with the introduction of the caste system according to which fair complexion was considered as the domain of the upper ruling class, whereas dark complexion was associated with the lower working class (Islam et al. 2006). It is also suggested that the migration of Aryans who were much fairer than the local population may also have influenced the dark skinned population's desire for fair complexion.

Living under the regime of various colonial legacies for more than two centuries could have further influenced the local population to perceive white skin as a sign of power and superiority (Shankar and Subish 2007; Goon and Craven 2003). Presently, preference for a fair skin has also been intensified by the fairness cream industries through extensive electronic and print media campaigns. The most unfortunate exaggeration in some advertisements even

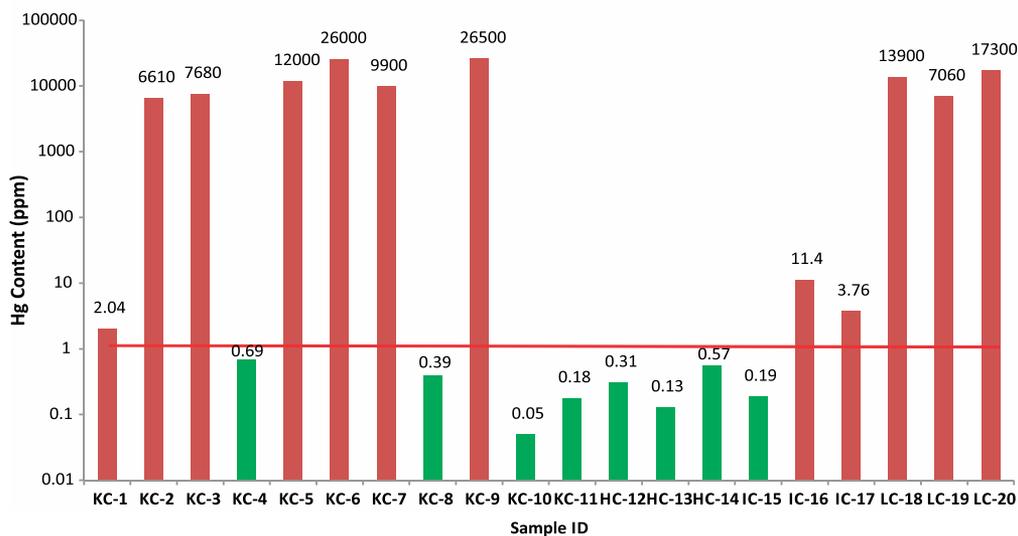
project fair skin as an essential prerequisite for success in both professional and personal matters.

Very few investigations have been carried out in South Asia, including Pakistan, on mercury added products and their use by consumers. This brief report focuses on the findings of our recently completed study to investigate the health threats and challenges due to use of Skin Whitening Creams (SWCs) in some selected main cities (Peshawar, Islamabad and Rawalpindi) of Pakistan. The study was carried out in two parts. First, the sampling and analyses for the

determination of total mercury contents in SWCs sold and purchased by the consumers from the open market. In the second part, contacts were made in person with 50 male and female dermatologists/skin specialists in 29 hospitals and 14 private clinics of the same cities and through a

questionnaire, their opinion/recommendations on SWCs related issues were sought. Samples of 20 SWCs different brands were purchased from the retail shops from the open markets of the above referred selected main cities. For SWCs assay, acidic digestion of the homogenized SWCs samples was followed by total mercury content measurements by flow injection mercury system - FIMS-CVAAS (tti 2016). The results are described in Figure 1.

Figure 1: Mercury content (ppm) in studied samples of SWCs



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Mercury content was found to be in the range of 0.13 (HC-13) - 26,500 ppm (KC-9). Mercury content of one sample (KC-10) seems to be less than 0.1ppm. Eight samples (KC-4, KC-8 & KC- 10-11, HC-12-14 & IC-15) showed (Figure 1) mercury

content less than 1ppm (requirement of Minamata Convention on Mercury). On the basis of the observed total mercury content in the studied samples and the health risk due to mercury exposure, the studied SWCs may be categorized in four major groups (Table 1) as most hazardous – Hg content > 10,000 ppm (5 samples), highly hazardous – Hg content > 5000 ppm (4 samples), moderately hazardous – Hg content < 5000 ppm (3 samples) and least hazardous - Hg content < 1ppm (8 samples).

SWCs users are exposed to alarmingly high levels of mercury in SWCs which may result in mercury being absorbed, inhaled or ingested, thus causing adverse impacts (to consumers health directly and children's indirectly) which are well known and established. These include negative effects on neurological development, brain development, nervous system, lungs and kidneys.

In Figure 2, overall findings are highlighted of a few selected mercury related questions addressed to all the respondents (n=50) during survey/interviews of dermatologists/skin specialists in Peshawar, Islamabad and Rawalpindi.

Reasons for changing complexion

Among the various factors considered for an individual's reason to go for a change in complexion, according to the majority of dermatologists (78%) interviewed in the three main cities, seems to be social and not at all professional (91%). Some 51% of the dermatologists thought it could also be personal. As a result, people use products such as SWCs to lighten their skin tone and thus put their health at significant risk. These social pressures for acquiring fair complexion are mostly directed through advertisements and TV shows that strongly suggest the viewers with exaggerated benefits of having a fair skin tone. There is consensus among all respondents that such advertisements and programmes (including morning shows) should be banned immediately.

SN	Levels of Hazardousness			
	Most Hazardous (25%)* (Hg >10000 ppm)	Highly Hazardous (45%)* (Hg >5000 ppm)	Moderately Hazardous (15%)* (Hg <5000 ppm)	Least Hazardous (40%)* (Hg <1 ppm)
1	Lookfresh Whitening Cream (KC-5)	Brido Whitening Cream (KC-2)	Arche Cream Pearl Thailand (KC-1)	Golden Pearl Beauty Cream (KC-4)
2	Parley Whitening Cream (KC-6)	Faiza Beauty Cream (KC-3)	BLESSO Whitening Cream (IC-16)	Skin White Gold Beauty Cream (KC-8)
3	Stillman's Bleach Cream (KC-9)	Samrah Whitening Cream (KC-7)	Yoko Whitening Cream (Ginseng And Pearl) (IC-17)	Kojic Acid Whitening Facewash (KC-10)
4	White face whitening cream (LC-18)	Pure White Beauty Whitening Cream (LC-19)		Loreal Cream (KC-11)
5	Due Whitening Cream (LC-20)			Skin White Cold Cream (With Honey) (HC-12)
6				Skin White Whitening Cream (HC-13)
7				Whitening Crème Bleach (HC-14)
8				Yoko Whitening Cream (IC-15)

Awareness and precaution regarding mercury exposure

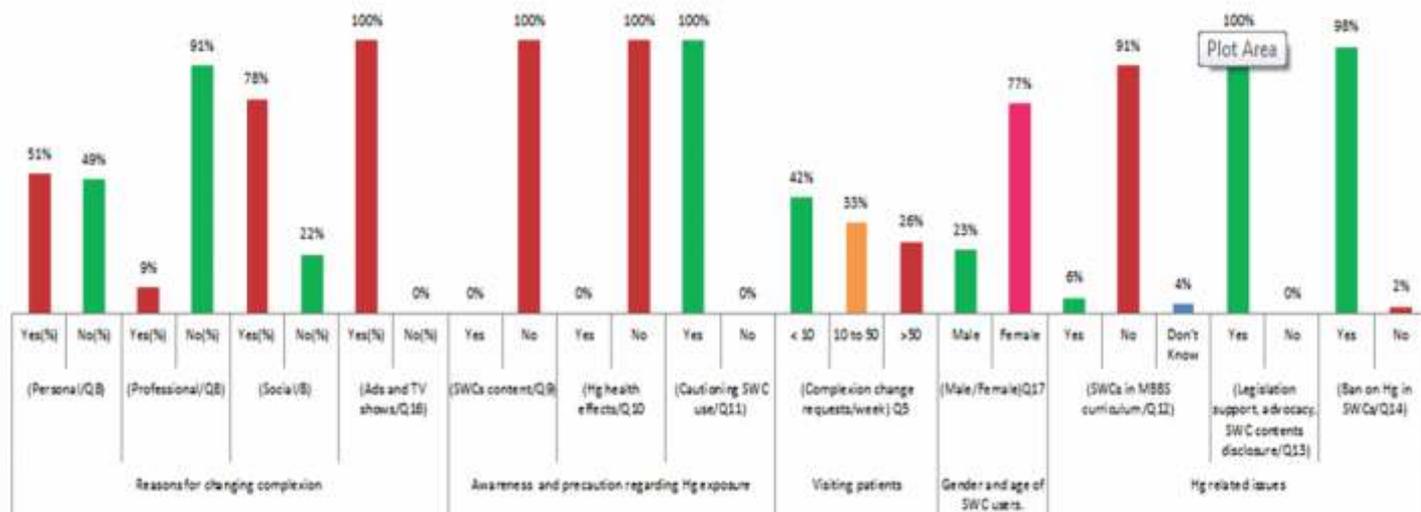
One of the reasons for the extensive use of SWCs in Pakistani population is due to the lack of awareness of the hazardous contents/ingredients of SWCs and their possible health risks among the public as agreed by all respondents. Since SWCs users are unaware of the contents of SWCs and their health impacts, self-medicated application of SWCs

affected parts of the SWCs users body are hand and face (40%) but mostly face only (50%). The number of patients with request for complexion change is less than 10/week for 42% of the dermatologists and 10-50/week for 33% .

Gender and age of SWC user

The current study reveals that 23% of the patients received by dermatologists are male, the remaining 77% patients

Figure 2: Overall survey findings of "Selected" mercury related issues



continues for extended period of time. Some 85% were recommending SWCs to patients whereas 15% did not recommend any SWC at all. However all the dermatologists claim that they very strongly caution their patients about the adverse health effects of these products such as SWCs that may contain high levels of toxic chemicals such as mercury.

Visiting patients

The overall flow of patients with skin disease has been found to be high as more than 70% dermatologists informed that they received more than 50 patients per week. This 111 indicates the prevalence of skin related issues among the population of the three selected cities of Pakistan. However the numbers of patients who develop skin condition particularly from the use of SWCs are between 10-50 patients per week as conveyed by 42% of the respondents. Some 32% dermatologists receive more than 50 patients per week and the remaining 26% less than 10 patients/week, with skin problems developed from the use of SWCs. Mostly the

female. This suggests that the use of SWC is not only common among the female population of the country but men are also conscious of their complexion and use SWCs to lighten their complexion. This trend among the male population may also be increasing due to the advertisements in the print and electronic media (including morning TV shows) that are promoting skin lightening products also among males. Majority of the patients (45%) visiting skin care centres are of age between 25 and 40 years.



Samples Collected

Mercury related policy issues

There is unanimous support (100%) from all dermatologists interviewed for awareness raising, regulating the manufacturing and sale of SWCs and display of full information regarding the ingredients and their amounts in the products on labels of SWCs products. Some 91% support the review and revision of current MBBS curriculum/syllabus and to include mercury related information. Some 98% support banning the manufacturing and sale of SWCs with mercury

content higher than 1ppm as pointed out in Minamata convention on mercury.

Additional information/comments received from the visited dermatologists in Islamabad, Rawalpindi and Peshawar, regarding health effects, popular SWCs brands and alternatives for skin care are summarized below.

Health effects

According to dermatologists/skin specialists regarding the types of health conditions/ailments commonly observed among the patients who have a history of SWC use are formation of wrinkles, rosacea, melanosis, acne, telangiectasia, aczema rash, scarring, webbing, hypersensitivity and sometimes, dermatitis, erythema, ocnosis, skin abscess, hirsutism and even fungal infections and allergy. In addition to this almost all dermatologists pointed out that SWCs users also develop conditions such as skin sensitivity, thinning, peeling and atrophy, acne formation, hyperpigmentation, including melasma, dark spots and freckles. Most of these skin conditions/ailments due to the use of SWCs have also been reported earlier by Faye et al. 2005; Pitché et al. 2005 and A Jose 2005. However, these may also develop due to the presence of other skin lightening agents beside mercury such as hydroquinone and steroids in the SWC products.

SWCs used by patients

According to the dermatologists, SWCs that are most commonly used among the patients are Fair and Lovely, Due Whitening Cream, Faiza Beauty Cream, Golden Pearl, Stillman's Freckle Cream, Arche Cream, Face Fresh, Gipsy Amazing Cream and also Betnovate. We were also informed of the practice by some patients of mixing of different SWCs, applying the mix on body parts and leaving it overnight. A few dermatologists also mentioned patients requesting for glutathione injections for skin complexion treatment already banned by the US and the Philippines FDAs for its use as skin lightening practice.

Alternatives for complexion treatment

On request by patients, majority of the visited dermatologists recommend medicated SWCs. Some

alternative treatments were also prescribed by the dermatologists for skin lightening effects, such as vitamins (C D & E), zalic acid, Derma glow, betnogenotic, Sefraderm, 1% hydrocortizone, and other hydroquinone and kojic acid based products. On patients' demand, a few dermatologists also administer Glutathione injections. Patients are also advised larger intake of dietary supplements such as fruit and vegetables, avoiding excessive sun exposure, wearing proper clothing and using umbrella/sunblock when going out in the sun.

Conclusion and recommendations:

From the literature survey, results of analyses of 20samples of SWCs and the opinions expressed by 50 dermatologists/skin specialists, it is evident that with the continued use of mercury containing SWCs, the skin is affected and becomes unhealthy and unseemly. Besides mercury absorbed through the skin causes adverse health problems. Such SWCs brand need not be used at all. There is

dire need of public awareness raising (through social, print and electronic media), regarding the high level of hazardous mercury and other chemicals contents in SWCs and their effects both on the skin and to human health. People need to understand that "healthy" skin is beauty, not its "complexion" and people should not hunt for SWCs which lead to unhealthy skin.



Samples analyzed (20)

At present, there does not seem to be an effective check and balance in place for the direly needed assessment of chemicals in consumer products by the Ministry of Health/health department, Pakistan Medical and Dental Council (PMDC), Pakistan National Accreditation Council (PNAC). Specific regulations need to be developed and implemented, especially regarding standards for chemicals content in consumer products, including cosmetics/SWCs. All products need to be have proper labels which should be mandatory clearly indicating the amount of the chemicals added to the products, with updated contacts of the manufacturer. Consumer products, containing excessive amount of chemicals should be banned for use/sale/manufacturing. EPAs may also be involved in view of environmental pollution caused by chemicals use

Flood Risk Planning: Need of the Hour in Pakistan

Imran Khalid*

Over the past decade floods of increasing intensity have regularly impacted Pakistan. The 2010 floods alone resulted in over 3,000 deaths and over \$10 billion in economic losses. Flooding is, in fact, the most damaging natural disaster in the world with total accumulative damages of over \$40 billion annually. Yet a significant proportion of these impairments are wholly preventable. As Gilbert White, renowned American geographer, once remarked “floods are acts of God but flood losses are largely acts of man.”

Floods are not short-term events primarily because their impacts linger on well after the last drop of water has receded. While infrastructural losses cannot be discounted, the repercussion of floods in terms of human dimensions is immense. Vulnerability analysis of communities as part of the Pathways to Resilience in Semi Arid Economies (PRISE) undertaken by the Sustainable Development Policy Institute (SDPI) in Dera Ghazi Khan reveals that it is the poor who are most likely to bear the brunt of natural disasters. Furthermore, the research shows, they have little recourse as they try to recover from the devastating impacts of floods. This leaves them further vulnerable to future disasters. Moreover, there is a lack of gendered early warning and response system in Pakistan. The research revealed that even after adequate warning has been given to the communities, they are hesitant to move to relief camps/ higher ground due to apprehensions relating to purdah and presumed lack of safety of the families. Such trepidations lead the community members to stay in their residences until the last moments, when either they are removed forcibly by the police or leave on their own as the flood waters reach their premises.

Historically, our response to floods has been reactive rather than proactive. The focus on flood protection alone is an inadequate reaction to the issue. Research and experience show that absolute protection in the face of fast approaching floodwaters is unachievable. This is primarily due to costs involved as well uncertainty inherent to an ever-changing climate scenario. Hence, there is an urgent need to develop strategies for effective flood risk management and enhanced resilience. This requires seamless integration with other facets of governance. A detailed analysis of organizations, physical infrastructure, and socioeconomic outlook is required for effective policy development in this context. However, that is only possible when there are established baselines such as a country's population and its socioeconomic characteristics. Pakistan has not had a national census since 1998. This has significant

repercussions for how we plan for natural disasters and respond to them. The Council of Common Interest, a high level decision-making body, will be well advised to take the human dimension of governance into account when making a decision about the next population census.

Similarly, there is a need for improved development planning in the country. Land use planning is nonexistent in the flood plains. There are knowledge gaps in terms of current utilization of land as well as challenges inherent to rural planning. This requires not only consistent but also integrated policy, legislation and planning processes at the federal, provincial and district levels. Moreover, enhanced coordination between the National and Provincial Disaster Management Agencies, local governments, non-governmental entities and the communities is an integral facet of a comprehensive disaster risk management plan. Flood risk information needs to be widely disseminated and communities taken into confidence with respect to response and recovery initiatives in the aftermath of a flood.

Floods are not short-term events primarily because their impacts linger on well after the last drop of water has receded.

Our efforts to combat flooding are usually localized with little attention being paid to communities downstream. While it may be clichéd to suggest that decision-makers employ “out of the box” strategies, that is exactly the need of the hour. We've seen that rebuilding to existing standards when it comes to *bunds* or embankments has not enhanced our resilience to future flooding events. Similarly, very little has been done to relocate those at extreme risk to higher ground or reassign land to flood compatible uses. The saying about doing the same thing over and over, and expecting different results comes to mind.

An ever-increasing population, haphazard development patterns and a changing climate demand that we rethink our approach to disaster risk management. This requires a focus on resilience and adaptation mechanisms, which are holistic in nature. One way to do that would be by adopting green infrastructure or non-infrastructural approaches to flood risk management. Such an approach focuses on zoning that avoids development in flood prone areas, development of insurance schemes, improved forecasting and evacuation systems and use of natural features of the landscape to manage flood waters. Pakistan can ill afford another episode like the 2010 floods. Yet, we have to be prepared for such an eventuality should it occur.

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Stakeholders' Consultation on the Potential of Regional Cooperation in Health Services Rabia Manzoor*, Vaqar Ahmed** and Ahmed-ur-Rehman***

On 23 August 2016, the Sustainable Development Policy Institute (SDPI) organized a stakeholders' consultation on regional cooperation in health services. The purpose of the consultation was to bring together influential people from relevant organizations like the Ministry of Commerce, public and private hospitals, pharmaceutical and surgical companies, Ministry of Health Services and Regulations, Ministry of Foreign Affairs, Federal Board of Revenue, Higher Education Commission (HEC), academia, government and private medical colleges, and the media.

The main objective of the consultation was to educate the stakeholders on the importance of regional cooperation in health services and the benefits associated with it. Several constraints and bottlenecks were also discussed briefly and possible solutions were advocated.

The list of panellists included:

1. Dr. Abid Qaiyum Suleri, Executive Director, SDPI
2. Dr. Vaqar Ahmed, Deputy Executive Director, SDPI
3. Dr. Mubashir Bhatti, Head of National Commission for Human Development
4. Dr. Javed Akram, Vice Chancellor, Shaheed Zulfiqar Ali Bhutto Medical University (PIMS)
5. Mr. Asad Hayauddin, Additional Secretary, Ministry of Commerce, Government of Pakistan
6. Ms Romina Khurshid Alam, Member National Assembly, Government of Pakistan
7. Dr. Mukhtar Ahmed, Chairman, Higher Education Commission (HEC)
8. Prof. Dr. Ahsan Iqbal, Minister of Planning, Development and Reform, Government of Pakistan

The consultation started off with Ms Rabia Manzoor giving a brief introduction of SDPI and its research based objectives followed by an introduction of the panellists to the audience. Dr. Abid Suleri took the honour of introducing himself and identifying the possible scope of the discussion.

Dr. Abid Qaiyum Suleri

The Executive Director, SDPI, talked about the importance of regional cooperation in health services emphasizing the facilitation of patients travelling across borders. He identified the need for building new hospitals



since Pakistan lags behind in the health department. He also said that major constraints and bottlenecks hinder regional cooperation including difficult and lengthy cross border visa policies which are a major setback since no surgeon or doctor would be willing to practice across border after going through a tiring visa process.

A proper banking channel needs to be established for the transfer of money in case of transplants and importing organs for transplantation. Mutual recognition and standardization of the health institutions across the region needs to be prioritized if we want to achieve regional cooperation. Dr. Suleri concluded with the statement that health is a humanitarian cause and should be given top priority.

Dr. Vaqar Ahmed

The Deputy Executive Director, SDPI, recognized the shortage of doctors that made treatments expensive and out of reach of the needy. He also talked about the data crunch we have to face when it comes to dealing with forecasting and planning with regard to trade in health services. Very few hospitals and research institutions update their data catalogue. SAARC members agreed upon with this when interviewed about the problems related to medical tourism and their possible policy solutions.



Moving from macro to micro perspective, Dr. Ahmed identified the constraints such as expensive procedures in trade in health services, high costs that countries charge for treatment which has to be brought down and standardized in order to attain regional cooperation. A Pakistan specific bottleneck identified was the restrictive visa regime and weak banking channels between Pakistan and India; and, Pakistan and China. People have to go through intermediaries, which is a tedious process. Dr. Ahmed concluded his presentation by identifying the consumers' problems that needed to be resolved including lack of savings.

Dr. Mubashir Bhatti

Dr. Mubashir Bhatti shared his views on the importance of regional cooperation in trade in health services especially for the developing countries where diseases are likely to have a more devastating effect since countries lack proper medical facilities in the rural areas. Dr. Bhatti further elaborated the issues that lacked importance such as basic medical research

centres for finding the causes of the diseases.

We need to work on the diseases which are mutual to the region and address the chronic diseases which are the leading cause of death in the region, diabetes being a top priority, he emphasized. Mobilizing and educating the youth can produce tremendous results, disease prevention programmes and creating awareness among people for the need to vaccinate can address the root cause of these diseases and help us in eradicating these diseases and in saving the youth, recommended Dr. Bhatti.

Dr. Javed Akram

The Vice Chancellor of Shaheed Zulfiqar Ali Bhutto Medical Institute (PIMS) insisted on the collaboration of PIMS with other medical institutions to share data and research findings. In the SAARC region, diseases are common so there is a dire need to concentrate on regional cooperation in health services and trade in health services because regional integration can provide faster and better solutions to the ailments and diseases.

After discussing the key issues and bottlenecks in the region regarding health services, Dr. Akram proposed the following possible solutions and recommendations for improving health services in the region and giving rise to trade in health services:

- Since the diseases are common to the region, there should be a common database acting as a platform for collaborative studies.
- Introducing a student exchange programme along with faculty exchange to transfer knowledge and enhance research capabilities; and, working together for cures of common diseases.
- Introducing E - Governance in hospitals for better administration and management.

Mr. Asad Hayauddin

The Additional Secretary, Ministry of Commerce, Government of Pakistan, had some interesting views to share. Mr. Hayauddin was keen on not having a myopic view when it came to health services, though he advocated regional cooperation, he seemed more interested in international collaboration for health services. Pakistan lags behind not only in research for allopathic but also hikmat or homeopathy but research has not been extended to the extent that trade in health services could be made possible, said Mr. Hayauddin. He further said that medical tourism is a nomenclature issue, which needs specifications and different names to be identified correctly, since the services sector is a tricky sector with products being produced and consumed at the same time.

An International Patient Centre should be established to simplify visas for cross border patients and facilitate communication in the regional health services.

Mr. Hayauddin presented some possible ideas and recommendations that were highly relevant to the topic. They were:

- Extending the scope of potential markets and marketing this service.
- Staying alive and active on the global web. Pakistan has two web pages regarding medical tourism which are rarely updated or marketed.
- An International Patient Centre should be established to simplify visas for cross border patients and facilitate communication in the regional health services.
- Pakistan is one of the top sellers of surgical instruments in the world supplying to the U.S market but does not extend it to robotics industry. Germany already has the market for that. If Pakistan can increase the scope of its research in medical equipment, it could really help the whole region excel in health services.

Ms Romina Khurshid Alam

Ms Alam, an elected member of the National Assembly representing PML (N) discussed the problems and need for regional cooperation in health services since health concerns have become a global issue for the past half a decade. She gave the following recommendations:

- Working for regional rehabilitation which would revive the relationships among nations and make them easily accessible for each other.
- HEC should work towards bridging the gap between research and practical work and provide doctors and staff a platform to share knowledge and understanding with the research institutions; and, work for the cures of new diseases.

Dr. Mukhtar Ahmed

Chairman HEC pointed out the problem associated with joint research and that it needed to be more integrated for association to take place. He identified the need for more mobility across the South Asian region in any form of tourism, including medical tourism. The recommendations made by Dr. Mukhtar included:

- Basic sciences and applied sciences need to come together to produce better results in findings.
- Regional cooperation should be on top of Pakistan's



priority list.

- There is potential in higher education. Students should be facilitated in exchange programmes.

Professor Ahsan Iqbal

The Minister for Planning, Development and Reform was the chief guest speaker for the event and identified many problems the previous speakers reflected upon and added a few more. He started his speech by letting the



audience know that trade in health services and regional cooperation is part of the Vision 2025 of the Government of Pakistan that it aims to achieve.

He emphasized the need for developing this sector as it brings the social indicators for the region down. Children's and maternal health is not satisfactory in the region. The region has the highest infant mortality rate which is an alarming situation for us, he cautioned. On the issue of growing diseases in the region, he said that non communicable and transferable diseases like HIV/AIDS and hepatitis are becoming lethal killers in the region and we should jointly work for their cures. He had several recommendations for the stakeholders:

- Pharmaceutical industry is the most expensive industry; we need to utilize that properly in making the industry profitable so that enough investment is there for development in the health sector.

- The power of technology has provided people with many new opportunities, some of them are yet to be explored. We need to take advantage of this, e.g. earlier it used to cost \$20 million for DNA sampling and now it takes only \$1000, so technology leads to innovation which in turn can reshape the industry.
- Bring back the qualified doctors from the U.K, U.S.A, Canada and other countries; provide them with good incentives to work in Pakistan.
- Increase the medical budget, both for research and treatment, grants to be given to hospitals for this purpose and ask them to produce results.
- Create and promote awareness among people regarding health issues and work for prevention rather than treatment, which is far less costly and works better. Awareness among youth is very important.

After the panellists had shared their views, the question-answer session began in which the audience had interesting points to make and more recommendations were tabled.

***Ms Rabia Manzoor has an MPhil in Environmental Economics from the Pakistan Institute of Development Economics (PIDE) and works as a Research Associate at the Sustainable Development Policy Institute (SDPI). She may be contacted at Rabia@sdpi.org and rabia_ch@live.com**

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Engaging Chambers of Commerce in Informing Economic Manifestos of Political Parties Fazal Bukhari*

Manifestos not only directly reflect the economic, political, social and cultural agenda of a particular political party but also highlight how they perceive the contemporary problems a nation is usually faced with. In Pakistan, there is hardly any political party with pre-election preparation and agenda on all the policy issues ranging from social to economic, and domestic to regional to global.

Increasingly, political parties are first hit by the private sector for their lack of vision, insight and research base in the commitments made by them towards economic reforms in their manifestos. Most segments of the private sector, particularly those represented by Pakistan Business Council, and Federation of Chambers of Commerce and Industry, have expressed their concerns regarding lack of economic reforms package in political parties' manifestos. Equally important is their concern for not being consulted by

the political parties regarding their business facilitation needs and initiatives.

To fill this gap in policy engagement and formulation in the backdrop of next general elections to be held in 2018, the Sustainable Development Policy Institute (SDPI) is going to organize a series of public-private dialogues to document business community's inputs on the desired economic reforms.

Our approach will be to capture inputs on key economic reform areas (e.g. energy, taxation, financial sector, monetary policy, etc.) from the business representatives throughout the country. In this regard, a series of focus group discussions will also be organized at the provincial level to acquire inputs from private sector as to what they would like to see as part of the next pre-election manifestos. SDPI will not only document these inputs but also communicate the same to the political party heads and

information secretaries. Each focus group discussion will include a keynote address regarding the engagement of private sector themselves in the dialogue and the ways to frame policy recommendations by the business community to best approach the policy makers.

The attempt being made by SDPI aims to locate a common ground between the political and economic instances of cooperation in policy making which eventually will be helpful in making the governments accountable to their pre-election promises especially at the economic front. Such a consultative process will also help create a more informed

dialogue on political side of economic policy making in public domain at large. Moreover, such consultative practices could also be extended to other sectors of economy and sections of society to develop a more inclusive culture of accountability and participatory decision-making through vitalizing the not-so-well functioning political party institutions.

*** Fazal Bukhari is associated as a Project Assistant with the Economic Growth Unit, Sustainable Development Policy Institute.**

Youth Encounter on Sustainability

Ayesha Amjad Qaisrani*



Participants of the YES workshop in Costa Rica

Youth Encounter on Sustainability (YES), was a two-week short course on sustainability in Costa Rica from 10 to 23 September 2016. The YES course was an impact lab for agents of sustainable change, involving 15-20 young professionals from diverse backgrounds.

The course modules were interdisciplinary with focused lectures and practical insights by local and international speakers, on the following thematic areas:

- Energy system transformations
- Resilient land-use strategies
- Sustainable value chains
- Sustainable business/project model development
- Inclusive strategies modelling and social entrepreneurship

- Civil society – government – private sector partnerships for sustainability
- Climate smart cities, mobility, urban infrastructure
- Sustainable tourism

The lectures were coupled with field trips to get a practical know-how of sustainable working models in various parts of the country, which is famous for its pledge to become climate neutral by 2021. The best part of the course was learning how to introduce small practical changes in our own organizations in our efforts to achieve sustainability.

More information is available at <https://yes.myclimate.org/>

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Fighting the Recurrent Threat of Floods

Maryam Shabbir*

During the past 15 years, Pakistan has been witnessing repetitive devastating floods as a result of changing climate. We recently saw another spate of floods when water from River Chenab inundated several villages and vast areas of irrigated lands. It disconnected ground link of more than 60 villages adjoining Jhang district on 11 August 2016. The Flood Warning Centre said that sharp peaks of very high flood in River Chenab with 410,000 cusecs of water passed through Khanki and Qadirabad barrages in district Gujranwala and entered districts Chiniot and Jhang mid-August of Monday afternoon. The maximum water flow recorded in the river was 250,000 cusecs at Qadirabad barrage (Pakistan Today 11 August 2016).

The Flood Forecasting Division also warned that the water level in Tarbela Dam had reached 1549.25 feet against its maximum capacity of 1550 feet. Usually water level in Tarbela Dam mounts to its maximum capacity on 20 August (Awaz TV, 19 August 2016).



©Maryam Shabbir: Area of D.G Khan affected by the floods of 2010

This was the first episode of this season. If we do not act, then we should be ready for the heavy loss to agriculture and economy of the country. Unfortunately, we continue to live in denial and nor pay attention to mitigation measures.

Mega flood of 2010 caused damage of an estimate \$9.7 billion to infrastructure, farms and homes as quoted by the Asian Development Bank (ADB) and the World Bank assessment quoted. This also made 10 million people homeless and irrigation loss of 23,600 million rupees (The Asian Development Bank and The World Bank 2010). This was followed by a series of floods of 2011, 2012, 2013, and 2014 leaving burden on country's economy. Floods of 2014 caused crop loss of 10.91 million rupees according to an estimate of the Government of Pakistan (Government of Pakistan 2014). Floods affected agriculture heavily as it happens in the months of July to September, a peak season for crops especially cotton which contributes to about 10% to GDP and 55% to the foreign exchange earnings of the country (Government of Pakistan 2015). Other important crops are wheat, sugarcane and maize which are greatly affected by floods every year.

According to the Natural Resource Defense Council (NRDC) experts, storms, floods, heat waves, and drought are becoming more frequent and extreme as the climate warms. In many of world's cities, even a fraction of an inch of rainfall leads to flooding and sewage overflows. Flooding on major rivers is expected to become more likely, and coastal communities will be threatened by rising sea levels. Severe and prolonged drought is affecting water supply and quality. More than a billion people will be exposed to flooding and other extreme events rising sea levels and extreme weather patterns by 2060, warns Christian Aid, and South Asia will be major hit especially people living near river and coastal lines (Doig and Ware 2016).

The World Bank assessment report shows that if temperature continues to rise by 2 degrees by 2100 century, then billions of people will be displaced due to sea level rise and majority will be from South Asia (The Asian Development Bank & The World Bank 2010).

As per Global Climate Risk Index 2014, Pakistan is at number three in terms of weather related extreme events (Kreft and Eckstein 2013).

Due to improper planning and absence of flood contingency plans, we continue to suffer. Pakistan's contingency plan against monsoon possesses many weaknesses and it doesn't address efficient timings of early warning system.

It does not address loopholes for coordination among different stakeholders during times of floods. In a recent visit to Dera Ghazi Khan (district of Punjab), by a project team from the Sustainable Development Policy Institute (SDPI), flood victims were not provided with tents and food in every district. Big farmers illegally channelize water from Suleman Hill torrents to irrigate their crops. During flooding, farmers have to pay charges to irrigate their lands. There is no proper mechanism to irrigate crops during flooding. Usually flood does not affect crops at high altitude. Farmers face issues of water conservation in case of extreme water availability. They do not have any proper storage facilities. There are a lot of political and social factors which should be kept in mind while making flood contingency plans. Another important factor is poor engineering which

triggers flood impacts. For post-flooding plan, the government needs to allocate budget for the construction of dykes to minimize flood impacts in areas like D.G Khan.

Women and children are more vulnerable during floods, therefore, a gender responsive approach should be inculcated for flood contingency plans in each province. Vulnerable people are most relevant for making of flood prevention plan so they should be involved in decision making phase.

There is a dire need for construction of storage reservoirs to prevent floods. In the past 60 years, our neighbouring countries have constructed dams to prevent flooding and store water. Most dominating countries in this regard are India with 4,500 dams and China with 22,000 dams on rivers. This has not only minimized severity of floods but also generated electricity which runs their industries and helps boost their economy (Key Informant Interview, 2016). On the other, Pakistan has only 163 dams (ICOLD n.d).

Moreover, we are still fighting over the construction of proposed Diamer Bhasha Dam which would be storing more than 6,400,000 acre feet of water (Pakistan Construction and Quarry n.d).

There is a need to prepare Loss and Damage Framework for extreme weather events particularly addressing loss and damages from floods at district and province levels as the United Nations Framework Convention on Climate Change (UNFCCC) also urges this as an important tool to support vulnerable communities. It will be an important topic under discussion in COP22 Marrakesh by the end of this year. Pakistan has fragmented data on loss and damage in the form of different reports. Data from Pakistan Economic survey and assessment reports by the Asian Development Bank and the World Bank can be used to develop Loss and Damage Framework from floods.

Risk of flooding can also be minimized if data sharing practice is improved at the provincial, national and international levels. We share Indus Basin with our neighbouring country, India, and trust deficit should be overcome for inflow/ outflow data sharing. There should be a single centre at the regional level to provide daily online data on water inflow/outflow.

Each year the government should allocate fund on rehabilitation and adaptation against extreme weather events as flooding is repetitive event in Pakistan.

As mentioned earlier, we need to improve the early warning systems in the flood prone areas. Warning is given usually two to three hours before flooding and in some cases one hour. This does not give sufficient time to save assets. Pakistan's monsoon contingency plan favours warning system through SMS (Short Message Service) service, however, it should be noted that rural communities are very poor and they do not have cell phones. Therefore assessment should be done in potential flood areas to make effective and suitable early warning system.

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© Maryam Shabbir: A female in Dera Ghazi Khan clad in burqa to avoid heat stroke and to observe purdah.

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***Ms Maryam Shabbir tweets at S_Maryam8. Her blogs can be followed at maryamshabbir08**

Poor Governance in Sindh Water Bodies Danish Hasan Ansari*

The Northern Sindh Urban Services Corporation (NSUSC) and Water and Sanitation Agency (WASA) are two water bodies responsible for the provision of water and waste management in Sindh. The former is a newly formed private organization based in northern Sindh, whereas the latter is an old government institution of the country and has its chapters in a lot of cities. Both these organizations are suffering from serious governance issues, which are a hurdle towards the provision of an adequate water supply and waste management.

WASA, an old government institution, has been charged with corruption cases. For instance in August, 2015, 43 officials of WASA were booked for corruption on charges of money embezzlement.

Every organization communicates its Mission Statement on the website and to its employees. The lack of one shows a state of confusion in the employees as to what the organization is supposed to do. As far as NSUSC is concerned, it was found that it has a Mission Statement, however, very few of the staff members were aware of it or some did not even know what a Mission Statement is. WASA on the other hand does not have a Mission Statement altogether.

Most of the people in the organizations have not received proper trainings with regard to waste collection and water supply. They had received some basic training by their supervisors. Moreover they had not been provided with safety equipment to carry out their activities, rather only a uniform had been provided.

It was also found that there was a disconnect between the top and lower staff of departments. There were different replies as to the number of employees in the department for instance. There were also different suggestions given by the employees of the same department. For instance, the head of one of the departments claimed that there was no need to

construct tube wells whereas the subordinate claimed that there was. None of the two organizations had a proper business plan which lays down the future goals and objectives. NSUSC made one such plan when it was established, however, it has not been updated nor a new one made. WASA gets its plan from the Planning Commission, hence has no authority over the making of a business plan.

In both Hyderabad and Jacobabad, there is a lot of political interference regarding the provision of services and recruitment. This could be judged by the fact that in Jacobabad during the Election Day, almost all the staff of the NSUSC – which is a private organization – was busy in the election campaign. In WASA, Hyderabad, one gentleman very proudly claimed that services were provided 'politically' after receiving a request or call from a local politician.



There is also a serious mismatch of job skills in the support departments of the organizations. For instance in NSUSC it was found that the Human Resource (HR) and admin departments are the same and the head of the administration section is responsible for Human Resource Management (HRM). However HRM is a completely different field, with its own technicalities. It was also seen that an employee who has a BA in Economics is responsible for the management of the HR department in NSUSC, Jacobabad. NSUSC also does not have an up-to-date accounting system implemented by its finance department. It was found that its audit department was not following the internationally prescribed auditing procedures. WASA, Hyderabad, on the other hand does not even have a finance department, and only one individual is responsible for the functions of finance.

During the interaction with the community, it was found that both these organizations were not performing their

waste collection and water supply duties effectively. There were various places where the water supply line was leaking and cattle could be seen drinking water from there; and, the waste was being disposed off in open areas.

WASA, Hyderabad, previously had a Complaint Call Center. However due to some reasons it had been abolished. Nowadays people have to make a complain to random staff members of the organization and sometimes have to personally visit WASA for their complaints. This absence of a proper Complaint Call Center leads to heated arguments between the customers and the staff members as the former feel that their demands are not being addressed.



Water seepage in a residential area

For the future, these governance issues in both the organizations need to be addressed and the technical needs of the staff must be enhanced through trainings and seminars. Water and sanitation are the basic household needs of the people. Lack of provision of such services might lead to disgruntlement and estrangement of the masses from the government and the country as a whole as well.

Note: All the information in this article is based on a recently conducted survey by the SDPI team in collaboration with UN Habitat, in Sukkur, Jacobabad and Hyderabad.

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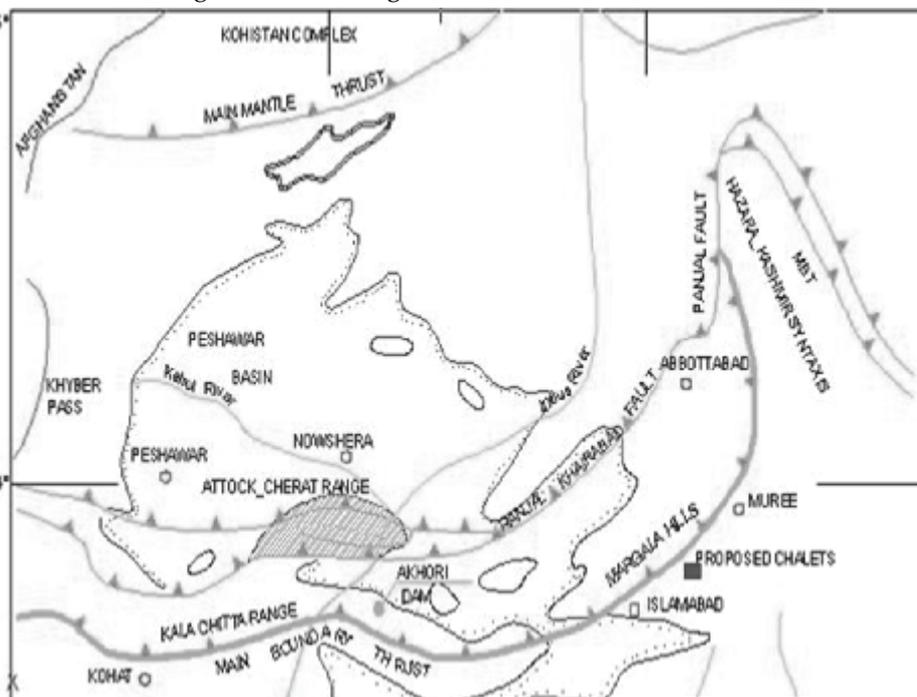
Water Pressure in Rawal Dam may Trigger a Quake Zainab Naem*

A deadly earthquake may be triggered due to increased water pressure in Rawal Dam causing colossal damage to the twin cities of Rawal. A feasibility report of the dam lies in seismic zone 2B and zone 3 which have been subjected to severe shaking in the past (M/S AAB (PVT) Ltd & MEGA Engineering Consultants 2015). However, a geological report, compiled by the Small Dams Division, Islamabad, does not identify strategic and mitigating measures that can be adopted in case of any calamity. Adeel Afzal, Sub

Divisional Officer (SDO), Rawal Dam, said: "Many illegal societies have been constructed around the dam, and if any cases such as Lakhawal and Mohra Noor will be badly affected." A number of cases regarding illegal constructions in these areas are pending in the local courts, he added.

Built in the 1960s by the Water and Power Development Authority (WAPDA), the dam was constructed over Korang River with an approximate storage capacity of 47,500 acre feet with the purpose of supplying water to

the twin cities (Ibid). Korang River lies above the teeth



Source: Abrar 2016. Map shows Rawat Fault Line in Islamabad

shaped Rawat fault line, which passes through Islamabad and covers parts of Rawalpindi city as well. Rawal Dam was a local government project at that time but no seismic survey was conducted prior to construction of the dam.

Gupta (2002) write about the phenomenon (known as Induced Reservoir Seismicity) responsible for triggering earthquakes in dams and reservoirs. If a dam is built in a region which is susceptible to earthquakes, there is possibility of increase in pressure due to water storage causing rocks deep down to fracture and break consequently activating the nearby faults.

Pakistan is prone to natural disasters, specifically earthquakes. Over the past 12 years, the country, and especially the Punjab and Khyber Pakhtunkhwa (KPK) provinces have witnessed frequent earthquakes because these two provinces lie in the foothills of Himalaya --- the most seismically active region in the world. As Islamabad lies over active fault zones, an earthquake can be triggered anytime and the presence of a dam without seismic survey prior to construction, can aggravate the situation.

Apart from natural processes, human factor such as building of dams or reservoirs also contribute to triggering earthquakes. In 1967, an earthquake measuring 6 on Richter scale shook Koyna Dam in Maharashtra, India, just after one year of its construction causing heavy human and property losses (Gupta 1983). Though the area was believed to be seismically stable, fault was triggered due to massive pressure built inside pores as a result of water storage.

Rawalpindi city is situated at a lower altitude compared to Islamabad. Also Nullah Leh passes through the entire city carrying sewerage water along with domestic and industrial solid waste. During floods, the situation worsens because of its overflows and many low lying areas get drowned especially when spillways of the dam are opened. When asked about how the early warning is issued to Rawalpindi

when spillways are opened, SDO Adeel Afzal said: "We do not coordinate with the Rawalpindi Development Authority (RDA) but we do inform Pakistan Army and National Disaster Management Authority (NDMA)."

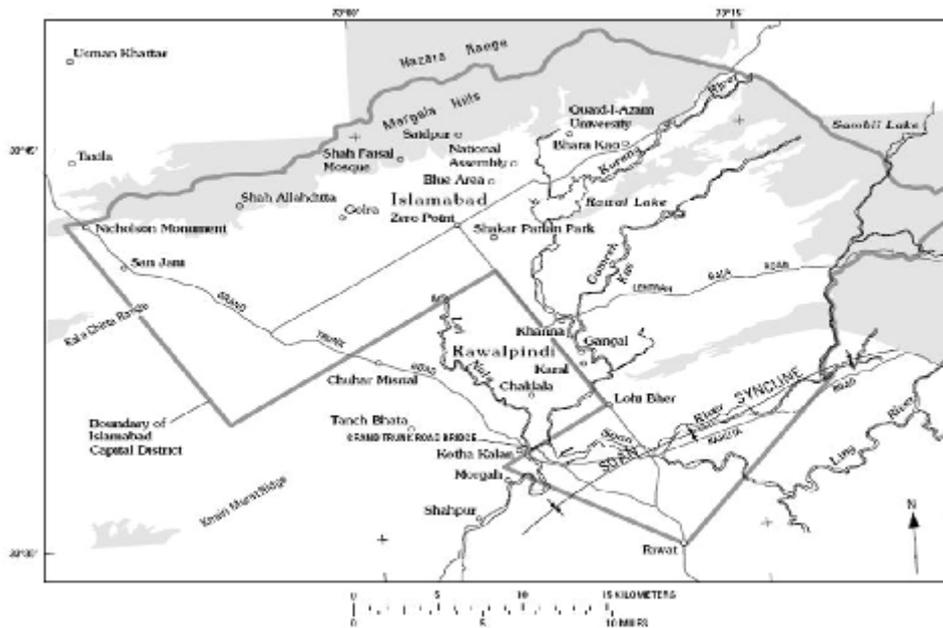
There is a need to take immediate measures to save the twin cities from an impending disaster. First, a well-managed coordination among the departments concerned can save the low lying areas and slums along Leh from heavy destruction. Second, the National Disaster Management Authority (NDMA) and Pakistan Geological Survey can play an important role in developing strategies for disaster preparedness in both the cities. They can collaborate with the RDA and other municipal authorities on this issue. Third, media can be engaged to create awareness regarding disaster preparedness and management related to any earthquake in the near future.

Recommendations: The Rawalpindi Development Authority needs to prepare an action plan for the *kachi abadis* (squatter settlements) along the Nullah Leh. The Rawalpindi Waste Management Company (RWMC) needs to carry out the cleaning of Leh before every monsoon. There is also a need for waste management strategy because pollution will

further aggravate the situation in case of any such disaster. Dumping in Nullah Leh should be stopped because if an earthquake occurs, Rawal Dam water will eventually gush towards Rawalpindi and ultimately Nullah Leh will aggravate the situation.

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Source: (Ibid). Map of Tectonic Features of Islamabad

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Forthcoming Anthology: Securing Peace and Prosperity

The forthcoming anthology titled “Securing Peace and Prosperity” is being jointly published by the Sustainable Development Policy Institute (SDPI) and Sang-e-Meel and will be launched at the occasion of SDPI's Nineteenth Sustainable Development Conference. Organised into four parts, namely, *A Panoramic View of Sustainable Development in South Asia; Securing Economic Sustainability; Water Governance; and, Dynamics of Social Justice*, the authors bring in country perspectives from Pakistan, Afghanistan, India, Nepal, Bangladesh, USA and the UK.

Adverse Health Impacts(Contd. from page 4)

and resulting releases/wastes. **(Continue on page 15)**

It is also recommended that the Higher Education Commission (HEC) review the MBBS syllabus/curriculum for the needed additional information about cosmetics, specially SWCs, which should be included in the curriculum of dermatology specialization.

Ban on the production/use of skin lightening creams with total mercury content above one ppm as per the requirement of Minamata convention on Mercury is strongly recommended.

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SDPI's Nineteenth Sustainable Development Conference
Sustainable Development: Envisaging the Future Together
6 – 8 December 2016 Islamabad, Pakistan

The Sustainable Development Policy Institute (SDPI) is pleased to announce its Nineteenth Sustainable Development Conference (SDC) from 6 - 8 December 2016 in Islamabad, Pakistan.

This year's overarching theme of the SDC is '**Sustainable Development: Envisaging the Future Together**'.

There is no registration fee. Audience is welcome to participate in the Conference. They are requested to bear their own travel, board and lodging costs; and, carry their valid CNIC/passport for registration and security purposes. To receive an invitation, please fill out the form available at <http://goo.gl/forms/qtLz9K3iWz>

Following is a list of proposed panels being organised at SDPI's Nineteenth Sustainable Development Conference titled '**Sustainable Development: Envisaging the Future Together**'.

List of Panels:

Updated list of proposed panels along with their panel write-ups are available at www.sdpi.org/sdc.php

1. Opening Plenary
2. Securing Livelihoods and Promoting Competitiveness of the Cotton Value Chain (CVC) in a Changing Climate -- Panel Organisers: Dr Fahad Saeed and Ms Samavia Batool
3. The Distributional Effects of Out-Migration and Livelihood Resilience in Semi-Arid Regions of Asia and Africa -- Panel Organisers: Mr Kashif M. Salik and Ms Ayesha Qaisarani
4. Changing Global Power Dynamics and Challenges for Foreign Policy -- Panel Organiser: Mr. Shakeel A. Ramay
5. Gender, Demography and Democracy -- Panel Organisers: Dr. Nathalene Reynolds, Mr. Shahid Minhas and Dr. Gulnaz Anjum
6. Flood Risk Management in a Changing Climate -- Panel Organiser: Dr. Imran Khalid
7. High-Level Session to Review Pakistan's Macroeconomic Performance -- Panel Organisers: Dr. Vaqar Ahmed and Ms Rabia Manzoor
8. SDGs: Opportunities and Challenges for Health Sector – the Importance of Data -- Panel Organiser: Ms Saadiya Razzaq
9. Sustainable Energy solutions for the Region -- Panel Organisers: Ms Mome Saleem and Ms Eva Küssner
10. Disaster Risk Reduction (DRR) and Resilience Building in South Asia -- Moving from Hyogo Framework of Action (HFA 2005-2015) to Post Sendai Framework on DRR (2015-30) -- Panel Organisers: Mr. Shafqat Munir and Sadaf Liaquat
11. Transforming Poverty and Inequality -- Panel Organisers: Mr. Shafqat Munir and Sadaf Liaquat
12. Inclusive South Asian Societies -- Raising voices for Ethnic and

Religious Minorities as Equal Citizens -- Panel Organisers: Mr. Shafqat Munir and Tehreem Hassan

13. Unpacking Initiatives on REDD+ (Reducing Emissions from Deforestation and Forest Degradation Plus Conservation of Forest Carbon Stocks; Sustainable Management of Forests; Enhancement of Forest Carbon Stocks) -- Panel Organisers: Mr. Shafqat Munir and Ms Maryam Shabbir
14. Social Service Delivery in Conflict Areas -- AAWAZ-DAI
15. Minorities in Pakistan's Legal Framework -- AAWAZ-DAI

Secure Livelihoods Research Consortium (SLRC) sessions-Day 1

16. Service delivery, legitimacy and state-building - Plenary
17. Panel 1 – *It's what you do and how you do it – what types of services and what processes build legitimacy*
18. Panel 2 – *The legacies of conflict*

Secure Livelihoods Research Consortium (SLRC) sessions-Day 2

19. Jobs, markets and livelihoods in and after conflict - Plenary
20. Panel 1 – *markets, value chains and social networks*
21. Panel 2 – *Gender, identity and networks in making a living*

Secure Livelihoods Research Consortium (SLRC) sessions-Day 3 Interventions: What works in supporting livelihoods, delivering services and building capacity?

22. Panel 1 – *Community Driven Development in Conflicts*
23. Panel 2 – *Social Protection in Conflicts*
24. Panel 3 – *Building capacity in conflicts*
25. Wrap-up Plenary – *what does this all mean for dealing with and recovering from conflict for governments, donors and civil society?*
26. Secure Livelihoods Research Consortium (SLRC) - Round-table discussion
27. Closing Plenary



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