DR. AKHTAR HAMEED KHAN MEMORIAL TRUST RAWALPINDI

AHKMT

ANNUAL REPORT

Integrated Resource Recovery Center - IRRC

October, 2019 - September, 2020

Integrated Resource Recovery Center-IRRC

ANNUAL REPORT

October, 2019 - September, 2020

TOGETHER

WE CAN CHANGE

DR. AKHTAR HAMEED KHAN MEMORIAL TRUST

CB-110 St # 04 Valley, Westridge III Rawalpindi, Ph: 051-5466444, 0333-5153501

E-mail: ahkmt2000@gmail.com, www.ahkmt.org

Editorial Board

Sumaira Gul
Hamidullah
Humayun Aziz
Environmental Assistant: Naveed Ali
Reporting Team: Zulfiqar Ali
Technical Experts: Salman Beenish and Akhtar Shah
Photographer: M. Salman Ismail

TOGETHER
WE CAN CHANGE

DR. AKHTAR HAMEED KHAN MEMORIAL TRUST RAWALPINDI
AHKMT

DR. AKHTAR HAMEED KHAN MEMORIAL TRUST
CB-110 St # 04 Valley,
Westridge III Rawalpindi
Ph: 051-5466444, 0333-5153501
E-mail: ahkmt2000@gmail.com
www.ahkmt.org

Contents

Preface

Before the COVID-19 pandemic, the world was already facing challenges in the waste management sector, where over two billion people lack access to waste collection whereas over three billion people lack access to waste disposal. Hence, the emergence of the COVID-19 pandemic and its corresponding social distancing measures amplified the already burdened sector.

The onset of the COVID-19 pandemic led to the institution of distancing measures that triggered panic buying of food, toilet papers, face masks, gloves, cleaning products and hand sanitizers. During this period, shopping of basic protective equipment, products and groceries grew by over 20% in one Supermarket alone. This panic buying increased the disposal of perishable products and leftovers, which ultimately generated tons of waste.

The invaluable service provided by the waste management sector ensures that the unusual heap of waste that poses health risks and escalates the spread of COVID-19 is avoided. It had been observed that the quantity of waste increased across countries observing the social distancing measure of staying at home. The intensification of single-use products and panic buying increased production and consumption, hence thwarting efforts towards reducing plastic pollution as well as personal protection equipments (PPEs). However, several countries have thus far instituted policies to ensure sustainable management of waste while protecting the safety of waste handlers.

In response to COVID-19, hospitals, health care facilities and individuals produced more waste than usual including masks, gloves, gowns and other protective equipment that could be infected with the virus. There is also a large increase in the amount of single use plastics being produced. When not managed soundly infected waste could be subject to uncontrolled dumping, leading to public health risks, and to open burning and uncontrolled incineration, leading to the release of toxins

in the environment and to secondary transmission of diseases to humans. Other waste can reach water sources and add to riverine and marine pollution.

The countries facing COVID-19 are facing the extra challenge of controlling COVID-19 waste through maximizing the use of available waste management solutions and, at the same time look to avoid any potential long-term impacts on the environment. They need to mange increased waste production by maximizing the use of existing facilities, ensure the operations follow the emissions requirements to avoid secondary health impacts.

Dr Akhtar Hameed Khan Memorial Trust at its end has been successful in following the standard operating procedures (SOPs) for its staff & sanitary workers working in their established IRRC who were ensured to strictly follow the preventive measures by using uniform and preventive kit (masks, gloves, safety shoes and caps) before entering the IRRC. The AHKMT along with National Cleaning and Production Centre and Rawalpindi Waste Management Company carried out awareness sessions in union councils of Rawalpindi for awareness against coronavirus.

The sanitary workers as well as inhabitants of these Union Councils were specially asked not to throw used masks, gloves at IRRCs or anywhere else and dispose them of properly. The sanitary workers at the IRRCs were told to clean or change their uniforms on daily basis. They were apprised that disposable masks and gloves can be used only once during duty hours.

The impact of COVID-19 on cities in Asia and the Pacific is unprecedented. The nature of cities, including spatial density and informal nature of economic activities, uneven access to affordable housing and basic services for the urban poor, unplanned urban growth, and mixed progress on the implementation of the SDGs at the local level have exposed unique pandemic-related challenges which will affect the future of sustainable urbanization in the region. It is expected that some of the socioeconomic gains achieved in recent decades across the region may be swept away, but the magnitude of the losses, and the full impact on urban areas is yet to be determined.

Densely populated cities in Asia and the Pacific have high mobility of people and large informal settlements, turn cities into hotspots for outbreaks. Today, more than 2.3 billion people live in cities in Asia and the Pacific, comprising 54 percent of urban population in the world. A third of urban dwellers live in slums (29 per cent)1 and vulnerable groups and households lack access to basic services, safe water and sanitation. COVID-19 threatens to widen the inequality gap and entrench people in poverty, particularly in cities.

A lesson from the COVID crisis is to ensure supportive infrastructure/environment when developing new, high-density areas – including fast response measures. Cities should explicitly integrate health targets in sustainable urban and territorial planning processes on national and subnational levels. Communities should be involved to produce guidelines for place making and public space programming for sustainable recovery. At the planning level, specific urban regeneration and growth strategies should be identified.

Now the states not only have to allocate funds for sanitation to tackle COVID-19 and other health related issues but also will have to adopt technology to process the waste on modern lines because improper solid waste management can cause such serious diseases to affect our citizens in future.

The City of Mardan

Mardan, the second populous city of Khyber-Pakhtunkhwa, is a dynamic and fast-growing city. Mardan District is a part of the Peshawar Valley the whole area was once part of the ancient kingdom of Gandhara. It is famous for its agro-based industries and famous World Heritage Site of Takht-e-Bhai.
The city has the footprints of Greeks, Afghans, Mughals and British Raj during different eras of its history.

Demographics
Administratively, district Mardan comprises 72 union councils. The total area of Mardan is about 1,632 sq. km. The population of Mardan is about 3 million.

Occupations
Most of the people are farmers in profession in villages. They are engaged in agriculture either directly or indirectly. Industrial labour has increased after the establishment of factories in different places of the district.

Food
The people of Mardan are fond of meat dishes, rice and being an agriculture land vegetables are grown and eaten by locals as well.

Dressing
The Pashtun dress is an ancient dress which is basically 'shalwar kameez' and Chapplis are the most common foot wear.

Economy
Mardan is part of a growing industrial center, and is home to textile and edible oil mills, as well as one of the largest sugar mills in South

Asia. An economic zone is planned as a part of the multi-billion dollar China-Pakistan Economic Corridor (CPEC) near Rashakai. Although Rashakai is part of Nowshera District, its proximity with Mardan is expected to directly benefit the city.

Waste generation and its management

Waste generation both in residential and commercial areas continues to increase rapidly due to rise in population and constant economic growth, putting stress on society's ability to process and dispose of this waste.

Also, inappropriate solid waste management can cause a significant risk to health and environment. Uncontrolled waste dumping due to improper waste handling can cause a wide range of issues, which includes water pollution, increase in floods frequency due to blockage in drains and various diseases associated to attraction of rodents and insects. However, the Government of Khyber Pakhtunkhwa (GOKP) established an independent corporate utility company by the name of Water and Sanitation Services Company Mardan (WSSCM) in 2016 with the purpose to bring sustained improvement in water and sanitation delivery to effectively address the basic needs of citizens of Mardan. An Integrated Resource Recovery Centre (IRRC) was established in the city in collaboration with Dr Akhtar Hameed Khan Memorial Trust and NCA for green waste management to change the current paradigm by transforming the waste into a valuable resource while production of compost from waste has also helped the farmers and nursery owners to revert to organic fertilizer instead of relying on costly chemical one.

GOVERNMENT OF PAKISTAN
MINISTRY OF CLIMATE CHANGE
*****

F. No. 2(5)2018WES/CGP/pt-9 Islamabad, the August 31st, 2020

Subject: **CLEAN GREEN PAKISTAN INDEX**

Reference previous correspondence between Ministry of Climate Change, Islamabad and provincial governments regarding Clean Green Pakistan Index.

2. In this regard, example of Integrated Resource Recovery Center (IRRC), Mardan, Khyber Pakhtunkhwa for sustainable solid waste management is enclosed, to be forwarded to the 19 selected cities of Punjab and Khyber Pakhtunkhwa (12 in Punjab and 07 in Khyber Pakhtunkhwa).

(Dr. Saima Shafique)
Project Manager (WASH)

1. The Secretary,
   Local Government and Community Development (LG & CD),
   Government of Punjab
   Lahore

2. The Secretary,
   Local Government, Elections & Rural Development Department,
   Government of Khyber Pakhtunkhwa
   Peshawar

o/c

31/8/20

Copy to:

i) Special Assistant to the Prime Minister on Climate Change, MoCC, Islamabad
ii) DG (Env&CC), Ministry of Climate Change, Islamabad
iii) Mr. Najeeb Aslam, Deputy Secretary, Local Government & Community Development Department, Punjab.
iv) Mr. Said Rehman, Additional Secretary, Local Government, Elections & Rural Development Department, Khyber Pakhtunkhwa





WSSCM's IRRC in Mardan—Treading the Right Path

The government of Khyber Pakhtunkhwa established an independent corporate utility company, Water and Sanitation Services Company Mardan (WSSCM), in the year 2016 with the express task to take over the water supply, wastewater and solid waste management facilities from Tehsil Municipal Administration. It has been registered under the companies' ordinance 1984 with the Securities and Exchange Commission of Pakistan. The goal of WSSCM is to "bring sustained improvement in water and sanitation delivery to effectively address the basic needs of citizens of Mardan" the second largest city of the province. Mardan district comprises three tehsils i.e. Takhtbhai, Katlang and Mardan and its total area is about 1,632 sq. km. The city of Mardan has 72 neighbourhood Councils having a total population of around 3 million people with annual growth rate of 1.5%. The population of 14 urban union councils is 420,000. The WSSCM is working in 14 urban union councils of Tehsil Mardan (39 Neighbourhood councils).

WSSCM is limited by Guarantee of Government of Khyber Pakhtunkhwa and is 100% owned by and funded by Government of Khyber Pakhtunkhwa (development and non-development). TMA Mardan releases salaries of deputed staff in light of SAMA

while WSSCM keeps close liaison with all stake holders of Public Sector.

WSSCM works in the UCs including BijliGhar, Bagh-e-Aram, Bari Cham, Biket Ganj, Baghdada, Kaskoorona, Roria, Hoti, Par Hoti, MardanKhass, Guli Bagh, Muslim Abad, Sikandari, Purdil Abad and Dagai.

Since its inception, WSSCM had been in touch with Dr Akhtar Hameed Khan Memorial Trust and a team of WSSCM headed by CEO Nasir Khan visited Dr Akhtar Hameed Khan Memorial Trust office, expressing keen interest in replication of Integrated Resource Recovery Center in their city. WSSCM was keen to establish an Integrated Resource Recovery Center (IRRC), which is a small-scale, decentralized, community-based waste-to-resource model that uses simple techniques to capture the value of waste. IRRCs are inexpensive to build and relatively straightforward to operate because they require no or little mechanization. They can transform organic waste into compost or biogas and also can produce refuse derived fuel (RDF) and other waste based products. All of these outputs have a potential market value as a resource. IRRC creates a range of economic, social and environmental benefits for municipalities, communities, businesses and national governments while managing a waste problem.

Consequently, a team of Dr Akhtar Hameed Khan Memorial Trust, visited Mardan to look at the scenario of establishing an IRRC in the city, however, at that time the resources were found to be inadequate by both the parties to launch the project. But in the meantime in 2018, Norwegian Church Aid, Pakistan Chapter, contacted Dr Akhtar Hameed Khan Memorial Trust and visited their IRRC in Islamabad.

After evaluating the details of the idea, its structure and success, it was decided that the model could be replicated for a sustainable solid waste management system to ensure climate resilience in an urban slum or city. The name, Mardan, sparked in the minds of most of the deliberators, as WSSCM had already showed keen interest in establishing the IRRC model in their city. To replicate the model into Mardan, collaboration was initiated as a joint venture between AHKMT, NCA and WSSCM where land for the project was provided by WSSCM, funds to be doled out by NCA while AHKMT had the task to provide technical assistance for the project.In year 2019 IRRC Mardan was initiated.

Biket Gunj Seven Day Study

A Solid Waste Characterization Study was conducted at Biket Gunj for Implementation of NCA Climate Resilience Project in Mardan. The basic objectives of the study were

1. To asses' actual quantity of waste transportation at one point
2. Introduction of three bin concept in a practical manner
3. Mobilize community and workers for segregation purposes
4. Document the organic waste percentage
5. The actual assessment of recyclable and rejected waste

Methodology

1. One trained person from Islamabad was engaged while trained sanitary workers of WSSCM were also used in the study.
2. Initially, more than 1,000 households in the area were identified with coordination of WSSCM staff to execute the study.
3. Segregation points were marked for the study.
4. The staff was briefed as how to collect and bring waste to these segregation points.
5. Door-to-door material was distributed by WSSCM and AHKMT team.
6. Pana flax was installed at the segregation point.
7. Daily waste was transported to dumping point through wheelbarrows.
8. All teams comprising 5 members were involved in segregation process. The segregation was carried out in 3 categories, including Green Waste, Recyclables and Reject Waste.
9. The waste was measured and packed in three different types of bags. Old bags were purchased and used for waste segregation and they were disposed of separately.
10. The animal waste was also collected and measured which was found to be around 900 kilograms.

The seven-day long data was collected, the detail of which is as under:

Date	Day	A/U	Green Waste	Scrap	Reject Waste	Extra Waste	Total	Remarks
16-Dec-19	Mon	Kg	261.4	29.6	255.7	-	546.7	One worker completes the Segregation without WSSCM staff
17-Dec-19	Tue	Kg	646	32	152	1195	2025	
18-Dec-19	Wed	Kg	1024	39	251	-	1314	
19-Dec-19	Thu	Kg	972	59	326	28	1385	
20-Dec-19	Fri	Kg	712	45	312	-	1069	Friday timing 12:00pm
21-Dec-19	Sat	Kg	1101	132	303	-	1536	
22-Dec-19	Sun	Kg	577	56	212	-	845	
Total			**5293.4**	**392.6**	**1811.7**	**1223**	**8,720.7**	
%			**60.70**	**4.50**	**20.77**	**14.02**	**100.0**	

Sanitation Week

In order to replicate IRRC project in Mardan, a Sanitation week was organized at BicketGunj and Fruit and Vegetable Market, Mardan from 16-21 December 2019.

The objective of observing the week was to mobilize community for awareness' of SWM, create awareness among the local community to the negative impacts of waste, involve the locals in implementation of the project, to engage all the stakeholders and above all sensitize the school going children about the issue and create awareness among them to become responsible citizens in future.

Objective behind establishment of IRRC

The basic objective behind establishment of IRRC is to reduce adverse impacts of solid waste on human health and environment and ensure sustainable management of commercial/communal solid waste through operationalization of it. It is also a self-sustainable model for managing solid waste as the resources incurred on transportation of solid waste from city to dumping sites takes lots of resources. But establishment of IRRC in Mardan has helped WSSCM in utilizing its resources in better way.

First ever IRRC in Khyber Pakhtunkhwa

It is first ever IRRC in Khyber Pakhtunkhwa province for solid waste management and treatment installed in Mardan.

The construction work of IRRC Mardan was completed in February 2020 and it is now in operational phase since March 1, 2020. A staff of 10 sanitary workers and one Manager was deployed to start IRRC operations.

What an IRRC is!

The IRRC has been established on a government owned piece of land attached with Waste Water Treatment Plant. A 5 tons capacity IRRC was designed. Twenty boxes for waste, five maturing boxes, and a leachate box were established. A storage house for compost, office, potable water and toilets have been established. Two fully covered buildings have been built at the IRRC one for management and another for staff. The building is run by solar energy and rainwater is utilized in bathrooms and washing purposes. A separate area has been allocated for car parking and small garden is also present in the premises of the IRRC. Trees have been planted all around the IRRC, while a small piece of land has been allocated for vegetation. For

grinding and screening, an automatic machine has been installed at the IRRC. In order to maintain the reducing the level of moisture and maintaining the level of oxygen, blogring process is used.

After the filling of the compost box, the compost is packed with straws to maintain its temperature and to avoid growth of mosquitoes. In order to improve CN ratio, 5 percent sawdust is mixed into it. Besides 10 % animal waste is also added into it.

Twice a day, temperature of all the boxes is checked and the temperature sheet is maintained. Ten uniformed staffers work on daily basis who are managed by an environmentalist. 24-hour security is available at the IRRC and fire-extinguishing equipment has also been installed to avert any untoward incident. Two vehicles on daily basis bring waste which in the beginning was less than 5 tons but with the passage of time has risen above the 5 tons level. The waste is daily weighed after removal of polythene shopping bags from it on daily basis and is put into the compost box. In order to aerate the compost, every compost box is sifted through once a week. And after 45-50 days, the compost is shifted from compost box to maturing box. The leachate drains are cleansed on daily basis and the entire IRRC is swept as well.

The compost is shifted from maturing box to grinding machine and after screening it is packed into packets and later it is sold to nursery owners or farmers. From around 5 tons waste approximately one to one and half ton compost is prepared on daily basis.

Impact of COVID-19 and Sanitary Workers Training.

As the IRRC operational phase was initiated and waste processing was started, the management faced the problem of COVID-19 pandemic. Because of that IRRC operations were stopped on 21st of March on the decision of the entire stakeholders till the situation become normal. During such period, the staff of IRRC was minimized and visits of any kind were limited to IRRC.

Staff & Sanitary workers working in IRRC were asked to strictly follow the preventive measures by using uniform and preventive kit (masks, gloves, safety shoes and caps) before entering the IRRC. They were specially asked not to throw used masks, gloves at IRRC or anywhere and dispose them of properly. They were told to clean or change their uniforms on daily basis. They were apprised that disposable masks and gloves can be used only once during duty hours.

The operations of IRRC was resumed on 15th April, 2020, but before that AHKMT evolved a set of standard operating procedures (SOPs) in line with the World Health Organization SOPs for COVID-19 and later a training workshop was arranged to train IRRC workers as how to work during corona pandemic and follow SOP's to work in safe and healthier environment.

The post pandemic operations is underway and so far 226 tons of organic waste is segregated at IRRC till September 30, 2020, which is 85 to 90 % of the total waste received while the remaining is organic and inorganic waste. The quantity of organic waste received by IRRC from WSSCM was initially very low, this issue was then discussed with WSSCM staff many times and planning was done to increase waste quantity and by September 2020 the target of 5 tons waste per day was achieved.

Supervisors meeting to evolve strategy for achieving waste target.

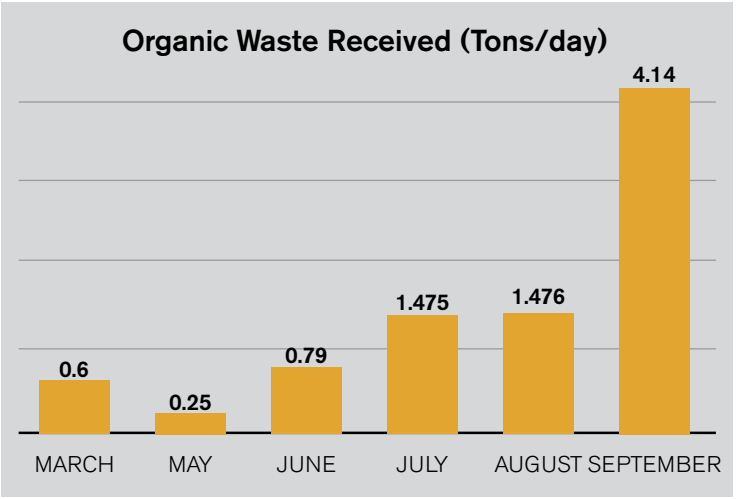
A supervisors meeting was held on 10th September, 2020 to discuss the issue of low percentage of organic waste transported to waste to IRRC Mardan than the selected target and what were the reasons behind it, and how to address such issues and to evolve strategy should be adopted to overcome this issue. The supervisors discussed the strategy with WSSCM that at what time they require the vehicles for garbage lifting which helped increase the quantity of organic waste at the requisite level.

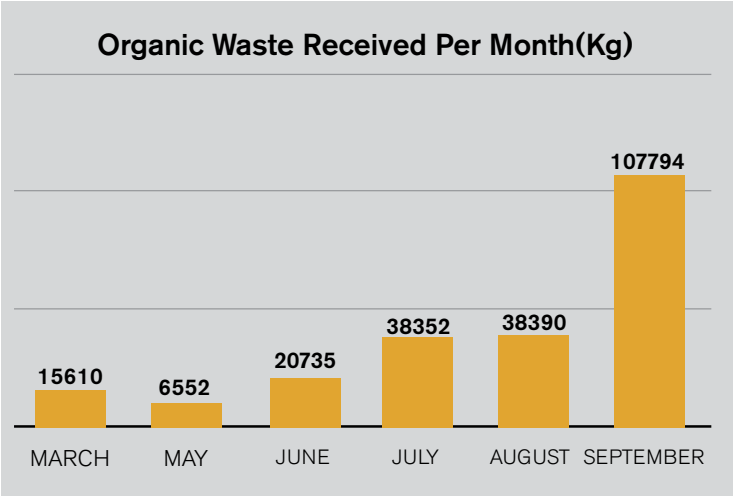
The quantity of organic waste received per day at IRRC Mardan was 0.6 tons/day in March when IRRC started operations. In May, it was 0.25 tons/day and in June, it was 0.79 tons/day. These quantities of waste were very less and below the set target which was 5 tons/day, the reasons behind this were the pandemic of corona and lesser amount of organic waste collection in generation areas. Now the quantity is get improving, it was 1.47 tons/day in July and August respectively and 4.14 tons/day in September.The first batch of organic waste was processed and packed, while waste of other batches were in pipeline and will be screened very soon.

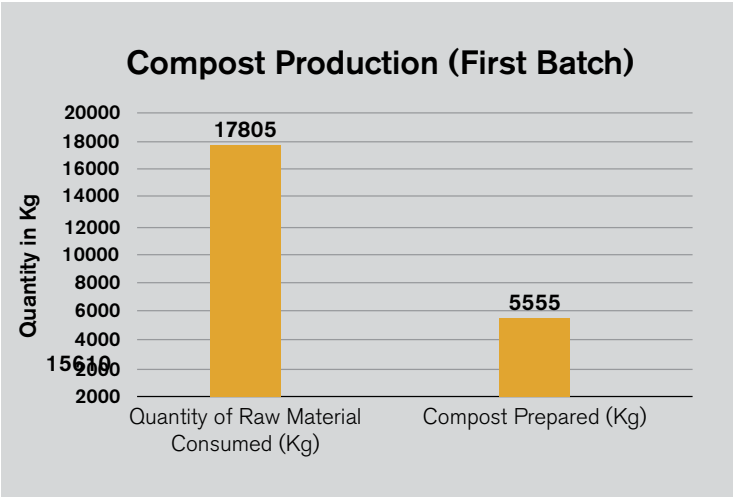
In first batch, a total of 17,805 Kg raw materials were processed which includes: 15610 Kg organic waste, 100 Kg saw dust and 2095 Kg animal dung. Compost prepared from it was 5555 Kg, which is 31.19 % of the total weight. The minimum conversion rate for waste to compost is 10 % and we are well above of it which is an achievement of IRRC Mardan.

Farmers Study and Orientation

AHKMT team designed questionnaire for farmers, nursery owners and for fertilizer distributors in Mardan and questionnaire survey was conducted to collect information regarding organic farming and use of organic fertilizers in agriculture in the district. The task was to achieve by establishinga marketing strategy for compost in the city.







In the survey, 15 farmers, 5 nursery owners and 5 distributors were interviewed and up to 50 related questions were asked from them. Later on a one day training program for farmers and nursery owners was arranged in IRRC Mardan to address those issues and create awareness regarding organic farming and use of compost in agriculture in Mardan on Juy 1, 2020. During the orientation, 10 farmers and 2 nursery owners expressed their readiness to utilize organic compost in the farming.

Compost provided to nursery owners and farmers on experimental basis

Around 200 packets of 2 to 5 kg were nursery owners and around 25 kg compost was provided to 15 farmers while around 1 ton compost will be provided to each of the 10 farmers who agreed to model farming.

NCA, WSSCM and AHKMT are all endeavoring to establish such a system that will be climate resilient and with the objective that reduction and proper management of solid waste will help address climate-related risks and reduce the cost incurred on transportation of solid waste. The replication of IRRC is helping them achieve this target collectively and efficiently.

Visitors

Visited the IRRC Mardan today, met with the management, they briefed us about the collection system, segregation, decomposition, of waste and conversion of waste into compost. The system adopted by the IRRC is one of the best approaches towards improvement of environment and contributing/providing hygiene, important for the citizens of Pakistan.

Tehsil Officer Infrastructure, Tehsil Municipal Administrator Mardan Construction of IRRC in Mardan is a great initiative which is the first one in our province. This IRRC will not only contribute to clean and green environment, but will also introduce organic farming and will further introduce employment generation in this particular sector. The management of WSSCM is very grateful to Mr. Hameed Ullah sab & Ms Sumaira Gul for their technical support and imparting training to our staff. We are also very grateful to NCA for their support. We are very ambitious to make it a successful model.

Engineer Amir Khan
CEO of WSSCM

Muhammad Khalil Akbar
(Acting CEO of WSSCM)

Attended a session on organic compost importance for farmers orientations and it was quite a knowledgeable

Muhammad Waseem, Raja Tanveer, Muhammad Saeed, Sher Rehman
Anmol Welfare Organization, Barazai Welfare Organization, Ugala Welfare Organization, Anmol Welfare Organization

Amazing integrated approach to make environment clean and healthy

Dr. Imtiaz
Good initiative of WSSCM

Col. Jhangir
(Cantonment Board, Mardan)

A great initiative if implemented in an efficient manner to address the issues related to domestic and commercial waste. It can also be a solution to address the solid waste issues across the country.

Dr. Nasir, Dr. Kiran
(DG Urban Unit, PMU KPIP)

WSSCM Introduction

WSSCM improving lives of people of Mardan

- WSSCM was set up in the year 2016 by government of Khyber Pakhtunkhwa with the express task to take over the water supply, wastewater and solid waste management facilities from Tehsil Municipal Administration and registered under the companies' ordinance 1984.
- WSSCM is serving the population of 14 urban and 39 neghbourhood councils having population about 420,000.
- WSSCM is 100% owned by and funded by Government of Khyber Pakhtunkhwa (development and non-development)

WSSCM works in the following UCS;

Bijli Ghar, Bagh-e-aram, Bari Cham, Bikat Ganj, Baghdada, Kaskoorona, Roria, Hoti, Par Hoti, Mardan Khass, Guli Bagh, Muslim Abad, Sikandari Purdil Abad and Dagai

Governance structure of WSSCM

Under the code of corporate governance the company is being run by the Board of Directors which exercise the Responsibilities, Powers and Functions as per Section 5 of the Public Sector Companies (Corporate Governance) Rules, 2013

Responsibilities, powers and functions of the BoD

- Formulate significant policies of the Public Sector Company.
- Establish a system of sound internal control.
- Identification and monitoring of the principal risks and opportunities of the Public Sector Company and ensuring appropriate systems are in place to manage these risks and opportunities, including, safeguarding the public reputation of the Public Sector Company

Key information to be placed for decision by the Board

- Annual business plans, cash flow projections, forecasts and long term plans; budgets including capital, manpower and expenditure budgets, along with variance analyses;
- Internal audit reports, including cases of fraud or major irregularities;
- Management letters issued by the external auditors;
- Details of joint ventures or collaboration agreements or agreements with distributors, agents, etc.





NCA actalliance

About NCA

Established in 1947, Norwegian Church Aid (NCA) is humanitarian and development organization working for global justice and poverty reduction together with partners around the globe. NCA works to help the poorest and those in need, regardless of their creed, race, political or religious affiliation. NCA provides emergency assistance in disasters, work for long-term development in/with local communities and address the root causes of poverty.

Since 2007, NCA, have been a key player in humanitarian and development WASH programs including Climate Change Adaptation across multiple geographic locations striving to build local capacities through on-job trainings and their engagements in program design, execution, monitoring and evaluation.

NCA focuses on working together with vulnerable urban and rural communities to strengthen their resilience. This is done through implementation of projects/programmes under four themes: Climate Resilience; Water, Sanitation and Hygiene; Gender Equality, and Social Cohesion along cross cutting areas of gender mainstreaming and conflict sensitivity. Focusing on resilience implies not only working on tangible, material change for right holders and communities, but also strengthening individuals' sense of dignity, communities' social bonds, duty bearers' capacity and civil society's ability to hold them responsible.

NCA Globally for long time has been involved in climate related programme starting from Climate Change mitigation to adaptation programmes and now most recently shifted its focus towards Climate Resilience initiative to improve preparedness, response and recovery through community structures such as community task forces. In 2016, NCA trained 5,000 households in agricultural practices globally, that are better adapted to climate change. Under the programme NCA's core working methods are;

1. **Community Based Adaptation (CBA) to Climate Change,**
2. **Disaster Risk Reduction (DRR), and**
3. **Community Based Disaster Risk Management (CBDRM).**

The programme focuses on training and skills-building, access to and dissemination of downscaled climate information, performance and usage of feasibility studies including risk assessments, environmental impact assessments and baseline studies.

In 2019, NCA Pakistan office in collaboration Dr. Akhtar Hameed Khan Memorial Trust (AHKMT) established partnership with one of the government institutions "Water Supply and Sanitation Company in Mardan (WSSCM)" responsible for wastewater and solid waste management in the city of Mardan. NCA funded the project for sustainable solid waste management in Mardan City. The objective of the project was to pilot the establishment of small-scale Integrated Resource Recovery center (IRRC) in Mardan towards resourcefulness of 5 tons of organic waste per day. IRRC replication approach is adopted with an aim to bring a shift from conventional end of pipe approach for waste management (collection and disposal only) towards a resource management approach.

Land for the IRRC has been provided by WSSCM Mardan while NCA and Dr. Akhtar Hameed Khan Memorial Trust took the responsibility of executing the IRRC replication project in the city.

The stakeholders foresaw the challenges faced by the community in Mardan and tried to develop their resilience plans accordingly by embedding resilience outcomes within the city's budgets.

IRRC was established within the boundary of Sewerage Treatment Plant (STP) Mardan.

By the start of 2020, the construction of IRRC facility in Mardan was completed and handed over to NCA by the contractor and the consulting firm involved in design and implementation/construction supervision.

NCA through a consultant firm provided necessary machinery and equipment for operationalization of IRRC in 2020. The constructed facility of IRRC does not mean anything for WSSCM without proper capacity building and knowledge transfer to the WSSCM team for operationalization of the facility, longer term sustainability and effectiveness. To ensure the sustainability of the established IRRC facility in Mardan, AHKMT started working closely with WSSCM and its focus was on capacity building of the WSSCM team and sanitary workers upon operationalization and processes of IRRC for production of good quality organic compost product which can increase the agricultural production in Mardan.

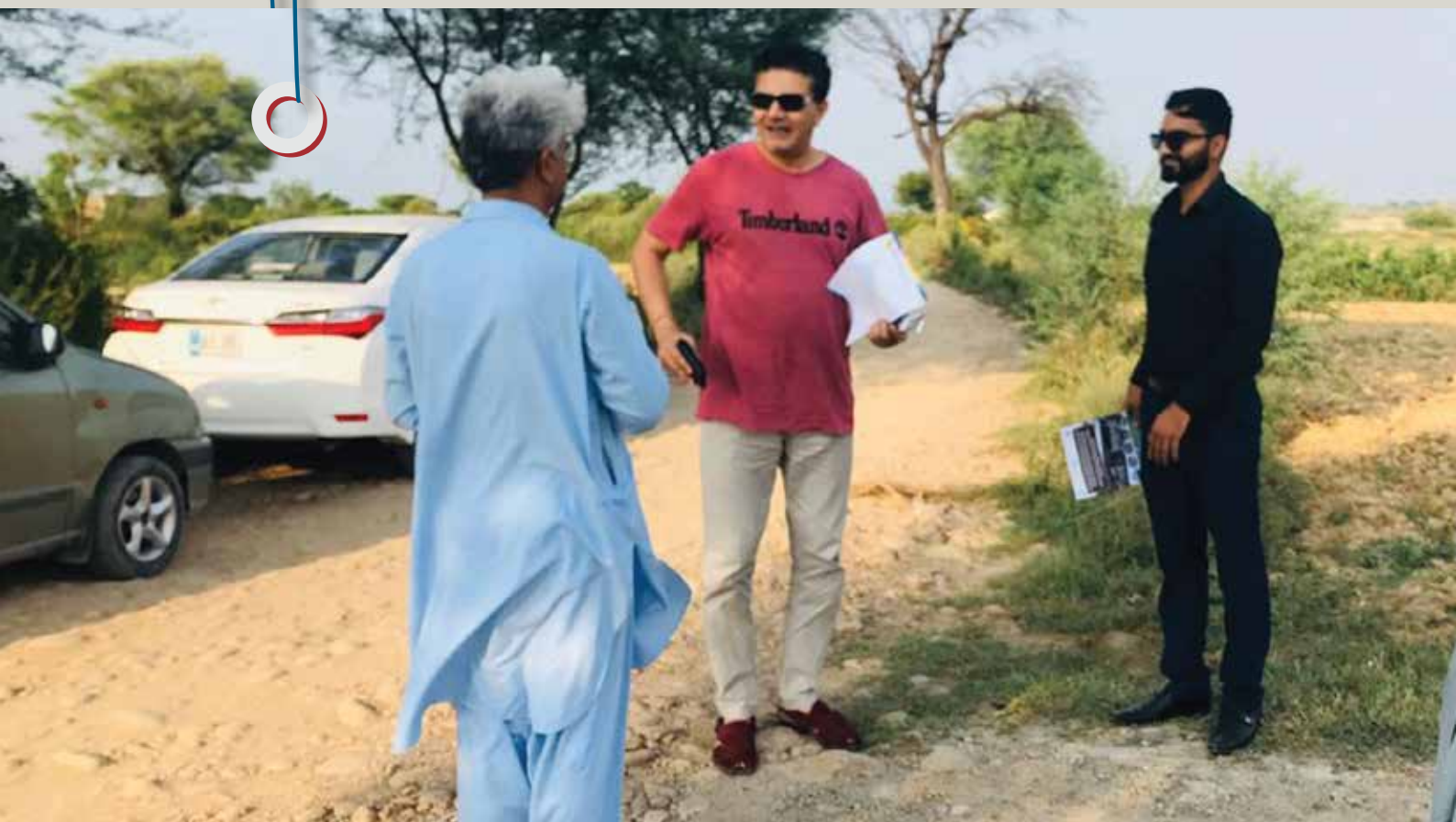
IRRC: Making lives of FECHS Jinnah Garden's residents easy

Solid waste production is one of the biggest challenges not only for a developing country but also for the developed world. In Pakistan, about 48 million tons of solid waste is produced annually, and it is increasing more than two percent every year. This is the waste that we are throwing or littering on roads, streets and buildings, and are giving to waste collectors and vendors. Vendors collect and throw it in open dumps. It is recycled, segregated, reused, or reduced.

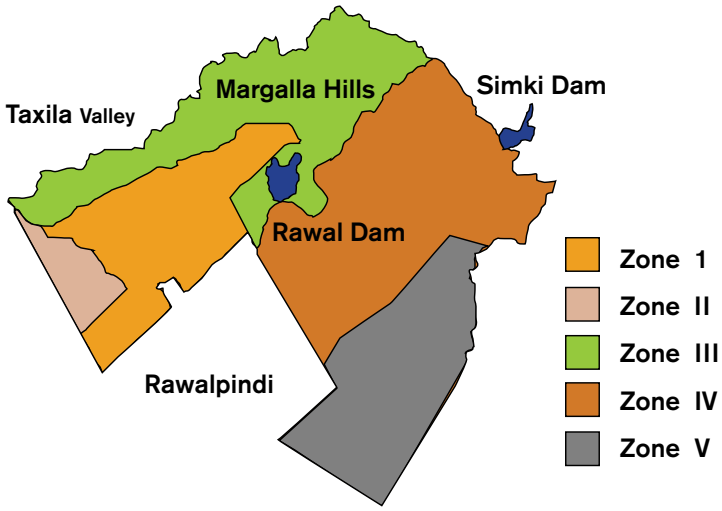
Yet, most Pakistanis appear unconcerned. While garbage collection does occasionally appear on the national agenda in the context of governance failure, recycling or environmentally sustainable solid waste management is almost never discussed. There is currently no landfill site where Islamabad's waste – urban or rural – can be disposed of properly. The CDA, which is responsible for garbage collection in the urban areas, has failed to select a landfill site, collects nearly 7,000 metric tons of waste daily which is then dumped in the open I-12 sector.

Responsibility of services delivery such as water supply, sewerage, drainage and management of municipal solid waste in municipal area remained with Capital Development Authority (CDA), while in rest of the Islamabad, this responsibility rested with Local Government of Islamabad Capital Territory Administration (ICT) until few years ago, the function of services delivery, stands transferred to Metropolitan Corporation Islamabad (MCI) in the whole of Islamabad.

The Master plan of Islamabad was prepared in 1960, which divides the capital city into five zones. The zone 1 is managed by CDA is purely an urban area, while in zone 2 and 5 private housing societies are allowed to make residential and commercial units for public,



zone 3 comprises of old villages, Margalla hills and Margalla National Park Area, while the zone 4 is basically meant for Orchard Schemes.



Concentration of population in Islamabad is mainly in zone 1, 2, 4 and 5, attributed to CDA developed sectors in zone 1, housing developments in private sector in zone 2 and 5 and informal settlements in zone 4 (ICT Zoning Regulation).

As a matter of fact, management of municipal solid waste is undertaken by CDA only in zone 1, whereas services provision in residential developments in zone 2, 4 and 5 is the responsibility of respective developers and builders (housing societies) as well as in rural areas the function is managed by the respective Union Councils Other than that, residential developments were carried out in private sector in zones 2, 4 and 5, however, there is no formal arrangement of municipal waste collection, transportation and disposal, but it is dumped on open areas along major roads, hidden open spaces and banks of water streams. Alike other developing countries, selection and development of waste disposal site based on sound planning, engineering and environmental safety principles in terms of availability of land and other expenses, is yet an outstanding issue in the federal capital.

Segregation of recyclables is all in informal arrangement at various stages, ranging from source segregation by housemaids, scavenging at communal collection points and waste disposal site. Moreover, there is no formal institutional arrangement for segregation of recyclables, recoverable, reusable and waste treatment. Usually the role of NGOs, CBOs and other stakeholders is restricted to the extent of occasional awareness campaigns supported by donors.

In localities outside the municipal area, the responsibility of infrastructure provision in the residential and commercial developments in zones 2 and 5 lies with the respective developers. However, the provision of municipal services including management of municipal solid waste is hardly found adequate or appropriate. The identified gap provided a space for intervention by a third sector for provision of effective solid waste management services.

Islamabad like rest of Pakistan has been in a need of a sustainable solid waste management system to not only ensure climate resilience but also reduce the adverse impacts of solid waste on human health and environment and it could be done through decentralised approach of integrated resource recovery centres. Integrated Resource Recovery Center (IRRC) is a South Asian Model promoting public, private and community partnership. IRRC is a physical facility where organic waste is scientifically processed and converted into compost (Organic Fertilizer) which makes 10% by weight of the total organic waste used in a cost effective way. It also recovers valuable material from waste and provides livelihood opportunities to poor communities through a decentralized approach.

Such is the approach adopted by Jinnah Garden, a private housing society spanned over 5700 kanals

in Zone V of the federal capital situated along Islamabad Expressway.

In its nearby vicinities, the housing projects like Bahria Town, Gulberg Greens, Naval Anchorage, Capital Enclave, Soan Gardens and many upcoming housing projects are situated, however FECHS Jinnah Gardens took the lead in providing a proficient system of garbage disposal to its residents.

The IRRC and its team have been handling around 5 tons of waste on daily basis making the lives of the society residents quite easy, who before the establishment of IRRC in the society had to wait for several days before their garbage was lifted. The situation was deplorable and despite hectic efforts the society management was unable to pick the solid waste on daily basis.

When realised that like rest of the federal capital, the FECHS Jinnah Gardens also illustrates a bleak picture when it comes to the handling of garbage, the FECHS President Major Aftab allowed establishment of an IRRC and provided two kanals land for it to the company WECLEAN,a joint venture of e-guard and Ali Ahmed to manage the solid waste in the society.

While talking to this scribe, FECHS President Major Aftab was of the view that the authorities concerned still rely on archaic methods of solid waste collection which not only poses a serious threat to the environment but also creates a health risk for the residents of the federal capital.

But, he deemed himself to be quite lucky that at Jinnah Gardens, there is an efficient system of garbage disposal at his hands. He pointed out that the Integrated Resource Recovery Centre at Jinnah Gardens is playing an important role in solid waste collection and its proper disposal in an environment friendly manner.

He gave the credit to the FECHS Jinnah Gardens' management as well as WECLEAN and IRRC team in handling the situation in an efficient manner. The situation had not been all rosy in the beginning, as was clarified by FECHS President who said that the society had lots of issues in handling the solid waste, but thanks to the management of WECLEAN we have been able to cope with the situation. Now the residents of our society are at ease as far as handling of solid waste is concerned.

An interview with the society's Secretary Abdul Rauf Satti revealed that initially, there was no formal arrangement for collection and disposal of garbage other than 2/3 sweepers for occasional sweeping. The increased built housing units in due course of time, necessitated the provision of adequate municipal services and as a consequence of public pressure, the society management allowed private collectors to arrange garbage collection at the expenses of the households. He said that the society spanned over 5700 kanals in Zone V having around 3500 developed plots and commercial centers and in the initial stages they hired private contractors to lift the garbage.

This service, he said was limited to irregular door-to-door waste collection, with no arrangement for regular cleaning of common areas and haphazard open-air waste disposal in the nearby open spaces. This poor state of affairs of inadequate and inappropriate mandatory service created awareness among residents to pay appropriately for appropriate service and the society management for making necessary arrangements, which led to the engagement of a service provider, WECLEAN.

Keeping in view the needs of the society and

being a resident of the society as well, Ali Ahmed approached the management of FECHS Jinnah Gardens for establishment of an IRRC. He roped in e-guard, a subsidiary of Dr Akhtar Hameed Khan Memorial Trust (AHKMT), an NGO working with communities in various fields including municipal waste management. E-guard head, Hamidullah and Ali after deliberations with the society managed launched the project in May 2019.

The society management signed an agreement with the company WECLEAN for door-to-door waste collection, safe transportation and disposal of the garbage at an affordable price and establishment of IRRC in the year by the end of 2019. It has been smooth sailing since then!

The WECLEAN has been providing door-to-door collection and sweeping services to 2000 households for which three Suzuki pickups were hired on rent and sixteen sanitary workers and a manager were deputed on work. The society had to establish the center for waste processing.

The operation has been run through a workforce of 21 men. Among them six workers and three drivers are solely deputed for waste collection, while the rest are providing sweeping and sewage cleaning services in the society. In total, 5.5 tons' solid waste is collected from the society. Waste is collected on daily basis among which recyclables are segregated and sold to recycling industry while green waste is turned into compost which is later sold to the nurseries on Islamabad Expressway.

A number of residents of the society said that since the establishment of the IRRC they are at ease and they have found no trouble whatsoever as far as garbage disposal is concerned.

Karamat Jilani, a resident of Jinnah Gardens was absolutely confident that they have no garbage issues since IRRC was established in the society. We were really in trouble having no solution in sight, but thanks to our society management for allowing the management of WECLEAN to set up IRRC that is paying dividends.

While Khalid Ahmad, another resident of the society, also resonated the same views saying we are quite happy that our garbage issues are settled once and for all. There are no solid waste management issues in our society since the plant was established in the society.

Ali Ahmed, the brainchild behind the establishment of IRRC at FECHS Jinnah Gardens, did not realize the need of a waste disposal system overnight.

A Masters in Project Management, and background in Information Technology, it was part of his project as how to manage solid waste. He said that he was fortunate enough to have guidance of Dr Akhtar Hameed Khan Memorial Trust and its parent organization e-guard to learn the way of managing the ways of handling waste in an efficient manner. "Zero waste has always been my dream. And thanks to AHKMT and e-guard that my dream came true. I also have a liking for tourism, but I always make effort not to pollute the places I visit."

When asked how he got the idea of managing waste, he said he had been visiting a spot along Korang Nullah since his childhood, which was quite picturesque. But after reaching adulthood, when he had the opportunity to visit the same spot, he was shocked to find it absolutely in ruins, all the beauty had vanished as the visitors had tarnished its image with garbage. "I was heartbroken, but it also gave me an idea how to keep our tourist spots clean and that there was no litter around." "In the beginning it was quite hard to convince my family to run this business. I had to face taunts from family and friends alike, as what I was getting into. But I always posed a question to them that if we will not do it then who will. It is just a clean recycling business."

Ali bemoaned that a large sum of national exchequer is wasted in hiring foreign companies in handling our garbage. "It is our practice that we hire foreign companies to lift our garbage and we pay them hefty amounts for such purpose when we have a successful south Asian model of Integrated Resource Recovery Centre to manage our solid waste efficiently and cheaply."

"In 2019, I reached a Memorandum of Understanding with e-guard for setting up an integrated Resource Recovery Centre (IRRC) in FECHS, Jinnah Gardens, where a 3 tons capacity IRRC was established at 2 kanals land provided by the FECHS-Jinnah Gardens management for community welfare.

"The setting up of IRRC cost us around Rs3.5 million, we usually charge around Rs300 per house for our services. We have services of three Suzuki pickups, our staff comprises around 27 members.

"Here we are able to handle the solid waste and produce around 1 ton compost that is mostly purchased by the nurseries along Islamabad Expressway. Here we use appropriate and environment friendly technologies for reducing burden of waste and creating economic opportunities.

"The IRRC is based on 3R principles (Reduce, Reuse and Recycle) and it has capacity to process 3 tons waste daily.

"Here at our IRRC we use appropriate low cost technologies i.e. composting through minimal use of machines, it helps us reduces Green House Gas (GHG) emissions by minimizing landfills resulting in reduction of hazardous methane gas.

"It also provides us higher sustainable income and better working conditions for waste pickers. The flexibility of IRRC model is such that it can be adapted to any situation both in urban and rural areas. Moreover, it can be implemented in slum areas on small, medium or large scale as well as private housing societies.

When asked, what is IRRC in his eyes, Ali said, here we can deal with waste that emanates zero smell and we can manage it at the spot saving the cost incurred on waste transportation to landfills that are build outside the city.

When asked about future endeavors, Ali was confident to extend the scope of the existing IRRC to the FECHS-Jinnah Gardens Phase II as well.

Concluding his remarks, Ali said that the taboo should be lifted that only members of a minority community are destined or have the job to lift garbage from our streets. People with good educational background can come and join the business which is quite fruitful for everyone as it is recycling of waste that we produce.

While in a formal chit chat with Site Incharge Mr Khaild when was asked how IRRC has been helpful in dealing with the solid waste in the society, he said earlier they had problems to handling the solid waste generated by the society. In the beginning, garbage remained littered for days and around 2-3 tractor trolleys were used for 15 days in running to lift the garbage when the entire society was full of stench. However, since 2019, our garbage issues have been resolved. Thanks to IRRC management our garbage is disposed off efficiently on daily basis.

Incharge IRRC

It was quite an impressive set up at the IRRC which is situation at a corner of the housing society, with a proper road built to its door-step on a hilltop. There are 14 workers working at the facility where around 5 tons waste is processed daily.The efficient running of IRRC is not solely dependent on a highly qualified person, a person with minimal education can run the system as is the case with, the Incharge of the IRRC.

The site Incharge was of the view that the workers at the IRRC were productive contributors to the society cleaning the garbage efficiently. “We have proper training of how to recycle, reuse, and manage the waste material,” he added.
The society management is satisfied with the improvement of municipal waste management in the scheme at a lower price and the reduced number of complaints from the residents regarding the door-to-door waste collection and appropriate street sweeping.

Disposal of waste is a huge issue. It is the responsibility of the government to first ban plastic production in the country. Islamabad’s ban on plastic bags is an excellent start, but it should be implemented throughout Pakistan. Second, it is also the responsibility of the government to provide dustbins and bags in order to collect the waste on ground zero, and then recycle it.

Apart from the government private housing societies should also contribute in this by setting up IRRCS in the vicinities for betterment of their community. What goes around comes around. This is true in terms of waste production and consumption. Once we produce waste and throw it away, we think we will never consume it again, and that is untrue. Marine life and animals consume waste. Humans eat fish and meat of a few animals. This is the way we consume waste; the nitrogen cycle cannot be neglected. It is high time that we act in order to save our environment, and conserve the nature for our future generations.

Message of President Major Aftab

"Presently, the federal capital illustrates a bleak picture when it comes to the handling of tonnes of garbage. The authorities concerned still rely on archaic methods of solid waste collection which not only poses a serious threat to the environment but also creates a health risk for the residents of the federal capital. But it is not the case at Jinnah Gardens, we have been lucky to have an efficient system of garbage disposal at our hands. The Integrated Resource Recovery Centre at Jinnah Gardens is playing an important role in solid waste collection and its proper disposal in an environment friendly manner. The credit goes to the FECHS Jinnah Gardens' management as well as IRRC team in handling the situation in an efficient manner. In the beginning, we had some issues to handle the solid waste, but thanks to the management of IRRC and their partners, e-guard we have been able to cope with the situation. Now the residents of our society are at ease as far as handling of solid waste is concerned."

Message Secretary Abdul Rauf Satti

"I have been associated with the society since December 2018, now we are proud to have a developed society spanned over 5700 kanals in Zone V of the federal capital.

In our nearby vicinities, we have housing projects like Bahria Town, Gulberg Greens, Naval Anchorage, Capital Enclave, Soan Gardens and many upcoming housing projects along Islamabad Expressway. We already have 3,500 developed plots in FECHS Jinnah Gardens. We are also planning and working on our upcoming societies including FECHS Jinnah Gardens Phase II at Kahuta Road and Korang Town. In our housing society, we have several facilities including parks, mosque and land has already been allocated to Jamaat-e-Islami for establishment of Razi Hospital for the local community. In Korang Town we already have land available for building a state-of-the-art hospital, but the project is yet to be materialized while facility of graveyard is also available in our society."

Prepared a documentary on IRRC for social media
Arieb Azhar, Singer

Mian Shezad Ahamed
Director Admin
CONSOLE Enterprises Pvt LTD

Visited IRRC, Jinnah Gardens and appreciated the initiative.
Dr Rashid Miandad,
Peshawar University

Swabi
Rahimyar Khan

IRRC at MPCHS: A step in right direction

Capital Development Authority, Islamabad is solely responsible for collection of solid waste in Zone 1 while the management of housing societies in zone 2 and 5 are responsible for solid waste management in their respective areas.

Multi Professional Cooperative Housing Society (MPCHS), is one of its kind housing societies of the federal capital developed on thousands of acres of land. Multi Professional Cooperative Housing Society which is usually called (MCPHS) was established in 1989. It comprises of five sectors including E-11/1, E-11/3 (Islamabad Gardens, Tele Gardens Sector F-17, B-17, ROSE and Mansha Orchards Farm Houses Scheme.

It also boasts to be the only private housing society of the federal capital which follows Environment Protection Authority (EPA) by-laws and rules. No Objection Certificates are issued to the housing societies to establish treatment plants for solid and liquid waste in their respective localities. Most of the housing societies pay little heed to the requirement, but do not follow the project and despite allocating land abandon the projects which are of major necessity. However, MPCHS has not only allocated the land but also issued funds for establishment of an Integrated Resource Recovery Center (IRRC) in its premises while the work on a Sewage Treatment Plant (STP) is undergoing at rapid pace. They also have a door-to-door waste collection system and have been providing clean and green environment to their residents by engaging-e-guard.

The major reason behind the success of the society is its founding father, Ch Abdul

Majeed, who through his vision has developed the society on modern lines making the lives of its inhabitants quite easy by providing state of the art facilities to them at their door steps and the residents are reaping its benefits to the optimum.

The society also has an elected body to run the affairs of the society in an efficient manner.
Mohammad Aslam Rao (President)
Eng. Ch. Zafar Ali (Vice President)
Syed Mussadiq Shahid Ahmad (G Secretary)
Kalsoom Rafiq (Information Secretary)
Muhy-ud-din Mustafa (Executive Member)
Malik Rehan Mahmood (Executive Member)
Mohammad Saleem (Executive Member)
Ajmad Ali Awan (Executive Member)

Solid Waste Management Services in (MPCHS) (e-guard services).
Since its inception, the MPCHS was managing the issues related to solid waste on its own, however with passage of time the number of houses in the society rose to good numbers, a need to address the issues related to management of solid waste was felt. Therefore, with a rise in number of households, the solid waste management services in each sector were outsourced. Three among the five sectors were outsourced and handed over to informal sector whereas in sectors F-17 and B-17, e-guard took charge of the solid waste management work. E-guard has been rendering its services in F-17 since 2016 and in B-17 since 2018 so far 1,200 households in F-17 and B-17 1,480 households are benefitting from the services of e-guard in F-17 and B-17 respectively.

E-guard has been providing the services of door-to-door collection in both the sectors through e-guard (loader pickups) while cleaning of streets and footpaths is also part of its agreement with the society. e-guard also collects and segregates the garbage littered in parks, playgrounds, mosques, schools and commercial areas on daily basis. On daily basis more than 14 tons waste is collected from both sectors with the help of loader pickups.

Development of IRRC
After reaping the benefits of solid waste management system in Islamabad's G-15 Sector, and keeping in view the objective of managing the solid waste management issues of the city, Dr Akhter Hameed Khan Memorial Trust (AHKMT) wrote a letter to different housing societies of the federal capital in September 2016 apprising them of the benefits of solid waste management through a decentralized recycling and composting facility, which is built and operated at low costs by using limited mechanical technology, ensuring low operational costs and minimal equipment breakdowns. Every housing society was asked if they wanted to utilize this facility for proper solid waste management in their respective areas then a waste treatment plant can be developed made sustainable and then handed over to the management of the housing society for proper disposal of solid waste.

Dr Akhter Hameed Khan Memorial Trust's call was answered by Multi Professional Cooperative Housing Society (MPCHS), which invited AHKMT team for technical assistance.

In 2016 e-guard services were also launched but the garbage collected from these housing societies

posed serious challenges to e-guard in disposing of the garbage in a cost effective manner.

In Islamabad, CDA does not possess a proper landfill and the capital authority is using temporary landfills which usually is the land allocated for new sectors. And the situation arose that the garbage was being dumped in one the major sectors of the capital, I-12. E-guard started dumping its garbage in I-12 however, the cost incurred on the disposal of garbage to this location started getting higher with each passing day. MPCHS administration decided to replicate IRRC model already functional in G-15 in their sector in B-17. Therefore in 2018 when e-guard started its services in B-17 then looking at the need of IRRC, a 5-kanal land was allocated in the sector near STP.

In 2018 the society formally launched the construction work which is being looked after by Dr Akhtar Hameed Khan Memorial trust.

The work was to be finished in the beginning of 2020, however due to outbreak of coronavirus the official launch has been delayed. The, the residents of B-17 have a 3 tons capacity IRRC at their disposal which has the capacity of handling the garbage produced by around 3,500 households on daily basis. The organic component of the garbage will be turned into compost. The residents and management of the society are eager to make the IRRC a mega success.

The 5-kanal IRRC has 12 composting boxes, four maturing boxes and a proper rainwater harvesting system. A proper office for staff, storeroom, workers washrooms and parking lots for vehicles are present on the premises of the IRRC. The project has incurred a cost of Rs11 million and the construction work has been finished within a span of one and half years.

AHKMT with the collaboration of e-guard has been given the task of running the project for three years and after making it sustainable, the IRRC will be handed over to the management of MPCHS.

AHKMT Role during Construction

Dr Akhtar Hameed Khan team frequently visited the construction site to monitor the progress and quality of work. The contractor and MPCHS engineers were time and again apprised as how the systems of the IRRC will be run. AHKMT provided its technical assistance to them and submitted its reports in MPCHS Head Office on regular basis. AHKMT provided BOQ and Map for the IRRC to the housing society. The hiccups were resolved on day to day to basis by the AHKMT team to tweak the design for better results.

That was the reason all the affairs of establishing this IRRC were accomplished successfully and efficiently. Apart from technical assistance AHKMT also followed the Clean and Green initiative of Prime Minister Imran Khan to ensure biodiversity in the area by planting fruit and other saplings.

IRRC Sakrand from initiation to construction and its successful running

Solid waste management has emerged as a daunting task for the administrative and municipal authorities in many countries. Developing and underdeveloped countries usually lack proper and well developed solid waste management systems which adversely affect their public health and environment. Amongst many other environmental issues, solid waste management has turned out to be a challenge throughout the country particularly in the province of Sindh. There is dire need of focusing on better solid management strategy by developing a climate responsive policy framework in collaboration with environmental agencies and experts. Of late the province, quite rich in resources has been unable to meet the challenge successfully. Many urban centers of the province have reportedly

literally become landfills and need an integrated approach to address the issue efficiently.

Waste has always been considered to be a nuisance in most cities and societies, forgetting that these wastes themselves may be turned into gold or something much more valuable that will boost our economy.

Since 2007, the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), in partnership with Waste Concern, has been promoting decentralized and Integrated Resource Recovery Centers (IRRCs) in secondary cities and small towns in Asia-Pacific with the objective to recover value from waste and provide livelihood opportunities to the urban poor.

Since its inception way back in 2000, as a non-government organization, Dr Akhtar Hameed Khan Memorial Trust (AHKMT) has been endeavoring to introduce and implement solid waste management related practices and research initiatives in the country.

AHKMT joined the drive in 2015 and its specialized Integrated Resource Recovery Center could be deemed as one of the success stories among many, the organization has to its credit till date. After reaping the benefits of solid waste management system in Islamabad, and keeping in view the objective of managing the solid waste management issues of rural areas, Dr Akhtar Hameed Khan Memorial Trust (AHKMT) wrote a letter to different town committees in September 2016 apprising them of the benefits of solid waste management through a decentralized recycling and composting facility, which is built and operated at low costs by using limited mechanical technology, ensuring low operational costs and minimal equipment breakdowns. Every town committee was asked if they wanted to utilize this facility for proper solid waste management in their respective areas then a waste treatment plant can be developed and handed over to non-governmental organizations or other private local companies for proper disposal of solid waste.

Dr Akhtar Hameed Khan Memorial Trust's call was answered by Sakrand Town Committee, which invited AHKMT team for technical assistance. Sakrand Town is a Taluka of the district Shaheed Benazirabad (erstwhile Nawabshah), about 18 kilometers from the old NawabShah city. Its population is approximately 31,630.

The AHKMT team visited Sakrand Town and found out that the garbage generated by the town was dumped along National Highway and subsequently burned.

The then Chairman of Sakrand Town Committee, Syed Muneer Shah, took the initiative to establish an IRRC in his town. Dr Akhtar Hameed Khan Memorial Trust signed a Memorandum of Understanding (MoU) with Sakrand Town Committee for bringing improvement in solid waste management of Sakrand town. AHKMT team put down several proposals for perusal of Syed Muneer Shah among which one was weighing of the daily produced garbage in the city to understand as how much garbage the city is producing on daily basis.

The main objective of the agreement was to establish a proper waste collection system at the household level and setting up a waste processing unit in shape of Integrated Resource Recovery Centre. The agreement was signed in January 2017 and work on the project began in February 2017 where sanitary workers were trained for the Integrated Resource Recovery Centre initiative. Then a spot for establishing Integrated Resource Recovery Centre (IRRC) was identified, as in South Punjab and Sindh, the town committees have pieces of land where sewage treatment plants are

established. After selection of the land for Integrated Resource Recovery Centre, Syed Muneer Shah initiated the work on the construction of boundary wall, bathroom, shelter and segregation platform were completed.

In Sakrand Town, IRRC was replicated and initially two wards were selected for the process, but later the Centre was replicated in five wards. And after the success of the project, now the services of waste collection are provided to 15 wards. The situation became fruitful because of proper coordination between lane departments and well-planned strategies including a sanitation week, awareness campaign, painting contest for students, through training workshops and hygiene campaigns, the local journalists started writing on the IRRC and AHKMT used all the available tools of mobilization.

It was the first time in solid waste management history that a town committee or local government took the charge of door-to-door collection of solid waste. A training schedule for the sanitary staffers was designed and AHKMT team provided them training. In the beginning the process of collection of garbage from 1000 households was initiated.

Syed Muneer Shah is custodian of local shrine and has a will to do something for betterment of his people. Syed Muneer Shah's son who is studying in United Kingdom has shown quite likening to the work undertaken by his father and Dr Akhtar Hameed Khan Memorial Trust.

Dr Akhtar Hameed Khan's students have formed a network of organization called Community Development Network (CDN). The meetings of the network are held thrice a year. In one such meeting some students from District Nawabshah were in attendance. One of them was Ijaz Khaprio who lived near Sakrand and when the talk of initiating the work in Sakrand arose, he willingly agreed to join the project. He was made in-charge of Solid Waste Management Centre, Sakrand Town. He hired services of a youth and that's how the project was initiated.

The work was initiated in a ward and its councilor, Allah Yar, who was also elected for the first time and was eager to do something for his community. His company led AHKMT to meet other councilors like Faiz Khanzada, Sher Ali and Haibat Khan. AHKMT evaluated the existing solid waste management system of the town. It was found that the garbage collected by sanitary workers lacked green waste. After consultation with local councilors and Mazda driver, it was decided that the garbage collection containers should be placed in Fruit and Vegetable Market and the vendors should be persuaded to dispose of their waste in these containers. Later the containers were shifted to the centre on daily basis which had 5-7 tons of waste that helped in preparation of organic compost.

The recyclable scrap which mostly comprised discarded shoes and clothes were sold through a youth, Rashid. He had talked to a brick kiln which agreed to purchase this waste. Meanwhile, it was learnt that the sanitary workers were not mopping the streets of the town efficiently.

AHKMT team discussed the matter with Syed Muneer Shah, and it was agreed that the town committee will monthly pay Rs100,000 to e-guard, a subsidiary organization of AHKMT which will be responsible for cleaning of five wards of the town. However, after three months, an audit team objected over the agreement that the town committee cannot pay two separate people for same work. It brought the work to a grinding halt. But next year, Syed Muneer Shah divided the cleanliness work into two

parts. Two separate contracts, including one for cleaning the streets and the other for door-door collection of garbage and solid waste management were awarded to separate contractors.

e-guard participated in the bidding process and got the solid waste management contract. e-guard acquired eight loader pickups from JS Bank on installments and in each ward of Sakrand Town, a separate vehicle was assigned the task to pick the waste and transfer it to the centre. Meanwhile, the garbage was transported to the IRRC through Mazda and tractor trolley. However, the split of the contract and some technical issues did not yield good results. Therefore, next year the complete cleanliness contract of Sakrand Town was awarded to e-guard and since July, 01 2019 till June30, 2020, e-guard with the help of 8 Suzuki pickups, one Chingchi Rickshaw, one Mazda and two tractor trolleys has been collecting solid waste from 15 wards of the town. The town committee chairman installed a weighing machine right next to the gate of the IRRC which helped AHKMT in maintaining the daily record of the solid waste brought at the IRRC and the waste used in preparing compost. It also helped in assessing the work carried out the

sanitary workers in each and every ward and they were questioned on daily basis as whey they failed to perform better than their colleagues.

Meanwhile, Syed Muneer Shah also paid surprise visits to the wards to monitor the performance of the sanitary staff, therefore e-guard always kept the workers on their heels by adopting a better evaluation and monitoring process, which led to improved performance of the staff and better sanitary situation of the town.

AHKMT also devised week-wise cleanliness drives of major roads of the town including Nawabshah Road, Mehrab Road and Qazi Ahmad Road. A day was allocated every week and on that particular day, the road was cleaned for around two hours. AHKMT and e-guard also devised a proper schedule for cleaning drains of the city, however the organization faced difficulties in achieving the task due to unprecedented amount of rainfall in Sindh that year.

All the ward councilors and social workers in every ward were mobilized by the AHKMT to evaluate the overall performance of the organization.
Dr Akhtar Hameed Khan Memorial Trust created a system of daily door-to-door collection of solid waste so that the culture of throwing garbage at corners of streets and roads could be discouraged and to create awareness among people about cleanliness and how they can question the performance of the organization responsible for cleanliness in their area.

The e-guard provided the services to the entire town of 10,000 households. 128 strong staff has been deputed for the solid waste collection in the town since July 2019, which continued till June 2020.
A fleet of 9 vehicles were put into use to run the operation efficiently in the 15 wards of the town which collect around 30 tons solid waste from the town including 10 tons organic waste. The organic waste was converted to compost and for whole year 300 tons compost was produced from 3650 tons organic waste at the Sakrand IRRC. This compost was later distributed among the farmers of the Sakrand Town whereas the selected councilors of the town committee were also awarded the compost.

Meanwhile three institutes Agricultural Training Institute, Wheat Research Institute and Cotton Research Institute were gifted the compost so that they can conduct research on it.

The IRRC has already been successfully completed in 2018. After completion of the infrastructure, the operational procedure has been taken over by AHKMT and e-guard.

In order to facilitate the sanitary workers and provide them peace of mind, work on building a 100 rooms shelter on a five kanal piece of land is in progress in collaboration with SALVIEP and Sakrand Town Committee.

The Municipal Committee, Sakrand Town, also bestowed an award upon AHKMT and e-guard, acknowledging the services the two organisations provided in the city.
AHKMT and e-guard although not physically handling the operations of the IRRC of waste management issues any more in Sakrand Town, but both organisations remain proud of setting up a legacy in the town which continues till date, as the new contractor has continued with the same team and the set up to run the operations. However, irony of the matter remains instead of utilising the services of the vehicular fleet of Suzuki pick-ups owned by e-guard, the contractor hired services of Qincgchi Rickshaw, but the modus operandi of the door-to-door collection remains the same devised and implemented by AHKMT that is quite heartening for the e-guard and AHKMT.

Playing a role in fight against coronavirus

Dr Akhtar Hameed Khan Memorial Trust in collaboration with civil society organisations and public sector reached out to thousands of people in marginalized communities in NA-62 and shared live-saving COVID-19 prevention tips raising awareness among them as part of a larger effort to drive social change about coronavirus.

As part of the drive masks and sanitizers were distributed among the residents of these union councils on different occasions. They were also apprised of the impact of polythene bags on the environment and how its substitute can help address the environmental issues.

With the support of Ministry of Climate Change members of civil society and local non-governmental organisations including National Cleaning and Production Centre, Aman Foundation, Dr Akhtar Hameed Khan Memorial Trust, Rawalpindi Waste Management Company, National Clinic Centre and UN-Habitat carried out the activities in 27 union councils of NA-62, Rawalpindi. Dr Akhtar Hameed Khan Memorial Trust Chief Executive Officer Sumaira Gul, National Cleaning and Production Centre Director Irshad Ramay, Rawalpindi Waste Management Company officials Israr Bangash, Mohammad Afzal Qureshi, and representatives of the 25 UCs including Chaudhry Asad Pervaiz, Chaudhry Zaheer Sultan were present on the occasion.

The speakers at the ceremonies stressed the need of following standard operating procedures (SOPs) devised by federal government against spread of coronavirus

besides extending helping hands to assist others in this regard.

Addressing masks and sanitizers distribution ceremony, they were of the view that following SOPs is best interest of everybody because it is not a matter of an individual because a single person can infect his entire family with COVID-19, if the SOPs are violated.

Speaking on the occasion, National Cleaning and Production Centre Director Irshad Ramay said that it is our moral obligation to not only protect ourselves from the virus but also play a role in safeguarding others from this virus too.

Irshad Ramay said that the campaign was launched in a couple of union councils of Rawalpindi to create awareness among people as how they could keep themselves safe from coronavirus, but later it was expanded to other UCs of Rawalpindi as well.

He praised the efforts of Dr Akhtar Hameed Khan Memorial Trust, Aman Foundation, Rawalpindi Waste Management Company, National Clinic Centre and UN-Habitat for creating awareness among masses against coronavirus. He said mosques and streets of these localities will be cleaned and disinfected on daily basis. He said that after the successful conduct of the campaign in these union councils, the campaign will be further executed in other parts of the country in patronage of Ministry of Climate Change.

Eulogizing the role of Irshad Ramay in this campaign, Sumaira Gul, CEO Dr Akhtar Hameed Khan Memorial Trust said: "I am happy that Dr Ramay and NCPC are playing an active and supporting role in fighting coronavirus. War against corona could not be won alone and everybody has to play his part win this war through our joint efforts. The campaign for creating awareness among masses in UCs of NA-62 is laudable, and we hope NCPC will continue such efforts in future as well."

She stressed the need of following World Health Organization's advice regarding washing hands, not touching face, and maintaining a safe distance. "It is advisable to wear a protective mask in public if you suspect you are infected or someone you are caring for is, in which case the advice is to stay home whenever possible," AHKMT CEO maintained.

Creating awareness among the participants, Sumaira Gul said: "There are four reasons for the universal use of masks. First, any infected person will not infect others because the droplets of fluids that we let out during conversations, coughing or sneezing will be blocked by the mask. Remember, most infectious people don't have symptoms, or have mild symptoms, and are unaware that they are infected. Second, uninfected people will have some protection from droplet infection during interactions with others. For those who wear eyeglasses, there is additional protection from droplets falling on the conjunctiva. When both parties wear masks, the probability of transmission is virtually zero. Third, the mask-wearers will avoid inserting their fingertips into their nostrils or mouths. Viruses deposited on surfaces may be carried by hand if we touch such surfaces; if we do not touch our eyes, nostrils or mouth, this mode of

transmission is prevented. Fourth, everyone will be reminded all the time that these are abnormal days." "As WHO has shared public directives and we have to follow those precautionary measures to stop virus transmission and disease spread. Ministry of Climate Change in collaboration with AHKMT, UN-Habitat, Aman Foundation, Rawalpindi Waste Management Company and National Clinic Centre has taken this initiative to create awareness among the common masses by sharing information and highlight the tips and advice to reduce the risk of coronavirus and also provide them sanitizers and masks," she added.

Speaking on the occasion other speakers stressed that cloth bags are better than plastic bags for many

reasons, but two of the biggest reasons include that they are reusable, decreasing the need to use more materials for single-use production, and cloth bags reduce plastic use and therefore plastic pollution.

They stressed the need of focusing on creating awareness against the excessive usage of plastic bags or shoppers as they cause long term environmental damage. They stressed the need of promoting the use of cloth bags as a more environment friendly alternative.

They said that single-use plastic bags have many disadvantages. They are: dangerous for all life forms whether human, animal or plant; toxic if burnt and release fumes that cause diseases such as cancer; detrimental to fertility of agricultural soil; often found blocking gutters and drains; a traffic hazard as empty bags sometimes fly out of nowhere onto vehicles, obstructing visibility. They said that the rampant use of plastic bags has turned world into a huge garbage dump! They said that it us up to the residents can curtail this plastic bag menace by shunning its use and adopting cloth bags.

On World Environment Day, Dr Akhtar Hameed Khan Memorial Trust also organised a ceremony to distribute sanitizers and cloth bags among the residents of UC-4.

The speakers at the ceremony stressed the need of addressing the negative impacts of climate change to avert the threats faced by mankind in shape of coronavirus and other epidemics and tackle them more easily.

They called for more eco-friendly alternatives to plastics and the promotion of reusable products like cloth bags instead of polythene shopping bags. They said that excessive use of shopping bags is resulting in spread of more and more diseases therefore there is a dire need of creating awareness among people to shun its usage and instead adopt the healthy practice of utilising cloth bags for shopping.

Irshad Ramay said that life span of polythene shopping bag is thousands of years. “Plastic bags don’t biodegrade, they photodegrade - breaking down into smaller and smaller toxic bits. A plastic bag can take between 400 to 1,000 years to break down in the environment. As it breaks down, plastic particles contaminate soil and waterways and enter the food web when animals accidentally ingest them.

As it does, sunlight and heat cause the plastic to release powerful greenhouse gases, leading to an alarming feedback loop. As our climate changes, the planet gets hotter, the plastic breaks down into more methane and ethylene, increasing the rate of climate change, and so perpetuating the cycle.” He said the more and more use of polythene or plastic shopping bags is causing spread of serious ailments.

MOCC WASH Sector Coordination

Dr Akhtar Hameed Khan Memorial Trust (AHKMT) has regular contacts with WASH sector of Ministry of Climate Change and the team of AHKMT regularly participated in every monthly meeting before the pandemic of COVID-19 outbreak around the country like rest of the world. Since the outbreak of COVID-19, the meetings were shifted to virtual platform of Zoom online. During the period of coronavirus, UN-habitat started a pilot project with the help of some other organizations from the platform of Ministry of Climate Change. In this project, AHKMT worked on the topic of solid waste.

AHKMT successfully completed the 2 months' pilot project in UC-4-5, and its final report was shared with Clean Green Pakistan Movement Advisor to PM on Climate Change Malik Amin Aslam in a meeting held at the Ministry of Climate Change in the end of August, 2020.

After hearing about the achievements and completed targets of the project, Mr Amin Aslam announced to implement it on national level and extend its targets, at least to urban populations living in slums so that around 50 to 60 % population of these slums should reap its benefits.

Mr Amin Aslam also emphasized the need of completely including the component of solid waste in this project. He instructed the Director General Ministry of Climate Change that in the nominated cities selected in CGPM (KPK 7 and 12 Punjab), the Integrated Resource Recovery Centre (IRRC) should be replicated at least in one UC of every city. For that purpose, a letter was written to the secretary of local government directed to write letters to the DCO's of every city to implement this initiative as soon as possible.

Malik Amin Aslam also advised UC Hazro, Attock and Hassanabdal of District Attock regarding this project to immediately install IRRC on pilot scale in their respective areas. He instructed AHKMT to contact DCO and visit the office in person and brief them about the initiative.

Meanwhile, on October 1st 2020, a team of DR Akhtar Hameed Khan Memorial Trust

held a meeting with Assistant Commissioner Hazro District Ms Shugufta Jabeen for replication of IRRC in Tehsil Hazro, District Attock. The AHKMT team deliberated upon the idea and benefits of replication of IRRC as how it could benefit the local community.

Two spots for establishment of IRRCs in city area falling under Tehsil Municipal Adminitration Hazro while another nominated by CBO Anmol Welfare Society were finalized, however the land nominated by CBO had many owners and it was decided that it would be checked before further initiation of the process. Both sides decided that after land finalization Layout plans and PC-1 would be developed for both spots and will send to the Ministry and DC office.

AHKMT team suggested to conduct waste characterization study before designing the Plant it would effect on design and capacity. It was finalized that resources would be required for the study. AHKMT advised to engage the Peer Mehar Ali Shah Agricultural university Hazro camps students for study help. A letter would be written to the university administration from AC office for their assistance in the project.

It was also decided during last meeting with the assistance commissioner that MOI will immediate visit of AHKMT Islamabad model for rainwater harvesting model for its replication in AC office and MC office. He visited and successfully replicated the model at MC office AHKMT's team visited site and appreciated his efforts. The MC team also visited the IRRC Modal Mardan they shared the details with the assistant commissioner.

AHKMT team visited the MC recommended land after meeting and passed the land for IRRC replication. They give suggestions to MOI how they can design the plant. The meeting was attended by Azeem Khan, Naib Tehsil Officer, S. Sadaf Abbas, MO Infrastructure, Aftab Khan, CO MC, Babar Shehzad, Patwari, M Umair Khan, B IMC, Wasim Khan, Anmol Welfare Society, Shehzad Sabir, Hamid Ullah e-guard, CE and Sumaira Gul, CEO, AHKMT. Meanwhile on August 31, 2020 Ministry of Climate Change has directed provincial government to take a look into the Integrated Resource Recovery Centre (IRRC) established by WSSCM at Mardan, Khyber Pakhtunkhwa and forward it to 19 selected districts of Punjab and Khyber Pakhtunkhwa (12 in Punjab and 07 in Khyber Pakhtunkhwa).

Sanitation and Water for All holds virtual conference amid COVID-19

A virtual steering committee consultation of Sanitation and Water for All (SWA) and discussion on strengthening SWA framework across the regions of South Asia and Pacific was held on June 23-24, 2020.

The virtual conference was attended by Steering Committee Members including Patrick Moriarty, Steering Committee Chair, Catarina de Albuquerque, SWA CEO, André PatindéNonguierma, Burkina Faso, Anna Virginia Machado, LabGea, Diana Carlos, Portugal, DjoouroBocoom, Mali, Do ManhCuong, Viet Nam, Erma Uytewaal, IRC, FousseniPalenfo, Burkina Faso, Guy Hutton, UNICEF, Hugo Ramón Ruiz Fleitas, Paraguay, James Wicken, WSSCC, Kelly Ann Naylor, UNICEF, Kepha Ombacho, Kenya, Khalid Massa, Tanzania, Lisa Schechtman, USAID, Lotte Feuerstein, WIN, Makhosini Khoza, Eswatini, Maria Bethania Tellechea López, Paraguay, Mohammed Zobair Hasan, DORP, Nathalie Seguin, FAN Mex, Neil Dhot, Aquafed, Nicholas Igwe, Zenith Water Projects, Pie Djivo, Benin, Pim Van Der Male, The Netherlands, Rabab Hassan Abbas, Egypt, RamakantaDuwadi, Nepal, Sareen Malik, ANEW, Sue Coates, WSSCC, Sumaira Gul, AHKMT and Yamileth Astorga Espeleta, Costa Rica.

The SWA approved the proposed Results

Framework, and requested the Secretariat, with the support of the Programme and Strategy Sub-committee, to test it among a small group of countries. The updated document with feedback and recommendations from the piloting, should be presented ahead of the December 2020 Steering Committee meeting.

The Steering Committee decided to dissolve the Strategy Work Group and Results Framework Task Team. The work related to the completion of the Strategy will be overseen by the Programme and Strategy Sub-committee.

The Steering Committee agreed to adopt the High-Level Political Dialogue (HLPDWG) recommendation of exploring Option #3 of having three regional FMMs as presented in document #4.1 in combination with Option #2 which is linking the FMM with another sector (namely health) whenever possible.

The SC asked the HLPDWG to proceed with planning the FMM according to this format together with the Secretariat, and to report back on progress in the virtual SC meeting of September 2020.
The Steering Committee (SC) approved the updated budget and work plan for June-December 2020.

It applauded the Secretariat for the additional and ground-breaking COVID-19 related work in the last months and noted with some concern the increased workload of the Secretariat. It therefore strongly encouraged the Secretariat to further prioritize, reduce or postpone activities in the work plan as it sees fit, where feasible in consultation with the EOC.

The SC also asked the Secretariat to include the Work Group Budgets in future budget reports.
The Steering Committee approved the suggested recommendations on accepting new partners under the ESA, Private Sector and R&L constituencies according to what was presented in the note on New Partner Applications #7.1 and asked the Secretariat to take the necessary steps to welcome them to the partnership and add them as partners to the website.

The SC asked the Secretariat to circulate the decision on CSO partner applications for further deliberation electronically with a deadline for a no objection vote to follow.

The Steering Committee decided that the next SC meeting shall take place on September 23, 2020 in a virtual format.

The Steering Committee agreed that the GFSC shall examine the current constituency structure and work under the leadership of its c0-chair to prepare and submit a proposal at the September SC meeting for the possible creation a new constituency which would include utilities, public and private plus regulators. This proposal would include a plan to enable the creation of such a constituency by December.

Earlier on December 15, 2019, a meeting of Sanitation and Water for All (SWA) was held at Hanoi, Vietnam.

The meeting was attended by Patrick Moriarty, Steering Committee Chair, Catarina de Albuquerque, SWA CEO, Criselle Alejandro, Aqua Fed, Djoouro Bocoom, Mali, Fousséni Palenfo, Burkina Faso, Guy Hutton, UNICEF, James Wicken, WSSCC, Felister Lyimo, Tanzania, Lotte Feuerstein, WIN, Makhosini Khoza, Eswatini, Maria Bethania Tellechea López, Paraguay, Mohammed Zobair Hasan, DORP, Nathalie Seguin, FAN Mex, Nguyen Thi Lien Huong, Viet Nam, Nicholas Igwe, Zenith Water Projects, Paul Deverill, DFID (for Norway), Pie Djivo, Benin, Rabab Hassan Abbas, Egypt, Ramakanta Duwadi, Nepal, Sareen Malik, ANEW, Sumaira Gul, AHKMT and Yamileth Astorga Espeleta, Costa Rica.

Patrick Moriarty, Steering Committee Chair welcomed the Steering Committee (SC) to Hanoi, thanked the Vietnamese government for hosting and gave an overview of the agenda. CTA asked to add three additional points to the AOB session, and the Steering Committee agreed to extend the length of the meeting to accommodate these. The Steering Committee unanimously approved the revised agenda and the minutes from the March virtual meeting.

Patrick Moriarty then guided the group through the list of pending decisions from previous SC meetings, and, since the leaders of the Sub-committees were not in the room at that moment, he asked them to send a written update on decision 9b) ("The Steering Committee asked the Chairs of both Sub-committees to agree on a list of leaders to be invited to the SWA Global Leadership Council.") to the group by end-year.

Future of Asian and Pacific cities in wake of coronavirus pandemic

UNESCAP organized a Virtual Expert Group Meeting on the topic 'Response and Recovery: Asia-Pacific Cities on the Front Lines of COVID-19' in Bangkok, Thailand on October 05, 2020. The primary objective of this meeting was to identify and discuss sustainable approaches to support Asia-Pacific cities to build back better from COVID-19. The meeting featured a diverse set of speakers and participants from member States, cities, stakeholders, development partners and experts including CEO Dr Akhtar Hameed Khan Memorial Trust Sumaira Gul.

The interactive discussion provided inputs to the development of a new ESCAP discussion paper "The Future of Asian and Pacific Cities in the post-COVID19 era" which was presented at the meeting. The discussion paper builds on the four thematic priorities and fifteen development pathways from ESCAP's flagship report "The Future of Asian and Pacific Cities Report 2019" which was launched at the seventh session of the Asia-Pacific Urban Forum.

During the deliberations it was discussed that the impact of COVID-19 on cities in Asia and the Pacific is unprecedented. The nature of cities, including spatial density and informal nature of economic activities, uneven access to affordable housing and basic services for the urban poor, unplanned urban growth, and

mixed progress on the implementation of the SDGs at the local level have exposed unique pandemic-related challenges which will affect the future of sustainable urbanization in the region. It is expected that some of the socioeconomic gains achieved in recent decades across the region may be swept away, but the magnitude of the losses, and the full impact on urban areas is yet to be determined.

Densely populated cities in Asia and the Pacific, high mobility of people and large informal settlements, turn cities into hotspots for outbreaks. Today, more than 2.3 billion people live in cities in Asia and the Pacific, comprising 54 percent of urban population in the world. A third of urban dwellers live in slums (29 per cent)1 and vulnerable groups and households lack access to basic services, safe water and sanitation. COVID-19 threatens to widen the inequality gap and entrench people in poverty, particularly in cities.

The pandemic raises key questions on how the future form and function of Asian and Pacific cities will be impacted in a “new normal” post-COVID-19 era. What are lessons learned after the COVID-19 outbreak and response regarding cities’ need to strengthen health in all policies? How should Asia-Pacific local governments structure their recovery plans to build back better? How can the built environment be designed to be resilient to future shocks and stresses? What disruption in urban areas may have permanence and how would changes across urban systems and governance mechanisms better address service delivery and livelihoods, particularly during pandemics?

The policy recommendations from this meeting will also inform member States’ deliberations during ESCAP’s sixth Session of the Committee on Environment and Development which will be held from 9 to 10 December 2020 and contribute to the regional commemoration of World Habitat Day.

Solid Waste study in Galiyat

In order to understand the waste generation in the area besides its characterization, waste collection system and to prepare recommendations for waste management through replication of Integrated Resource Recovery Center in Galyat, Dr Akhtar Hameed Khan Memorial Trust (AHKMT) and e-guard team conducted a study from September 18-24, 2020 and focused on Nathia Gali,
After meeting with DG Galyat Development Authority, the AHKMT and e-guard team visited Galyat for two days (September 12-13) to select the study area.
After meeting with DG Galyat Development Authority, the AHKMT and e-guard team visited Galyat for two days (September 12-13) to select the study area.
Galyat Development Authority provided AHKMT and e-guard team services of 12 sanitary workers for waste collection and its segregation. They were provided training as how to segregate the waste. The AHKMT and e-guard team selected 100 HH of Khanispur (Ayubia) and a hotel of 100 rooms for solid waste study. The main focus of the study was to evaluate the waste generation in Nathia Gali, which is the busy station of the Galyat during peak tourist season. GDA has divided the area in two zones. Around 72 people are working in these areas. The team assessed the weight of solid

waste on 20th September 2020 and it was found that the sanitary staff collected around 7.4 tons waste/day. They disposed of the waste in Abbottabad for which they had to travel for around 5 hours covering an overall distance of 100 KM. The report is here under:

Sr.	Circle No.	Weight (Kg)	KM
01.	1	3,205	80
02.	2	4,180	100
	Total	**7,385**	

The GDA installed the container bins in different areas of the Galyat besides providing plastic bins to hotels and restaurants. Accordingly their staff collected the waste on daily basis.

Households Study

Later a study of households was conducted for which 100 households were selected in Khanispur (Ayubia). It was also found that mostly houses of the area are seasonal houses. The people live there to spend vocations. In off season the watch man and their families live there. The team provided bio degradable garbage bags to 68 households for 7 days. The team distributed the bags in 68 HH because most of the homes were vacant. The team collected the solid waste daily in the morning and segregated it, weighed it and noted down its quantity.

Date	Day	Collected bags	Organic Waste	Recyclable and other waste	Weight (Kg)
18-Sep-2020	Friday	57	48.00	35	83.00
19-Sep-2020	Saturday	49	60.20	30	90.20
20-Sep-2020	Sunday	53	48.50	34.55	83.05
21-Sep-2020	Monday	49	38.90	37.85	76.75
22-Sep-2020	Tuesday	45	38.40	28.75	67.15
23-Sep-2020	Wednesday	37	30.80	20.55	51.35
24-Sep-2020	Thursday	36	30.95	15.25	46.20
Total		**326**	**295.75**	**201.95**	**497.7**

During the study it was found that 60% of the waste generated was organic while 30% was found to be recyclable and 10% of it comprised pampers. The team observed that 419 people lived in 68 HH with the average of 6 people per HH. The waste generation of per HH was found to 1.00 kg/day.

Hotels Study

There are 200+ hotels in Galyat in which 10 are big hotels which are quite hospitable for the visitors and welcome the visitors round the clock. The team selected Elites for solid waste study. There are two parts of wastes, rooms waste and kitchen wastes. Kitchen waste was basically the organic waste generated twice a day and the rooms waste generated only once in a day. The team weighed both the wastes on daily basis. Normally hotels are approached by the families and in off season these hotels are visited by the corporates. The corporate sector does not generate the waste in much quantity as compared to the families. Hotels have buffet system or have the complementary food; the quantity of waste is much higher. Our target hotel produced lots of food waste. These hotels are approached mostly on weekends.

Date	Day	Rooms	Persons	Rooms Waste	Kitchen waste	Total
18-Sep-2020	Friday	93	170	21.10	177.50	198.60
19-Sep-2020	Saturday	95	250	30.30	377.85	408.15
20-Sep-2020	Sunday	80	250	32.95	347.45	380.40
21-Sep-2020	Monday	88	185	29.95	328.00	357.95
22-Sep-2020	Tuesday	33	240	13.55	185.00	198.55
23-Sep-2020	Wednesday	45	100	21.55	114.90	136.45
24-Sep-2020	Thursday	40	70	7.75	117.90	125.65
Total		**474**	**1265**	**157.15**	**1648.6**	**1805.75**

It was found that one hotel (100 rooms) is producing food waste 258 kg/day. One person producing 1.42 kg waste per/day. One room producing waste 3.81 kg/day. One hotel is producing 91% of organic waste and 9% of inorganic waste. It was observed that mostly small hotels have their backside over the deep valley side. Mostly guest throw the waste in these valleys special diapers of their children.
Other Hotels

The study team also visited two more hotels, one, a small hotel of 22 rooms and other a restaurant. The restaurant only sells chicken roast and shared that they produce around 300 kg of waste /day. Most of their waste comprises bones of the chickens. The small hotel also pointed to the study team that they produce around 15-20 kg of waste/day when the rooms are fully occupied. The guests are served as per their orders. The guests fully utilize their food and do not waste it.

Scavenger Study

In Galyat most the scavengers come from Abbottabad to collect the waste around the road and container waste bins installed by GDA. In the peak season they work day and night. They collect the waste by using motorcycles as well as manually on foot. In Nathia Gali around 20 boys collect the waste. The scrappers buy the waste from them and carry it to Abbottabad through a Suzuki loader. One Suzuki can carry 800 kg recyclable material in a day. There were 5 vehicles carrying 4 ton waste on daily basis. The following things were sold out by the scavengers:

Sr.	Recyclable	Rate/kg
01.	Plastic, tin, samica	30
02.	Card board and paper	14

The team assessed that 50% of the above mentioned materials were collected from the waste. Hence, 2 ton production of the card board and 2 ton production of the plastic, tin and samica, can generate around an income of around Rs90,000/ day.

They were told that they could be allotted a specific container from which they can easily segregate the waste. It is easy way to recycle all the waste.

Study of Geyser

Mostly hotels use the water geyser for their guests. They have the proper system to heat the water. The team assessed water geysers of 2 hotels. It was found that they use the wood for heating 40 kg /day 5+ rooms hotel. They were apprised that instead of wood they can use rejected waste for heating. They agreed to the proposal and requested for a proper design of the project. AHKMT and e-guard team involved Dr. Rashid from Peshawar University to design the special geyser for hotels.

Wild Animals

The study team observed the wild animal, especially monkeys. Mostly tourists offer them food but they search food in waste bins as well. Some people leave the dry bread and other food item outside the bin. However, the wild animals do not utilize their food in full. Crows and other birds usually are on the look for food around dust bins but they can be provided organic food by processing food waste.

Water Observation

Mostly hotels and other people use fresh water for the toilets. The rainwater accumulated on roofs of the hotels can be utilized for toilets because rainwater can be harvested as due to climate most of the year the area experiences heavy rainfall as well as snow.

Recommendations

1. **Galiyat Snitary workers and hotel staff and jeep owners should be imparted training**
2. **Start door-to-door and hotel-to-hotel waste collection system**
3. **Containers and scavengers should have the licence for segregation and they should be allowed to take the recyclables for revenue generation**
4. **Rejected waste specially diapers could be used as fuel for water geysers**
5. **The collection of waste must be increased and it should be more than 7 tons/Day**
6. **To develop a small model to be used for rainwater harvesting for toilets**
7. **To prepare organic food for wild animals and birds which could be sold to tourists**
8. **To establish waste processing units (Integrated Resource Recovery Centre) for solid waste management and recycling process**

Islamic University course designing

The government has established several incubation centers to provide livelihood opportunities to youth. At such incubation centers a startup is provided to the youth. Eng. Mohammad Ahsen Mirza and Eng. Usama Bin Mansoor from one such incubation center at the International Islamic University,

Islamabad in collaboration with e-guard has taken up the initiative and launched a startup for solid waste management Training and Franchise. All such youth who are interested in making a career out of solid waste management will be properly trained in the practices of the solid waste management and will be offered a franchise to not only serve their community, by disposing of the solid waste in their area and city but also earn their livelihood in a respectable manner.

In this regard a coursework after certification from ILO will be implemented in the university. The coursework will be launched very soon and after completion of the training and coursework the successful candidates will be awarded a franchise.

Kitchen garden-
A case study of Mr. Fahad in Chaklala Scheme III

Mr Fahad has planted vegetables at his lawn in Chaklala Scheme III, while relating as how he started the chore, he said once he visited market to buy vegetables and found an almost ripe bitter gourd which gave him and idea he took the ripe bitter gourd with him to his home took out the ripe seeds from it and planted them in his lawn and soon after, the bitter gourd plant grew out very well, which gave him an idea of growing vegetables in his lawn.

Last year, he said he bought a packet of Haryali compost and put it in little quantity in every plant and got great and amazing results. He said his crop of vegetables was very good and has been yielding good crop of tomatoes, cucumber, strawberry, loquat, ginger, lady fingers, bitter gourd, green chilies and figs from his kitchen garden.

Since last year particularly in the backdrop of outbreak of corona virus, he said he has not bought vegetables and fruits from market. He also pointed out that instead of growing his crop in new pots, he uses waste vegetable and fruit baskets for growing his crop at his kitchen garden. He also pointed out that he along with his father take care of their kitchen garden for one hour early in the morning.

Keeping in view the good results of the Haryali Compost, he once against visited Dr Akhtar Hameed Khan Memorial Trust to purchase it. He also promised to make pictures of his vegetables and share it with Dr Akhtar Hameed Khan Memorial Trust.

The News International, Islamabad/Rawalpindi, Thursday, November 21, 2019 CITY NEWS 15

'Time for Pakistan to treat waste management as opportunity'

Humayun Aziz Sandeela
Rawalpindi

RAWALPINDI: Arif Hasan, Sumaira Gul, Hamidullah, Almas Saleem and others at the inauguration ceremony of Dr Akhtar Hameed Khan Memorial Trust

Rawalpindi : The speakers at the inaugural ceremony of Dr Akhtar Hameed Khan Memorial Trust Office here on Wednesday were of the view that waste management has always been looked as an issue from the lens of crisis which instead should be deemed as an opportunity. They said waste provides lots of openings to stakeholders who should realise that if it is treated as a business model around the world, then the time has come when it should be treated like an opportunity in Pakistan too instead of a crisis.

Arif Hasan founder of Urban Resource Centre, an urban planner and architect was the chief guest, while others in attendance included Dr Akhtar Hameed Khan Memorial Trust, Chief Executive Officer, Sumaira Gul, Board Members, Almas Saleem and Hamidullah, Sumaira Izhar, Shah Noor ul Islam, MPCHS representative Khalid Khan, Ilyas Khan, Chairman Soan Garden, Raja Taimoor Khan, Anas Khan, Shumaila Jabeen, Kamran Haider Engineer Noor-ul-Hassan and representatives from different organisations of WASH sector.

In her welcome speech, Sumaira Gul, shed light on journey and achievements of Dr Akhtar Hameed Khan Memorial Trust. She eulogised the role played by Dr Akhtar Hameed Khan, Dr Arif Hasan, Fayaz Baqir, Almas Shakoor in the journey and success of Dr. Akhtar Hameed Khan Memorial Trust. "Dr Akhtar Hameed Khan Memorial Trust has established Integrated Resource Recovery Centre (IRRC) setups in Islamabad, Sindh and Khyber Pakhtunkhwa. The three centres established in Sakrand, Sindh, Islamabad and Mardan have proved fruitful," she said adding the Trust has also inked an accord with Sindh Agriculture University, Tandojam in collaboration with Town Committee Sakrand for utilising waste produced by banana trees and cotton after they have borne fruit and cotton lint.

She said that all of this was possible due to efforts and guidance of Dr Arif Hasan and Fayaz Baqir. She was of the view that the IRRCs and waste management will be unstoppable as housing societies and even government has started to realise its potential and are keenly taking interest in it. "The IRRCs, could be easily run through the funds of local bodies governments as is the case with Sakrand Town, in Sindh," she added.

Almas Shakoor shed light on the annual report and spoke about its different aspects. She lauded the efforts Dr Akhtar Hameed Khan Memorial Trust team members for achieving success after going through tough times.

Hamidullah and Noor-ul-Hassan in a presentation highlighted different aspects of the office building and how they were endeavouring to make it eco-friendly through rain-harvesting and solar heating system.

In his remarks, chief guest, Arif Hasan, said the success of Dr Akhtar Hameed Khan Memorial Trust team is because of their hard work. "We have been attached since 1996 and there are many aspects of our life that can be touched upon right now. The most important thing in my view is that you were able to understand the psyche of the society, the donor agencies and to some extent the government," he said adding that the success journey is also because of your books, you and your husband, Hamidullah have written as your analytical thinking has led you to understand the problems faced by the society.

He said lots of people worked with him but only and handful reached the pinnacle of success. "In future, I am confident the programme you have launched will be followed by many. In my opinion if the society will not adopt the change it will crash and in the end I would also applaud those who adopted your programme," he added.

Later, Arif Hasan cut the ribbon to inaugurate the office of Dr Akhtar Hameed Khan Memorial Trust in Westridge III.

Media Coverage

INTERNATIONAL
THE NEWS ON SUNDAY
June 7, 2020
Islamabad/Rawalpindi Edition
8 Sections
46 pages

Following COVID-19 SOPs in letter and spirit stressed

RAWALPINDI: Dr Akhtar Hameed Khan Memorial Trust Chief Executive Officer Sumaira Gul, National Cleaning and Production Centre Director Irshad Ramay, Chaudhry Asad Pervaiz, Chaudhry Zaheer Sultan and others at the masks and sanitisers distribution ceremony.

Humayun Aziz Sandeela

Rawalpindi

The speakers at a ceremony stressed the need of following standard operating procedures (SOPs) devised by federal government against spread of coronavirus besides extending helping hands to assist others in this regard.

Addressing masks and sanitisers distribution ceremony, they were of the view that following SOPs is best interest of everybody because it is not a matter of an individual because a single person can infect his entire family with COVID-19, if the SOPs are violated.

The sanitisers and masks were distributed in collaboration with National Cleaning and Production Centre in 25 UCs of NA-62 Rawalpindi at a ceremony organised by Dr Akhtar Hameed Khan Memorial Trust.

Dr Akhtar Hameed Khan Memorial Trust Chief Executive Officer Sumaira Gul, National Cleaning and Production Centre Director Irshad Ramay, Chaudhry Asad Pervaiz, Chaudhry Zaheer Sultan and others representatives of 25 UCs were present on the occasion.

Speaking on the occasion, National Cleaning and Production Centre Director Irshad Ramay said that it is our moral obligation to not only protect ourselves from the virus but also play a role in safeguarding others from this virus too.

Eulogising the role of Irshad Ramay in this campaign, Sumaira Gul, CEO Dr Akhtar Hameed Khan Memorial Trust said: "I am happy that Dr Ramay and NCPC are playing an active and supporting role in fighting coronavirus. War against corona could not be won alone and everybody has to play his part win this war though our

'Addressing negative impacts of climate change can help tackle pandemics'

Humayun Aziz Sandeela

Rawalpindi

RAWALPINDI: Dr Akhtar Hameed Khan Memorial Trust CEO Sumaira Gul, National Cleaning and Production Centre Director Irshad Ramay and others hand sanitisers and cloth bags distribution ceremony in Union Council-4.

The speakers at a ceremony stressed the need of addressing the negative impacts of climate change to avert the threats faced by mankind in shape of coronavirus and other epidemics and tackle them more easily.

They called for more eco-friendly alternatives to plastics and the promotion of reusable products like cloth bags instead of polythene shopping bags. They said that excessive use of shopping bags is resulting in spread of more and more diseases therefore there is a dire need of creating awareness among people to shun its usage and instead adopt the healthy practice of utilising cloth bags for shopping.

These views were expressed by Dr Akhtar Hameed Khan Memorial Trust Chief Executive Officer Sumaira Gul, while addressing a sanitiser and cloth bags distribution ceremony in collaboration with National Cleaning and Production Centre (NCPC) at UC 4 in connection with World Environment Day.

She also highlighted that the adverse impacts of plastic bags are undeniable. "When they're not piling up in landfills, they're blocking storm drains, littering streets, getting stuck in trees, and contaminating oceans, where fish, seabirds, and other marine animals eat them or get tangled up in them," said Sumaira Gul.

Rawalpindi Waste Management Company officials Israr Bangash, Mohammad Afzal Qureshi, National Cleaning and Production Centre Director Irshad Ramay, representative from PACIFIC attended the ceremony.

Speaking on the occasion, National Cleaning and Production Centre Director Irshad Ramay said that life span of polythene shopping bag is thousands of years. "Plastic bags don't biodegrade, they photodegrade - breaking down into smaller and smaller toxic bits. A plastic bag can take between 400 to 1,000 years to break down in the environment. As it breaks down, plastic particles contaminate soil and waterways and enter the food web when animals accidentally ingest them. As it does, sunlight and heat cause the plastic to release powerful greenhouse gases, leading to an alarming feedback loop. As our climate changes, the planet gets hotter, the plastic breaks down into more methane and ethylene, increasing the rate of climate change, and so perpetuating the cycle." He said the more and more use of polythene or plastic shopping bags is causing spread of serious ailments.

Speaking on the occasion other speakers stressed that cloth bags are better than plastic bags for many reasons, but two of the biggest reasons include that they are reusable, decreasing the need to use more materials for single-use production, and cloth bags reduce plastic use and therefore plastic pollution.

They stressed the need of focusing on creating awareness against the excessive usage of plastic bags or shoppers as they cause long term environmental damage. They stressed the need of promoting the use of cloth bags as a more environment friendly alternative.

They said that single-use plastic bags have many disadvantages. They are: dangerous for all life forms whether human, animal or plant; toxic if burnt and release fumes that cause diseases such as cancer; detrimental to fertility of agricultural soil; often found blocking gutters and drains; a traffic hazard as empty bags sometimes fly out of nowhere onto vehicles, obstructing visibility. They said that the rampant use of plastic bags has turned world into a huge garbage dump! They said that it us up to the residents can curtail this plastic bag menace by shunning its use and adopting cloth bags.

The News on Sunday, Islamabad/Rawalpindi June 7, 2020 CITY NEWS 19

RAWALPINDI: Dr Akhtar Hameed Khan Memorial Trust Chief Executive Officer Sumaira Gul, National Cleaning and Production Centre Director Irshad Ramay, Chaudhry Asad Pervaiz, Chaudhry Zaheer Sultan and others at the masks and sanitisers distribution ceremony.

Coronavirus awareness drive in union councils 4, 5

Masks, sanitisers distributed among residents; localities being cleaned, disinfected on daily basis

Humayun Aziz Sandeela

Rawalpindi

RAWALPINDI: National Cleaning and Production Centre Director Irshad Ramay and Dr Akhtar Hameed Khan Memorial Trust CEO Sumaira Gul distributing sanitisers and masks as part of the awareness campaign launched by Ministry of Climate Change at UC 4 and 5.

With the support of Ministry of Climate Change members of civil society and local non-governmental organisations reached out around 50,000 residents of union councils 4 and 5 and shared live-saving COVID-19 prevention tips raising awareness among them as part of a larger effort to drive social change about coronavirus.

The drive was launched in collaboration with Aman Foundation, Dr Akhtar Hameed Khan Memorial Trust, Rawalpindi Waste Management Company, National Clinic Centre and UN-Habitat. As part of the drive masks and sanitisers were distributed among the residents of these union councils.

The residents were apprised that there were more than 45,000 confirmed cases in Pakistan and the coronavirus was spreading fast in the major cities of the country. They were told that Pakistan has a widespread outbreak of COVID-19 and they all have to limit their movement and avoid gatherings to prevent spreading this further.

They were also apprised about the importance of hygiene and healthy habits to avoid spread of coronavirus including frequent hand washing with soap for at least twenty second, or use of sanitisers in absence of water and soap, use of masks and gloves and maintaining safe social distancing.

Speaking on the occasion, National Cleaning and Production Centre Director Irshad Ramay said that the campaign was launched in a couple of union councils of Rawalpindi to create awareness among people so how they could keep themselves safe from coronavirus. He praised the efforts of Aman Foundation, Dr Akhtar Hameed Khan Memorial Trust, Rawalpindi Waste Management Company, National Clinic Centre and UN-Habitat in creating awareness among masses over coronavirus. He said mosques and streets of these localities will be cleaned and disinfected on daily basis. He said that after the successful conduct of the campaign in these union councils, the campaign will be further executed in other parts of the country in patronage of Ministry of Climate Change.

Speaking on the occasion, Dr Akhtar Hameed Khan Memorial Trust Chief Executive Officer Sumaira Gul said that they were committed to enable communities to cope with this pandemic.

"As WHO has short-span life directives and we have to follow these precautionary measures to stop virus transmission and disease spread. Ministry of Climate Change in collaboration with AHKMT, UN-Habitat, Aman Foundation, Rawalpindi Waste Management Company and National Clinic Centre has taken this initiative to create awareness among the common masses by sharing information and highlight the tips and advice to reduce the risk of coronavirus and also provide them sanitisers and masks.

Integrated Resource Recovery Center-IRRC B-17 MPCHS, Islamabad

DR. AKHTAR HAMEED KHAN MEMORIAL TRUST
CB-110 St # 04 Valley, Westridge III Rawalpindi, Ph: 051-5466444, 0333-5153501
E-mail: ahkmt2000@gmail.com, www.ahkmt.org