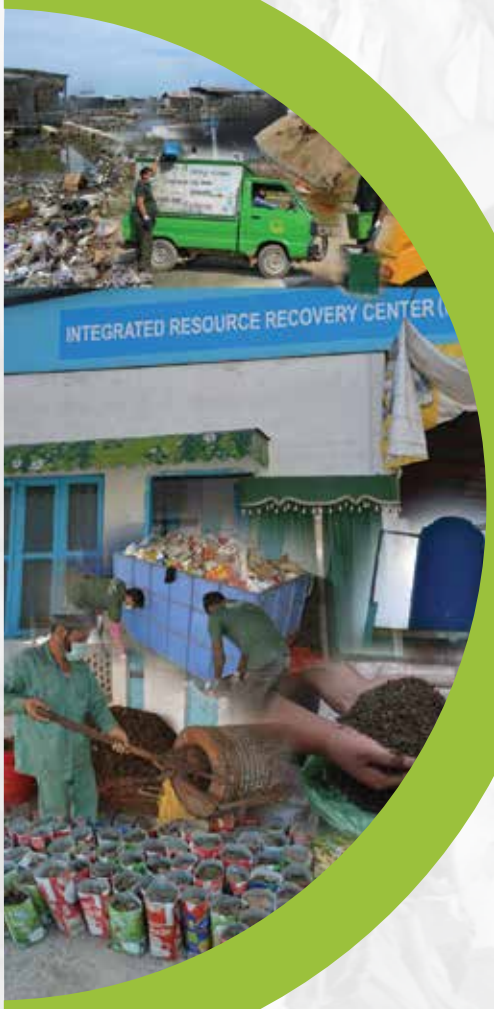
ANNUAL REPORT

October, 2015
September, 2016

# Step towards zero waste


DR. AKHTAR HAMEED KHAN MEMORIAL TRUST RAWALPINDI

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# Step towards zero waste

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# Executive Summary

The First Annual Progress Report shares the achievements and future planning of Integrated Resource Recovery Center (IRRC) as account from September, 2015 to August, 2016. This report marks the first anniversary of IRRC and illustrates the purpose of its establishment, functions, covers the annual progress and gives an overview of its future sustainability. With the increasing environmental degradation, climate change is effecting the globe without knowing any boundaries.

As in most of the developing countries, there is no proper waste management mechanism, Pakistan also presents the bleak picture of environment issues where solid waste is used as landfill or dumped in the open dumping sites which in turn degrades the environment and becomes a breeding ground for chronic diseases. It is for the first time ever that an IRRC has been established in Pakistan. It is 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.

One of the distinctive features of IRRC is that it uses simple mechanical technology. Although, more than 4 tons of waste is processes at IRRC daily – the facility remains clean and does not pollutes the environment with any foul smell or waste material.

Established by Dr. Akhtar Hameed Khan Memorial Trust (AHKMT) in collaboration with UN-Habitat, UN-ESCAPE and Waste Concern the IRRC functions as a vacuum cleaner of the society and in turn provides a cleaner environment to the residents of the society and turns thrash into cash by converting organic waste into compost. During one year IRRC has made substantial progress in waste processing, selling of compost and capacity building of multiple stakeholders from government, private and development sector.

The IRRC envisions further progression of the model across the country with additional components contributing towards sustainability, revenue generation and prevention of environmental degradation. This is entrepreneurial model that has dual impact, on one side it an income generation activity while on the other side it helps to reduce the waste finally contributing improving the environment.

# Introduction

The rapid urbanization and industrialization is increasing solid waste generation at an unprecedented level. This surge of waste indicates an increasing environmental, social and economic burden for the society. In many parts of the world, waste collection and management is limited to just a few areas and communities and disposal by open dumping is still widespread. Like in most of the developing countries, solid waste management is a critical problem in Pakistan because of rapid population growth.

As in most of the developing countries, there is no proper waste management mechanism in place in Pakistan due to which solid waste is used as landfill or dumped in the open dumping sites which in turn degrades the environment and becomes a breeding ground for chronic diseases. Due to absence of waste management planning, the government purchases land for dumping waste and municipalities bear a high cost for waste collection and transportation to the dumpsites. It is for the first time ever that an Integrated Resource Recovery Centre (IRRC) has been established to test the feasibility of the model in Pakistan.

# Integrated Resource Recovery Centre

The Integrated Resource Recovery Centre is 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. Dr. Akhtar Hameed Khan Memorial Trust (AHKMT) operating the first Integrated Resource Recovery Centre in Pakistan, at Jammu and Kashmir Cooperative Housing Society in G-15 sector, Islamabad.

It was established by UN-ESCAPE in collaboration with UN-Habitat, Waste Concern, the Dr. Akhtar Hameed Khan Memorial Trust and the Jammu and Kashmir Cooperative Housing Society on August 2015 with a mission to reduce the waste mismanagement impact on environment in Pakistan and contribute in achieving the United Nations Sustainable Development Goals for clean, healthy and pollution free environment for our future generations in Pakistan.

The mismanagement of waste causes serious problem in many cities of Pakistan and the total generated waste is unlikely to be collected efficiently and only a fraction of it is properly disposed-off, polluting water sources, land, air and the environment. The IRRC is a simple and cost effective model of solid waste management. It only occupies 800 sq. meters of land and daily processes more than 4 tons of solid waste material collected from about 1500 houses of sector G-15. The solid waste material is collected, segregated and processed by using modest technology for processing. It recovers valuable resources by converting organic waste into compost, which is later sold in the market as an end product and used as fertilizer.

One of the envisaged objectives of the IRRC is to achieve financial sustainability so that the revenues produced from waste recovery can outweigh the operational costs incurred. In order to improve the financial robustness of an IRRC, it should be possible to leverage carbon financing, considering the greenhouse gas emission reduction potential from treating the organic component of waste.

Until recently, the Clean Development Mechanism (CDM) has been the vehicle of choice for tapping into carbon financing for these projects. However, the recent sharp decline of carbon emission reduction prices prompted UN-ESCAP and UN-Habitat to look into alternative climate financing avenues. Among those, Nationally Appropriate Mitigation Actions (NAMAs) have been found to hold the greatest promise.

UN-ESCAP and UN-Habitat has been conceptualizing a NAMA-approach derived from the IRRC model and consultations are in process with the stakeholders under the leadership of Climate Change Division of Pakistan. Having as a starting point some of the core principles of this model, the NAMA program would hinge in the promotion of 3R principles, the avoidance of end-of-pipe solutions, and the biological treatment of the organic fraction of waste. Such program would be backed-up by international support in terms of finance, technology and capacity building.

# Approach and Design

The IRRC is modelled on the principles of "3R's" i.e. reduce, reuse and recycle of waste management. A three step waste management mechanism is used at the IRRC – collection of segregated waste, processing and sale of resources generated. The main focus of IRRC is on the organic waste, which typically comes from kitchens and restaurants. Inorganic waste –mainly, paper, packaging materials made of plastic, glass, tin, aluminium, etc. are also collected and stored at IRRC for subsequent sale in the thrash market.

One of the distinctive features of IRRC is that it uses simple mechanical technology. Although, more than 4 tons of waste is processes at IRRC daily – the facility remains clean and does not pollutes the environment with any foul smell or waste material. Local organizations can quickly become familiar with this technology and adapt it to the local context. Using technology that requires little energy keeps operation costs low and equipment breakdowns are minimal. Besides, simpler technology is also more labour intensive, thus creating more job opportunities for the poor.

The Integrated Resource Recovery Centre is a tested model which is designed to be run as businesses with minimum cost to ensure profitability. IRRC can be initiated and operated by municipalities, private-sector enterprises and civil society organizations, or combination of all the three through different partnership models.

# Functions at IRRC

The following functions are undertaken to reduce the solid waste at IRRC, it involves some steps to convert the solid waste into compost and make useable the remaining:

**WASTE COLLECTION**

For waste collection, e-guard–firm is providing door to door waste collection and processing service. IRRC has three waste collecting Lorries and its trained staff called the e-guards which collect, segregate and process the waste material. The residents are provided with two colours of waste bins in which organic and other waste is placed at household level. Currently the IRRC staff collects waste from 1500 homes daily, which is brought to the centre.

**SEGREGATION & PROCESSING MECHANISM**

After the collection, waste is then segregated at the IRRC facility. The waste is primarily segregated into three different categories, organic waste / bio waste or green waste, recyclable waste and other waste. More than 60% of waste collected is organic waste which is processed later processed for composting.

The organic waste is piled in perforated boxes which are specifically designed for composting. These boxes let more oxygen into the compost and allow more excess water to drain. The land needed for this method of composting is less than that needed for other compost technologies.

The high percentage of organic waste in Islamabad is an opportunity for composting. Chemical fertilizer is expensive in Pakistan, which makes composting a cost effective and environment friendly option for sustainable solid waste management. There are 12 composting boxes/ pits at IRRC Islamabad.

The waste is segregated into three categories i.e. recyclable thrash – which is comprised of 25% or total waste, organic waste including vegetable and fruit peels comprising 60% and unusable waste material like stone and dirt is comprised of 15% of the total waste collected by IRRC.

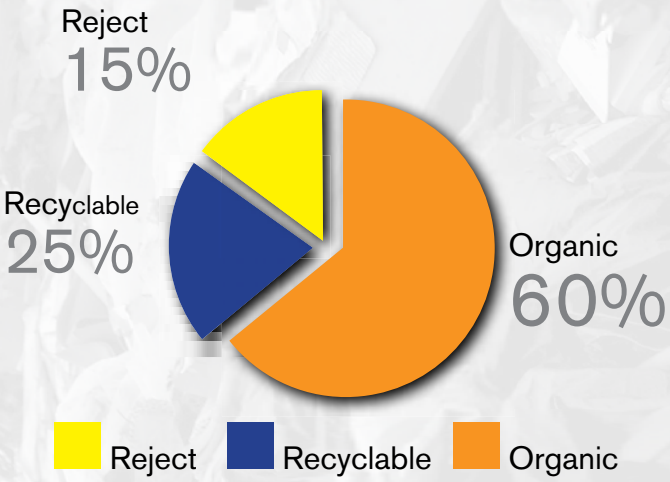
The segregated organic waste is first weighed in the weighing machine and then dumped into the composting box for processing.

## COMPOSTING

The organic waste is kept for 45-50 days in composting box. During this process, the temperature of waste in composting box is carefully observed and readings are noted daily. When the temperature of the processed organic waste starts reducing, it is then transfer into the maturing box, where the waste is kept for about 15 days. To improve the quality of compost, sawdust and chicken waste is also used in the composting process.

After completion of all this process, the dry compost is finally grinded and stained through a manual strainer drum and fine compost is separated which is then packaged and sold into the nurseries. IRRC produces 100 kilograms average of fine quality compost from one ton of organic waste. Through this process, IRRC processes the waste and produces compost as a final product. This quality of compost is tested and checked by National Agricultural Research Centre (NARC), Islamabad and Arid Agriculture University Rawalpindi.

### Waste Composition




## LEACHATE MANAGEMENT SYSTEM

A significant amount of waste water is generated during composting and the cleaning of the facility which is known as “leachate”. Instead of discharging the leachate into drains, it is collected in a small covered storage tank below ground level. The leachate is reused for new organic waste piles to maintain the moisture balance and to enhance the decomposition process. Leachate is also used for making biogas. The Arid Agriculture University is also conducting research on IRRC leachate.

# Supplementary Activities at IRRC

The following activities are supplementary that are being experienced and undertaken here and are not integral part of IRRC model, while these activities support to make the process of compost quick and help in revenue generation as well.

## POULTRY FARMING

Chicken is a quick producer of natural compost. At IRRC, chicken are fed with bread and rice which is segregated from household waste. Chicken waste is used to improve the quality of compost. In an eight hour cycle, a substantial amount of chicken waste is produced which is utilized in composting process.

## RAINWATER HARVESTING

With the help of pipelines, rainwater is stored at IRRC for usage. Instead of discharging the waste water into drains, it is collected in a covered storage tank below ground level. This stored water is used to maintain moisture balance in compost boxes and enhance the decomposition process by mixing waste water with fresh water from pipes or rainwater tanks. It is also used to water the plants at IRRC. Storing and utilizing rainwater saves ground water resources.

## PLANTS NURSERY

A large amount of tetra packs are utilized at IRRC for growing saplings. These packs are segregated from the solid waste, cut into two pieces and are filled with clay and compost. The various plants are grown in these packs which are later distributed to the houses when they turn into saplings.

# Sustainability

The Integrated Resource Recovery Centre is a pioneer model of solid waste management in Pakistan. It has proved to be a self-sustainable entrepreneurial model with a tendency of sustainable development and growth. By establishing an IRRC model at local level, the community waste is managed in a proper manner, income is generated, jobs are created and environment is protected.


The IRRC generates revenue primarily from three sources; collection of fee from the society households for provision of waste collection service, sale of the recyclable material which is segregated daily from the collected waste material and from the sale of compost. The supplementary features like the poultry farming at IRRC, production of biogas, development of a nursery are a step towards its sustainability. IRRC is also adopting a park in Islamabad in which also generates funds by provision of recreational facilities to the public.

With the expertise of waste management, IRRC provides on payment service to municipal administrations, local governments and community for setting up the resource recovery centre and technical expertise to run the centre. The complete package includes centre establishment, waste collection service and staff training.

The Arid Agriculture University Rawalpindi (AAUR) and IRRC will sign a Memorandum of Understanding to start a six months diploma course on landscaping and gardening. The diploma course will be taught at the AAUR and its practical application will be done at IRRC. The students undertaking the diploma course will be offered internship at IRRC.

**Land Resources Research Institute**
**National Agricultural Research Center**
**Islamabad**

June 30, 2016

**Chemical analysis report of Haryali Khad**

| Sample identification | N | P | K | C:N | 1:5 | |
|---|---|---|---|---|---|---|
| | % | | | | pH | EC ($dSm^{-1}$) |
| Eguard | 2.46 | 0.23 | 2.14 | 12:1 | 8.16 | 6.71 |

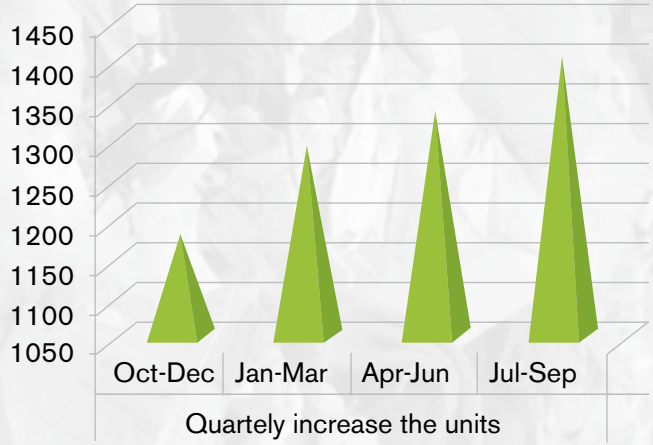
# Revenue Generation

The IRRC generates revenue primarily from three sources; collection of fee from the society households for provision of waste collection service, sale of the recyclable material which is segregated daily from the collected waste material and from the sale of compost. AHKMT also generates funds from its three days training programme for government officials, local government officials and community organizations.

## IRRC Progress in Numbers

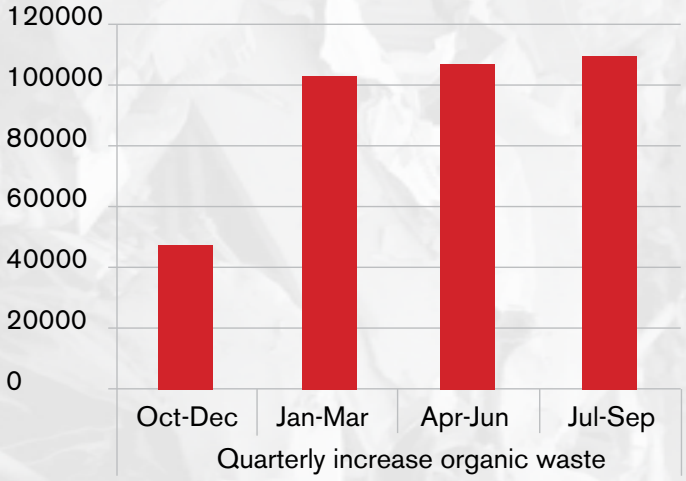
**Number of units served from establishment of IRRC till to date**

The graph shows an increase from 1150 units to 1400 units in one year time frame.



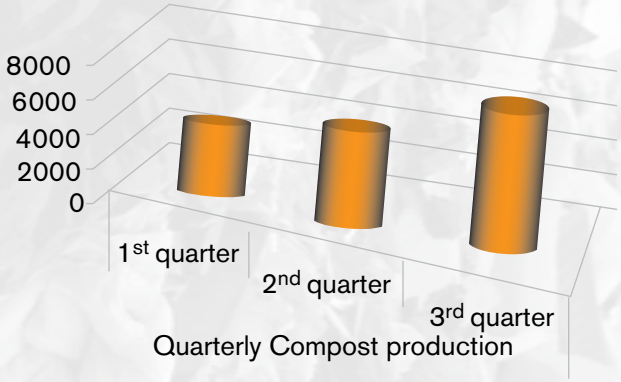

**Quarter Wise Organic Waste Collection**

Quarter wise Organic waste collected and processed by IRRC in kilograms over the period of one year instead of waste collection




**Quarter wise Compost Production**

The Graph shows Quarter wise Compost produced by IRRC in kilograms over the period of nine months



# IRRC as Training Centre

IRRC manages trainings of various groups which consider waste as a resource or plans to initiate it as business or adopting the model at the government level. The trainings are aimed to understand the problem of solid waste, clear the concept of waste management, recycling and reducing, to understand waste as business, to take the steps for environment improvement and to develop understanding on Integrated Waste Management approach.

These trainings could be attended by, district administration, local bodies' representatives – chairman or councillors, representative of community based organizations and NGOs, private and government employees, researchers and students or any other person who considers waste as resource and wants to initiates it as business.

AHKMT has organized trainings with funding support of German Embassy Islamabad. The objective of these trainings was to train the maximum participants from various cities for replication of Integrated Resource Recovery Centre through integrated waste management approaches. AHKMT coordinated with district administration, municipality, elected representatives; community based organizations, academia and community and extended invitation for attending these trainings.

Training module and material was developed for conducting these trainings. A video documentary was also developed. The training material was developed by the field experts.

The training included participants from various parts of the country including,Timergara,Charsada,Mardan, Swat,Muzaffergarh, Fatehjung, Chakwal, Layya, Rajanpur, Gujranwala, Mianwali, Kallar Sayyedan, Abbottabad, Haripur, Lahore, Karachi, Muzaffarabad, Mansehra and Gilgit. The boarding and lodging of training participants was managed by AHKMT.

In five trainings 127 participants were trained. More training are also planned to be conducted in the coming months. During the training session, experts of solid waste management, relevant line department officials, and partners from the development sector and professionals from various universities shared their technical expertise and experiences with training participants.

After the trainings follow up meetings were organized in Timergara, Fatehjung, Mansehra, Sawat and Mardan. With close coordination of AHKMT the trained participants are organizing activities like awareness walks, commemoration of world environment day and cleanliness campaigns in their respective areas.

# IRRC Training held

Sponsored by German Embassy Islamabad
IRRC achievement as training center

**1st Training 05-07 April 2016 (**District Timergara)
Participants list

| Tehsil | Name | Department | Designation |
|---|---|---|---|
| Timergara | Latif-ur-Rehman | TMA | MPL, Inspector |
| Timergara | Abdullah | Org | Chairman |
| Timergara | Nisar Ahmad | Education | Voice principal |
| Timergara | Abid Mehmood | Production | Assistant Manager |
| Balambat | Amin-ul-haq | Soil & Water Conversion | Inspector |
| Balambat | Jamal-ud-din | Administration | Assiatant comissioner |
| Timergara | Shahab Ahmad | Naib Nazim | Timergara |
| Timergara | Attaullah | Local Government | TMO |
| Rawalpindi | Atta-ur-Rehamn Qureshi | Farz | Chairman |
| Sohawa | Muhammad Ikram | Program | Program Manager |

Certificate Distribution

Briefing in IRRC

IRRC Visit

Group Work

**2nd training 14-16 April 2016**
Swat Mardan Charsada
Participant List

| Tehsil | Name | Department | Designation |
|---|---|---|---|
| Charsada | Mehboob Ali | | |
| Charsada | Saeed ullah | DC office Finance | Office Assistant |
| Charsada | Altaf Ahmad | TMA | Tehsil Naib Nazim |
| Charsada | Mohammad Bilal | Organization | Social Organizer |
| Charsada | Gul Sher | TMA | Junior clerk |
| Charsada | Afsar Ali | | |
| Charsada | Lubna Shah | UYWO | Social Organizer |
| Charsada | Sartaj Khan | United Youth Welfare Organization | President |
| Mardan | Fazli Rabi | Chamber of Commarce | S.V president |
| Mardan | Fazal Akbar | TMA Mardan | Office supritendant |
| Mardan | Nasrullah | Mardan | |
| Mardan | Mehboob Ali | LGD | Nazim |
| Mardan | Muhammad Ayub khan | TMA Mardan | Tehsil Nazim |
| Mardan | Muhammad Fayyaz | Local Government | Chief officer |
| Takhat Bhai | M. Ishaq | Abdul Wali Khan University | Lecturer |
| Mardan | Mir Ali Shah | Participatory Development Initiative | Executive Director |
| Mardan | Mohammad Riaz | Fazl Haq College | Principal |
| Babuzai | Mian Qaiser Khan | LG | Tehsil Officer |
| Babuzai | Kamran Khan | TMA | Sanitary Inspector |
| Mingora | Fayyaz ullah | Hujra Organization | Project Manager |
| Sawat | Ahmad Nasir | NGO | Project Coordinator |
| Babuzai | Mohammad Ismail | Islampur Cottage Industary Association | Program Manager |
| Bahrain | Syed Jamal Shah | CARVAN NGO | Logistic Officer |
| Barikot | Fazal wadood | TMA | Nazim |
| Matta | Zakir ullah | TMA | Chief Sanitary Inspector |


Session


Briefing in IRRC


Compost gifted to participant


Closing session

**3rd Training 17-19 May 2016 (South Punjab)**
Participants list

| Tehsil | Name | Department | Designation |
|---|---|---|---|
| Muzaffergarh | Malik Rafi ullah | TMA | Sanitary Inspector |
| Muzaffergarh | Muqaddas Aabroo | Women Social Organization | Executive Director |
| Muzaffergarh | Irum Naz | Community | Social Mobilizer |
| Muzaffergarh | Hamida Naz | Councilor | Councilor |
| Talagang | Sajid Iqbal | M.C | Councillor |
| Talagang | Faayaz Ahmad Garra | CBO | President |
| Noshehra Virkan | Usman Farooqi | SDO | Program Manager |
| Noshehra Virkan | M.Sabir | Politics | |
| Mianwali | Malik Faisal Saeed | LG & CD | TO |
| Mianwali | Gul Sher Khan | UC Chairman | UC Chairman |
| Mianwali | Malik Asmat ullah | RWO President | |
| Kallar Sayyedan | Asim Saleem | UDO | CEO |
| Rajanpur | Mohammad Ejaz | Attia Welfare Society | President |
| Fateh jung | Malik Bashir Hayyat | Councillor | General Councillor |
| Fateh jung | Muhammad Safeer | General Councillor | |
| Fateh jung | Muhammad Younas | TMA | Tehsil Officer |
| Layyah | Ahmad Hassan | Union Council | Chairman |
| Layyah | M. Tufail Ahmad | Awami Development Organization | Executive Director |
| Layyah | Kashif Rafique | ADO | Project Manager |
| Layyah | Mian Zahid | IDSP | President |
| Layyah | Mian M ali | DBA Layyah | Advocate |
| Layyah | M. Tasleem Khan | Advocate | General Councillor |

Global Overview


Session by Mr. Arif Hasan

Plan of action preparation

Plan of action presentation

## 4th Training 24-26 May 2016 (Hazara & AJK)

Participants List

| Tehsil | Name | Department | Designation |
|---|---|---|---|
| Mansehra | Imtiaz Bibi | Village Member | Village Member |
| Mansehra | Muhammad Siddiq | TMA | Chief Sanitary inspector |
| Mansehra | Nayar Shahzad | Hayyat Development Organization | Director Program |
| Mansehra | Abdul Rashid | Social Welfare | DO |
| Oghi | Zanoon Ashraf | TMA | Tehsil Member |
| Muzafferabad | Syed Sajjad Kazmi | SDF | Director |
| Muzafferabad | Syeda Farhat Kazmi | SDF | Vocational Teacher |
| Muzafferabad | Syed Shakeel Gillani | Municipal Corporation | Secretrary |
| Haripur | Syed Saad Shah | SRSP | Admin Officer |
| Haripur | Saeeda Shah | LSO Tameer-e-Nu | Chairperson |
| Haripur | Zeeshan Zaman | SDV | Accountant/Field officer |
| Haripur | Munawer Khan | LSO Sawera | UC Panian |
| Haripur | Sajjad Khan | Member Tehsil Council | Member Tehsil Council |
| Abbotabad | Nasir Tashfeen | SRSP | Project Coordinator |
| Abbotabad | Habib-ur-Rehman | Deputy Commissioner office | PS to DC |
| Abbotabad | Khushal Khan | Lso Noor-e-Sehar | President |
| Abbotabad | M.Ismail | LSO Green Valley | Chairman |
| Lahore | Zahid Makhdoom | PURC | Coordinator |
| Karachi | Parvez Akhtar | Imkaan | Field Program Manager |

Legal Aspects by
Ms. Farzana Shah EPA

Compost demonestration

Case study presentation
Muzafferabad & Karachi

Importance of IRRC by
Touqeer Abbasi

## 5th Training 6-8 September 2016 (Gilgit)

51 Participants belong to following Districts

1. Gilgit 2.Ghizer 3.Skardu 4.Astor 5.Ganche 6.Shiger 7.Kharmang 8.Diamer 9.Hunza 10.Nagar

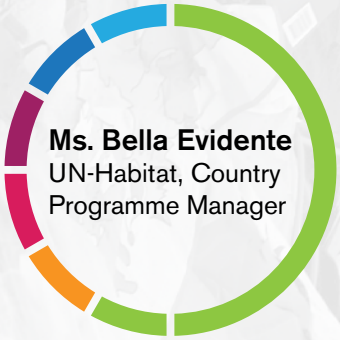
Acknowledgment shield from
Gilgit Minister

Gilgit study presentation

Participants of training

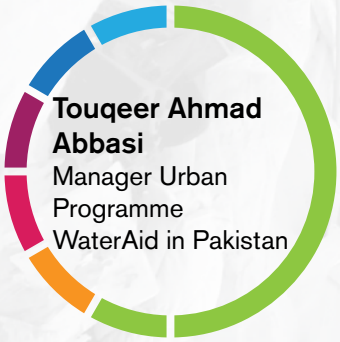
Closing session

# Organizational Comments



**Ms. Bella Evidente**
UN-Habitat, Country Programme Manager

Ms. Evidente opinioned that "The pilot IRRC at Sector G-15 showcases the collaborative efforts of the Government, UN-ESCAP and UN-Habitat, communities, civil society and academia. It has not only improved facilities for the collection, recycling, treatment and disposal of solid waste but has significantly contributed to the cost-effective, sustainable and climate-friendly management of solid waste and highlighted the potentials of turning waste into resources."

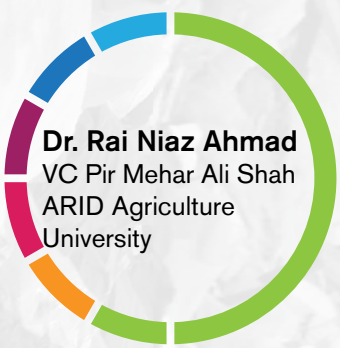


**Touqeer Ahmad Abbasi**
Manager Urban Programme
WaterAid in Pakistan

Current solid waste management systems in the municipalities and metropolitan cities of Pakistan are strained and landfill space is an issue, becoming a rare commodity. Local Governments / Municipalities face increasing costs of disposal that includes collection of municipal waste from allocated collection points and then taking it to dumping sites. Most of the dumping sites are non-scientific and are hazard to public health and the environment. To meet the challenge of growing amounts of waste, cities need efficient, low-cost solutions. Integrated Resource Recovery Centres (IRRCs) are a sort of sustainable solution of such hazards and solid waste management for the cities and medium to small towns. The model was originally started by Waste Concern and then supported by UN-ESCAP and UN-Habitat. In Pakistan it is being implemented by Akhter Hameed Khan Memorial Trust and this is a business model earning its own expenses from selling of inorganic recycles, waste collection charges from the private housing society and sale of the compost. The model can be demonstrated and presented to the municipalities for further replication as a business development model engaging public private and people partnership.

**Anis Danish**
Development Consultant

How to change, if change brings you opportunities for sustainable livelihood? It was my first expression to see the Integrated Resource Recovery Center - IRRC processing unit at Islamabad. It's a model of contemporary and scientific garbage disposal. IRRC is replicable model for small cities and Union Councils to dispose of garbage and help to clean our homes and streets. I really appreciate the efforts made by the managing team that clean the "garbage" by earning without any environmental hazard. We could say "save earth, it will protect you". IRRC manufacturing organic compost for plants and it can be used for agriculture instead of chemical fertilizer. Organic compost will promote healthy and sustainable development.



**Dr. Rai Niaz Ahmad**
VC Pir Mehar Ali Shah ARID Agriculture University

Appreciate the effort for converting issue to opportunity keep it up AAUR will keeping with this excellent effort.

# IRRC Visitors Remarks

15th Oct 2015

**Engr- Muhammad Munawar Qazafi Memon**
Hands- Pakistan
Karachi

I really feel enforce to see this level of construction it is really very useful for our communities to have healthy environment. Hope this trust will have their objective with honor.

17th Nov 2015

**Jamil Asgher Bhatti**
President SWAP. Solid Waste Management Association of Pakistan. Islamabad

It is a pleasure visiting IRRC. It is a unique model of waste recovery and management which can be easily replicate.

20th Nov 2015
Islamabad

**Col Khalid**
Senior General Manager,
Bahria Town Islamabad

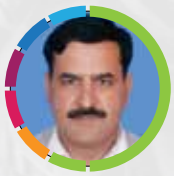
Good set- needs more improvement.

27th Nov 2015

**Dr. Asif Riaz**
CEO Nano Bio Solutions (Pvt) Ltd Islamabad.

Very good model of solid waste treatment for the urban small settlements.

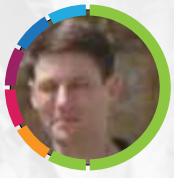
7th Jan 2016



**Raja Taimur Khan**
MPCHS Manager Engineering
Islamabad

A good step to protect the environment.

22nd Jan 2016



**Rowan Fraser**
ESCAP

Excellent beginning

22nd Jan 2016

**Joao Aleluia**
ESCAP Program Coordinator

Great and promising

4th Feb 2016

**Nicola Hoochhausen**
German Embassy
Development section

Great Approach thank you for showing me.

15th Feb 2016

**Neelam Sultan**
AC Fatejang

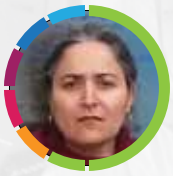
Your business and project revolutionary initiative

12th Feb 2016

**Edwin Samson**
Deputy Director ABES
Rawalpindi

This project is very impressive. It is a great effort to clean the environment at the same time making the waste productive.

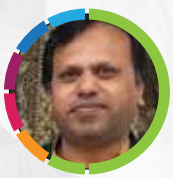
12th March 2016



**Almas Shakoor**
Shehersaaz

It is good and impressive project. It could be implement anywhere.

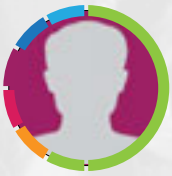
12th March 2016



**Abdul Shakoor Sindhu**

It is always pleasure and enlightening to meet Hamid Ullah and Sumaira and look at their work- Today after visiting IRRC my concoction and belief in dedication and commitment of AHKMT and e guards.

15th Mar 2016



**Marri Teresa Poley**
NBS Edmontow, Canada

Well done, congratulation in your effort.

21st March 2016

**Sehrish**
Nust IGIS Islamabad

Wonder effort; hope to see it plan at larger scale.

30th April 2016

**Ghulam Jillani**
Associate Professor, Social Science Arid Agriculture University Rawalpindi

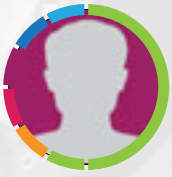
The composting system establish here is natural aerobic and working well. However, there are some issues like worms and leachate management, which could be addressed with some modifications and improvement in this system. I would like to provide technical guidance in future.

4th May 2016

**Dorcey**
Trucker, CA, PAKS BAB
Advisor Perm culture Advocate.
USA

Compost is a necessary activity for any sustainable ecosystem- Well done

4th May 2016



**Surkhab**
PAKS BAB CEO
AbboatAbad

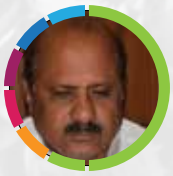
I am very impressive to your opinion you can market the compost tea growing areas.

17th May 2016

**Arif Hasan**
Orangi Pilot project
Karachi

Impressive- initiative the answer to a major problem that our cities face needs to be supported and promoted.

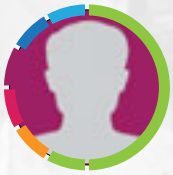
18th May 2016



**M. Ijaz**
Attia Welfare Society
Rajan Pur

I would like to provide technically guidance in future for solid waste this is very positively step as a business and welfare for society.

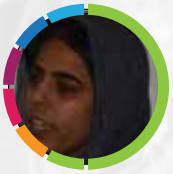
18th May 2016



**M. Tasleem Khan Advocate**
Councilor Municipal committee
Layyah

It is excellent work, and better for environment Khidmat bee Abadat bi IRRC is a Model- Very good Progress.

18th May 2016



**Muqadas Aabroo**
Executive
Muzafar Garh

It's a good and excellent initiative for Pakistan. Also will appreciate and I would like to develop and operate in Muzaffar Garh.

18th May 2016

**Fazal Noor**
Karachi

After 8x Months, the facility is functional and being use as a demo are for training and replication. Being in a developer built housing society. Holds create promise for replication in similar settlement.

31st May 2016

**Fiza Afzal**
Karachi

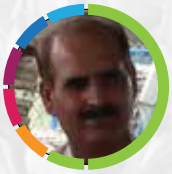
It was quite a useful facility, a very good initiative to improve the environment we look forward to see IRRC and it provider to prosper and setup/train many others for such a step.

31st May 2016

**Faraz Arif**

Impressive initiative which makes good business sense. This should be a prepare for all housing schemes across the country. Looking forward to seeing this grow and prosper. We hope to take this initiative onwards to Karachi.

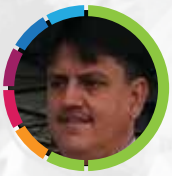
29th June 2016



**Lt Col (Retd) Wisal Muhammad**

It is indeed a great learning of visit a dynamics setup while is redressing the grave nature of problem of the society. We wish a success for them.

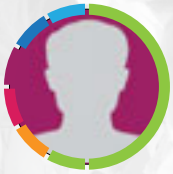
9th Aug 2016



**Ashraf J.W Mall**
Cr. Tear Fund
Islamabad

Really impressed by the work of IRRC, great to see how waste is being collected & recycled. The center is also providing job opportunities to people and at the same time providing a clean environment in the locality.

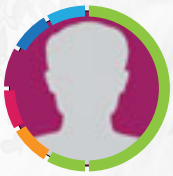
12th Aug 2016



**Numan Qabool**
Infrastructure Dev Coordinator

Start and looking forward for joined collaborating learning's. If Change the Status

29th Aug 2016



**Anis Danish**
Consultant

Very Impressive Work.

## Visitors name

Mr. Pervaiz
Col. Islam Ul Haque
Sajid Jafri
Sheeraz Ali Shah
Sardar Muhammad umreen
Qazi Imran
Muhammad Abdul Basit
Javed Ch
Sardar Ayaz
Nazeer Awan
Asif
Manzoor
Malik Sajid
Prof. Bukhattak
Malik Mehboob Hassan
Nasir Malik
Hina Hanif
Munsif Riaz
Ikram Yaqoob
Zulfiqar Ali Khan
Shakir Farooq
Muhammad Zeeshan
Abdul Ghafar Khan
M Ahmar Amin
Zubaira Maqbool
Iram Hassan
Arique Ahmad
Aneeqa Safdar
Saqlain Hameed
Syeda Khalique
Muhammad Irfan Afridi
Usman Shoukat
Fayyaz Garra
Usman Farooqi
Kashif Rafique
Malik Rafi Ullah
Naveed Hussain

# Public Awareness and IEC Material

Public awareness on issues pertaining to environmental degradation, pollution hazards, solid waste management and its solutions has been one of the core advocacy issues of AHKMT. To educate the masses on waste management related issues in Pakistan and to help in understating the functionally of IRRC – a documentary has been produced which highlights waste related issues in Pakistan and captures compete the complete cycle of how trash is converted into cash at IRRC. The documentary also highlights the supplementary activities being conducted at IRRC and sheds light on services being provided by e-guard.

Lectures of experts and resource persons are also recorded which are shared during the trainings. These lectures are used in the trainings and orientation of participants. The IEC material also included, bi-lingual brochures in English and Urdu languages which are used for community awareness. The training material includes brochures and manuals on business plan for solid waste, baseline format for solid waste and a step-by step guide on how to start a community-based waste collection service. The IEC material provide a comprehensive and useful introduction to the wide range of issues related to solid waste management and their solutions. The brochures and pamphlets published for advocacy also have introduction of AHKMT and description of IRRC methodology.





(Click the link to watch documentary: https://www.youtube.com/watch?v=fjzqoHLP-28)

# Showcasing the Model

The IRRC model and its application in Pakistan were showcased at several international events, including, for example the 2015 ISWA Congress in September 2015 in Belgium and the sixth Asia-Pacific Urban Forum (APUF-6) organized Indonesia by UNESCAP. Model was showcased to the audience in which the potential partners were apprised that the Islamabad IRRC was established in 2015 in a high-growth area called Sector G15, the development of which has been assigned by the Capital


Development Authority of Islamabad. There is no direct municipal or national government involvement.

In showcasing of the IRRC model, it was told that the municipal burden of solid waste management is offset through private sector participation. Clear contracts are required to ensure reliability. The model relies upon an entrepreneurial approach and is likely to generate employment and business within the community. The IRRC Islamabad model involves activity and contribution from all partners. Through UN-Habitat, ESCAP provided funds for the construction of the facility, and the Jammu and Kashmir Cooperative Housing Society provided the land on which the facility was built.

A local social enterprise, AHKMT operates the facility and undertakes community outreach education on waste separation. The Jammu and Kashmir Cooperative Housing Society pays the AHKMT a collection fee for every household served, which is levied to each household monthly as part of a common services fee. The AHKMT undertakes collection of recyclable and separated organic waste within the area and processes this waste in the facility. The society in return pays to IRRC a collection fee of PKR. 250 ($2.40) per house.

# Future Plans

The AHKMT envisions and fully realises the potential of expansion of IRRC model in partnerships and collaboration for scale. IRRC will adopt a park in Islamabad which will be modelled as an eco-friendly park. The park located in interior of population will have lawns, gardens and trees serving as a place of leisure and recreation for the citizens and swings for the children. The ecological park will aim to protect the ecosystem and also serve as recreation and allow to the public to enjoy clean and natural environment in an urban setting.

AHKMT would adopt a park in JKCHS G-15 Islamabad with collaboration Arid Agriculture University Rawalpindi and also involves the students into different courses on horticulture.

AHKMT envisions promoting "permaculture" in Pakistan for development of agricultural ecosystems intended to be sustainable and self-sufficient. Permaculture addresses the way we live on this planet in a graceful and healthy way, respecting the plants and natural eco system around us, and leaving the biosphere in a more productive and healthy state which will contribute in protection of environment and as well as production of organic vegetables.

AHKMT will build the capacity of households by providing technical assistance and compost to grow organic vegetables and imbed the concept of organic farming. A training course for women in collaboration with private institutions for plantation of organic vegetables will also be initiated. These women would be trained on kitchen gardening and beautification with plants.

The capacity building and training of municipal and government administration personnel on solid waste management will be one of the core components to be focused in future. These are all inclusive trainings focused to build the capacity of government to initiate IRRC's in the respective municipalities.

AHKMT will collaborate with private housing societies of Pakistan for provision of sustainable waste management solution and replication of IRRC model.

AHKMT also envisions training the potential entrepreneurs to invest in waste management sector by initiating their own social enterprises and earn profit from these ventures and at the same time contribute in environmental protection.

# Importance of IRRC for Pakistan


# Media Coverage/Articles

UN-HABITAT

Islamabad: UN-Habitat and UNESCAP have launched a pilot project for Solid Waste Management in the cities of Karachi, Rawalpindi, Islamabad and Mardan. The pilot project will be initiated through the establishment of Integrated Resource Recovery Centers (IRRC) in each respective city.

IRRC is a decentralized community-based recycling and composting facility which can be built and operated at low costs by using limited mechanical technology, ensuring low operational costs and with minimal equipment breakdowns, while creating job opportunities. The project aims to develop an efficient waste collection and transfer system that will be associated with the Resource Recovery Centre.

The Municipal Solid Waste Management constitutes a serious problem in many cities of Pakistan. Total generated waste is unlikely to be collected efficiently and only a fraction of it is properly disposed off, polluting water sources, land, air and the environment.

Officials from the Ministry of Climate Change, City District Government-Rawalpindi and Capital Development Authority-Islamabad are involved in the planning as well as implementation phase of the project.

The project is taking on a 'peoples approach business model', involving the community from the surrounding areas including a comprehensive mass awareness campaign on behavioral change.

## The one Pakistan

**UN-Habitat introduces an IRRC for solid waste management**

Posted about 4 years ago | Onepakistannews

ISLAMABAD : UN-Habitat and UNESCAP have launched a pilot project for Solid Waste Management in the cities of Karachi, Rawalpindi, Islamabad and Mardan aimed at developing an efficient waste collection and transfer system that will be associated with the Resource Recovery Centre.

According to a press release issued here on Friday, the pilot project will be initiated through the establishment of Integrated Resource Recovery Centers (IRRC).

The IRRC is a decentralized community-based recycling and composting facility, which can be built and operated at low costs by using limited mechanical technology, ensuring low operational costs and with minimal equipment breakdowns, while creating job opportunities.

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The project is taking on a peoples approach business model , involving the community from the surrounding areas including a comprehensive mass awareness campaign on behavioral change.


# The New Nation

Independent Daily

## Nation 18 september 2015

UN-Habitat, UN-ESCAP inaugurate first IRRCISLAMABAD (PR): On Thursday, the United Nations Human Settlements Programme (UN-Habitat) and United Nations Economic and Social Commission for Asia and the Pacific (UN-ESCAP), in close collaboration with the Ministry of Climate Change inaugurated Pakistan's first Integrated Resource Recovery Center (IRRC) in a ribbon cutting ceremony at the IRRC located in Sector G-15.The IRRC is a pilot project of UN-ESCAP and UN-Habitat which will enable the city to turn waste into resources through composting, recycling, and bio-digestion, while also creating employment opportunities.Senator Ms Marriyum Aurangzeb (Chairperson, National Parliamentary Taskforce on SDGs), attended the event as the chief guest and said, "It is a privilege to be here today at the launch of the IRRC in Islamabad. It is a great initiative towards making Pakistan a climate friendly country and we need to scale it up to undertake effective resource management in other cities of Pakistan as well."Yoshinobu Fukasawa (Director, Regional Office for Asia and the Pacific, UN-Habitat), Mr. Donovan Storey (Chief, Sustainable Urban Development Section, UN-ESCAP), and Ms. Bella Evidente (Country Programme Manager a.i., UN-Habitat Pakistan) spoke about the efficacy of the project.


**In Economic Survey of Pakistan 2014-15, Ministry of Finance shared the Contribution of Dr. Akhtar Hameed Khan Memorial Trust, the setting-up first decentralized waste recycling unit (IRRC), in G-15 Islamabad, Pakistan**

**Solid Waste Management through Integrated Resource Recovery Center (IRRC)**

UN-Habitat, in close collaboration with the United Nations Economic and Social Commission for Asia and the Pacific (UN-ESCAP) and the Ministry of Climate Change, is currently implementing a project on Pro-poor and sustainable solid waste management in secondary cities and small towns". The project contributes to this goal by setting up an Integrated Resource Recovery Center (IRRC) in Islamabad that will enable the city to turn waste into resources through composting, recycling and bio digestion, thereby diverting solid waste from landfills or open dump sites. In the medium term, it is envisaged to replicate this model to cities across the whole country. This project is being carried out through a multi-stakeholder approach, the participation of the Ministry of Climate change is instrumental in the successful implementation of this model, as well as in capitalizing from the climate benefit of setting-up decentralized solid waste management systems, through the IRRC.


# E-Guard

The Environmental Guard (e-guard) is a for profit business enterprise which provides solid waste collection and management services to the communities. E-guard provides door to door waste collection service. It is a community based solid waste management system which integrates all the stakeholders by adopting a waste to resource approach. E-guard is currently providing its services in Punjab, Khyber Pakhtunkhwa, Azad Jammu & Kashmir and in Gilgit. E-guard has develop an integrated system of solid waste management to ensure efficient primary collection, transportation, recovery, treatment and disposal of the waste generated in Pakistan. The e-guard team is comprised of personals withvarious areas of expertise to enhance the efficiency of the company. Young entrepreneurs could initiate e-guard service for profit generation and the e-guard model has the potential to be replicated in other parts of the country.

## Case Study of Hamid Gul

Hamed Gul is 42 year old who has been working as e-guard in Integrated Resource Recovery Center (IRRC) since last one year. He has been working as scavenger since last 20 years. He belongs to Peshawar and migrated here with seven children. He was working with his uncle who had been transporting green waste to Peshwar from Islamabad.

He is happy being engaged with IRRC as he states " Here I have medical facility other than monthly salary and it is good foe me. Here I have facility of washroom and drinking water that I had not in earlier job. Here at IRRC, I get Uniform, special shoes and other item in e-guard kit that are safety measures necessary for us while before joining IRRC these things were not available."

He is very concerned about the sale of fertilizer he produces at IRRC. He wishes it would be nice that if the households keep the garbage segregated in the waste boxes, it is a great support to me.



Integrated Resource Recovery Center

# 1st Annual Report

October, 2015- September, 2016

DR. AKHTAR HAMEED KHAN MEMORIAL TRUST RAWALPINDI


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