

تهران، شهر برای همه

Tehran, a city for everyone



Tehran Waste Management
Organization

تهران شهر برای همه
Tehran, a city for everyone



Indicative activities and projects of
Tehran Waste Management Organization
(TWMO)

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Separation at source

(Emphasizing the greater responsibility of producers)

Establish wet and dry waste storage tanks at source

Implementation of first phase pilot in:
Sadra Town in District 22, Municipal Staff
Town in District 21, Valfajr Town in District 6
and Dokhaniah Town in District 16 of Tehran

- Training and explanation of executive agents in the training center in TWMO (training of experts and trainers for recycling pilot areas to implement the activities)
- Estimation of the number of tanks required to implement the pilot project in the regions
- Coding and starting the distribution tanks by removing them from the streets and establish 24,782 recycling storage units for wet and dry waste storage in proper volumes adjusted to population and per capita production in 22 districts.

Establish 12450 recycling storage units in residential complexes and buildings of Tehran (about 5500 units are covered)

Implementation of separation at the source plan in 3000 office and governmental buildings

Establishment of 32135 types of tanks in 4954 office buildings since 2019

- Number of buildings covered by recycling storage units: 3319 buildings
- Number of buildings belonging to Tehran Municipality: 1086 buildings
- Others: 549



Establishment of triple recycling storage units in Tehran

Establishment of 251 triple recycling storage units in public centers and malls in Tehran





Implementing Reverse Vending Machines (RVM)

Target

Encourage citizens to separate waste at the source

Establish 5 RVM devices in Tehran public centers for the first phase
Planning to deploy 50 RVM devices in Tehran streets and public centers for the second phase

Hiring a lead contractor to focus on maintaining and managing devices
Signing an agreement with the Fruit and Vegetable Markets Organization to establish devices in the fruit and vegetable fields

12 RVM devices will be deployed and commissioned in the World Environment week

Follow up to conclude an agreement with citizen(Shahrvand) chain store



Devices Specifications

Capacity: Ability to store 150 kg of dry waste

Features: Compressor - Provide a purchase receipt with the possibility of creating a citizen card charge

Operation of devices: To operate devices is done by the private sector



**Signing a cooperation
document with the United
Nations Development
Program (UNDP)**

Date of concluding the cooperation document:
September 2020

Duration of cooperation:
18 months

Axes of cooperation:

1-Municipal waste treatment and processing is decentralized in Tehran to reduce the amount of wastes entering Aradkooch waste processing and disposal.

2-Municipal waste reduction processes enhanced in Tehran to promote separation waste at source.

3-Urban waste management improved to mitigate COVID-19 impacts on waste treatment system.

4-Public awareness raised, public participation improved and technical capacities enhanced towards efficient waste management in Tehran.






**Electrical and electronic
waste management**

- Collecting approximately 4 tons of Electrical and electronic waste per month
- Assigning collection and recycling process to the private sectors
- Establishment of 10 booths exclusively for collecting electrical and electronic waste in the city
- Average collection of booths: 1.7 tons per month
- Start of operation: September 2020
- Most cooperation: the booth located beside Alaedin Mall in district 11. Chaharsoo booth (District 12), Sadeghiyeh booth (District 2)





**Construction of advanced
intermediate transmission stations**
(Construction of material recovery
facilities -MRF)

Action plan:

construction of material recovery facilities (MRF) in the comprehensive plan

- Construction of MRF in 8 areas of Tehran
- Inactive two intermediate transmission stations (During the first 5 years of implementation of the comprehensive plan)
- Integrated assignment of waste management services

Zoning of targeted Districts for construction of MRF

Attracting an investor for constructing 4 MRFs



Mahtab Commodity Trading Company (Districts 8-13-14)
Aria Talashgaran Sarzamin Company (Districts 4-7)
Padideh Peyman Pak company (Districts 5-21-22)
Total investment amount: 6,173,913 \$

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Leachate Management in municipal service intermediate stations

Leachate Management in municipal service intermediate stations

- Creating a new model of integrated waste management from origin to disposal by a company through auctions
- Increasing the percentage of recyclable waste transferred to Aradkooch
- Performing in district 2 by the end of the year

Transfer of station leachate to municipal sewage network

Following the coordination and agreements made with the Tehran Sewerage Company, it was decided to discharge the leachate in the intermediate stations into the sewerage network



leachate management in 10 municipal service intermediate stations

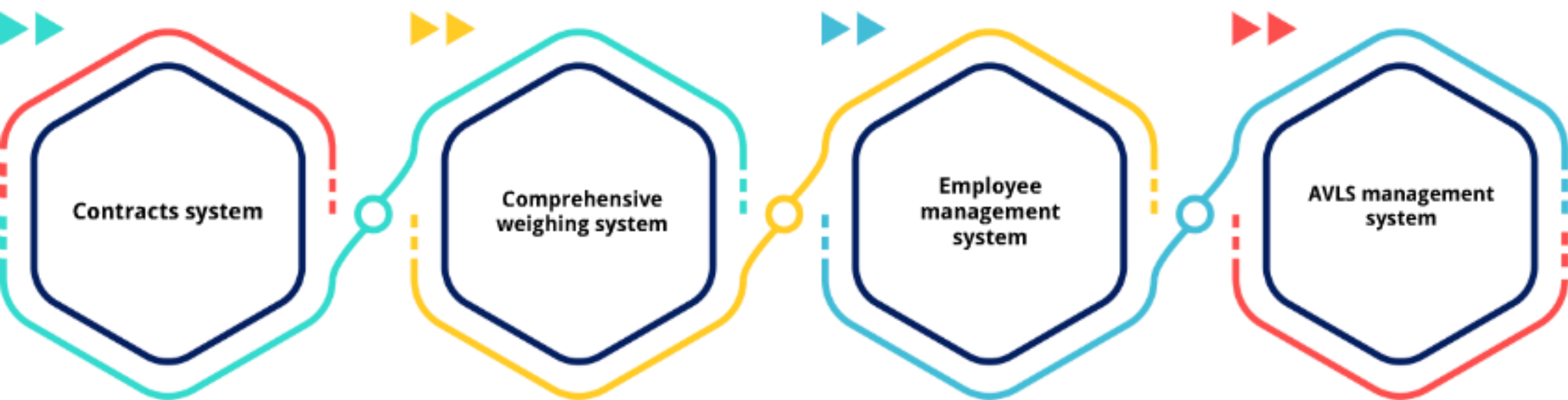
- Installation of the second leachate tank in the semi-trailers
- Construction of streams and streams at the entrance of septic tanks to drain leachate from mechanized vehicles
- Installation of leachate purifier in all MRF stations until 1400

Improvement of intermediate transfer stations of municipal services

- Carrying out preliminary studies and estimates for geometric correction and repairs
- Improve the stations by considering the priority of the MRF project

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Electronic status report





Establishment of electronic status report system in 22 districts

- Complete linkage of the status system of the 22 districts to the comprehensive financial system (registration of deficiencies, surcharges, deductions, etc.)
- Online monitoring, reduce the handling infractions and increasing the quality of provided services
- Legalization of costs and prices performed services based on workload
- Reduce imposed costs on Tehran waste management organization
- Reduce the rate of possible violations
- Increase the effective life of existing equipment, machinery and infrastructure
- Ability to clarify existing processes



Waste Management Control Monitoring Center

- Monitoring cars, roads, accidents and traffic crises status through smart cameras and sensors
- Events management through intelligent systems and manual coordination with other authorities
- Monitoring and analysis of systems according to the performance description of this unit
- Provision reports related to each deputy on a daily and weekly basis (based on special forms)
- Provision the organization analytical reports in according to the performance description of this unit



Optimal management of bulky waste
(Emphasising on on-site management)

Dedicated management

- Worn tires
- Wood and branch
- Bulky electrical waste
- Other wastes (Tables and boards, furniture and wardrobes and ...)





Optimal management of bulky waste
(Emphasising on on-site management)

- Construction of wood chipper and branch site in district18 to produce compost fertilizer
- Employing a contractor to collect and recycle 300 worn tires daily in order not to transfer it to the complex and disposal of Aradkooh
- Collection of bulky electrical waste by the dry waste contractor of 22 districts
- Collection of other bulky waste (sofa, closet, bed, etc.) by the dry waste collection contractor of 22 districts and not transferring it to Aradkooh processing and disposal complex

Transferring about 1000 tons' waste to Aradkooh processing and disposal complex per day has been prevented by assignment and managing bulky waste In 22 districts



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**Construction and demolition
waste management**

The amount of production and recycling of Construction and demolition waste

- recycling of construction waste
- production of construction waste

Upcoming plans:

- Planning for the construction an asphalt recycling plant in coordination with the technical and civil deputy
- Present about 3 hectares land to the Technical and engineering organization to perform the project
- Performing infrastructure measures and laying the groundwork for the establishment of asphalt recycling factories by the Technical and Engineering Organization
- Holding a tender process to purchase two plants with a volume of 150 tons of asphalt recycling





**Construction and demolition waste
recycling plants**

Total Recycling (2020):

14000 ton/day

41% of the total waste generated per day

Reduction of construction waste landfill by 5% every year compared to 1397

Landfills

Abali site:	23000 t/d
Aradkoh site:	2500 t/d
Shahryar&qods city site:	4028 t/d
Khavaran& pakdasht:	4000 t/d

Construction and demolition waste recycling centers and factories:

Name	Investment amount	Recycle Capacity	Products
Malek shen company (2006)-active	434,782 \$	3000 t/ day	Sand granulation
TTS company (2014)-active	717,591 \$	4000 t/ day	Types of cement blocks and sand granulation
Sarwat gawar abarsin company (2019)-active	678,260 \$	3300 t/ day	Types of concrete products
Zina kohan blocot company (2019)-active	760,669 \$	3500 t/ day	Types of cement blocks and sand granulation

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**Purchase and overhaul of
specialized municipal service
machines**

Repair , overhaul and reconstruction of specialized machines

Loader 21 devices
Grader 2 devices
Boulder 2 machines
Excavator 3 machines
Crane 2 devices
Forklift 2 devices
Elevator 2 devices

Purchase 5 powerful sewage and water jet suction devices to deal with flooding and open canals:

In order to prevent flooding of urban sewers and canals, 5 high-powered sewers as well as water jets were prepared and provided to the organization's heavy machinery fleet.



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**Purchase and overhaul of specialized
snow removal machines**

Repair, overhaul and reconstruction

Number of 169 snow removal machines

- Overhaul of 32 Asuz vehicles and salt sprayers in Iran Khodro dealership (Govah)
- Overhaul and repair of 60 blade dump trucks 1921 and 2624
- Repair and overhaul of 38 rolling machines of Etgo, Axor and 1924 models
- Overhaul of 25 Volvo FH tractors in the exclusive dealership of Rena Company
- Repair and overhaul of 14 toxic devices of worn and obsolete trailers
- Overhaul of 44 machines from the use of salt sprayers and roller sprayers
- Purchased 35 user devices of Isuzi salt sprayer
- Purchased 65 complete sets of truck snow plow blades
- Purchased 35 complete sets of truck snow plow blades



Holding snow removal tools and machines maneuvers

In waste management organization and 22 districts

Delivery of 280 machines and equipment to 22 districts

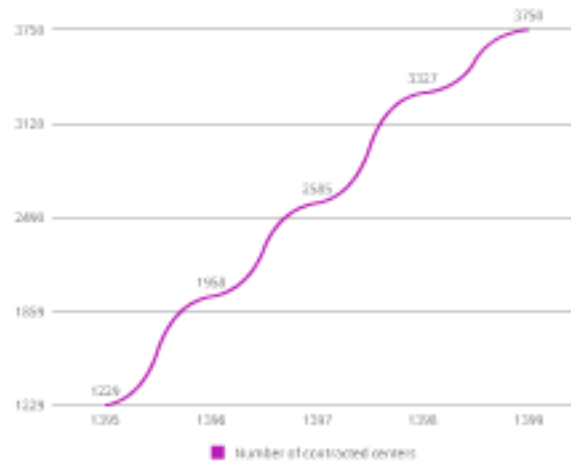
Carrying out snow removal operations in areas affected by snow

Major areas affected by snow include districts; 1,2,4, 5, 22

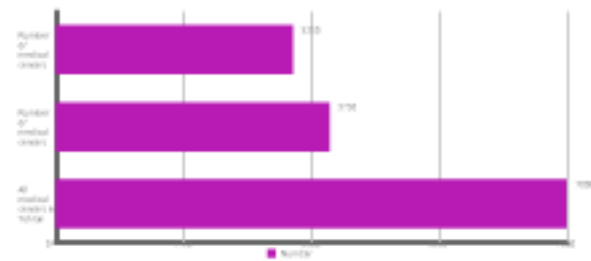
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Medical Waste Management

Medical Waste Management



Comparative chart of medical centers



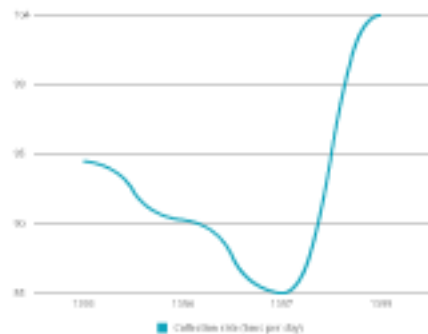
List of medical centers contracted with the TWMO

doctors' building	46	Hospital	153
Health centers	284	Veterinary	118
Dental centers	172	Ladies Beauty Salon	135
Addiction treatment centers	293	Laboratory	414
Dental clinic	579	Clinic	278
Other clinics	986	Surgery Center	46

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Medical Waste Management

The trend of medical waste collection



Transportation Contractor: Marzbar Co.

Three-year contract with the condition of providing new trucks

trucks for infectious waste: 40 deceives

trucks for non-hazardous waste: 15 deceives



Fleet equipped with GPS

Medical waste collection trucks are equipped with GPS system for proper monitoring, cost management and reduction of violations.

Design of medical waste management software

The software was designed to better monitor and manage medical waste collection and provide optimal services to applicants.



Waste management optimization in the destination

(final process and material and energy recycling at Arad kooch and Abali center)

Quantitative and qualitative Improvement of waste process

- Increasing the efficiency of waste separation by 80 percent
- Increasing of length and number of the bag opener blade screen process
- Optimizing of waste transport speed from feeder to screen

Overhaul and improvement of top turn machine

- Overhauling 3 top turn machine in 2020
- Overhauling 5 top turn machine in 2021
- Plan for buying 5 new top turn machines

Energy Producing and recycling plans

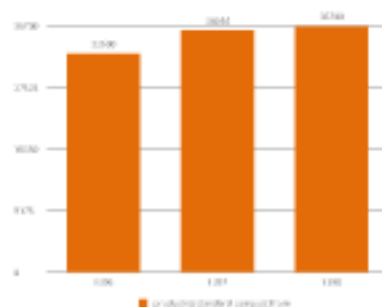
- Planning for building and using of new incineration plant with the capacity of 600 tons per day
- Planning for employing domestic companies with sufficient financial and technical capacity for excavating methane gas from old landfills
- Reopening Anaerobic digester plant for producing energy by transferring to private companies

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Compost producing

- Producing compost and receiving the certificate and optimizing of the quality of compost by Granulation
- Nominal capacity of compost Refining factories: 1650 ton per day
- Real capacity of producing standard compost: 700 ton per day
- The amount of Granulated dung: 5/8 ton per day
- Selling to all 22 districts with the cooperation of Tehran gardens and green spaces Organization by now

The trend of producing standard compost from 1396 to 1398 (ton per month)



Actions taken

Assigning Green space maintenance credit line for all 22 district in order to supply the compost producing cost

Future actions

Planning for buying 9 new top turn machine in order to increase the quality of produced compost and decrease the Unpleasant odor of Arad Kooh plant

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**Development of social and cultural
infrastructure**

The first presence of the Waste Organization in the 38th Fajr Film Festival

- Holding the first startup of design and Production of learning technologies with waste management training approach
- Appreciation of the exemplary sweepers of Tehran as a "KAP" project partner
- Appreciation of 31 sweepers in two parts of whom selected by people and educational section



Education and public information

- Presentation of KAP educational content using advertising spaces and Environmental information
- Establishing "KAP" training base at metro stations, Friday prayer, stalls at 22 Bahman and "FIRE AT WILL" festival.
- "KAP" rational workshop for waste experts and Educators
- Holding educational courses at Specialized waste training center.
- Holding waste management educational courses at International Waste Exhibition and recycling
- Holding tours for Aradkooh



**Development of social and
cultural infrastructure**

Waste-free Saturday project

- Preparation of educational content, Holding educational courses and extensive environmental advertising
- Preparing Instructions for Tehran 22 districts
- Execution of the Waste-free Saturday project with emphasis on:
 - Delivery of solid waste to Recycling booth and get the lottery code
 - Communicate with Waste collection apps for waste delivery
 - Put solid wastes out between 9 - 12 o'clock (Low priority)

Waste-free Saturday project

- Designing "MESKAT" to produce and broadcast 100 educational animation
- Compilation of "KAP BRAND BOOK"
- Editing visual identity booklet and "KAP BRAND BOOK" (Including all Communication activities at Visual field audiences and public relations, advertisement and etc.)
- Holding "PAS-AZ-IN KAMPAIN" at 8 phases and preparing and publishing training content for "KAP"

Run an educational campaign informing "KAP" with emphasis on PAS-AZ-IN (After this) CAMPAIGN at following classification:

- Special program for MOHARRAM (month) 2019.
- Preparing for academic year "ESTEGHBAL AZ MEHR" 2019.
- House wives
- Preparing for Iranian New Year in spring "ESTEGHBAL AZ BAHAR"
- Office buildings waste
- The holy month of Ramadan
- A city without sweepers.



Corona pandemic

- Disinfection of all processing line halls, machines and sheds, dining halls in Aradkoooh complex on a daily basis after each work shift
- Disinfection and lime spraying, washing machines, distribution of sanitary items in all municipal service stations on a daily basis
- Lime spraying and preparation and distribution of disinfectant solution, daily distribution of masks for the personnel of Aradkoooh complex sanitary disposal cell

- Perform periodic Checkup and blood tests for all staffs
- Covid-19 Vaccination 147 personnel's working in collection and disposal of healthcare waste
- Disinfection of office buildings
- Screening employees to return to the workplace





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