



# Improvement of Data Collection and Monitoring for SDGs

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# SDGs



## What is SDGs?

|                                  |   |   |                                       |   |  |
|----------------------------------|---|---|---------------------------------------|---|--|
| <p><b>1</b> NO POVERTY</p>       | <p><b>2</b> NO HUNGER</p>                     | <p><b>3</b> GOOD HEALTH</p>                   | <p><b>4</b> QUALITY EDUCATION</p>     | <p><b>5</b> GENDER EQUALITY</p>                     | <p><b>6</b> CLEAN WATER AND SANITATION</p>                     |
| <p><b>7</b> RENEWABLE ENERGY</p> | <p><b>8</b> GOOD JOBS AND ECONOMIC GROWTH</p> | <p><b>9</b> INNOVATION AND INFRASTRUCTURE</p> | <p><b>10</b> REDUCED INEQUALITIES</p> | <p><b>11</b> SUSTAINABLE CITIES AND COMMUNITIES</p> | <p><b>12</b> RESPONSIBLE CONSUMPTION</p>                       |
| <p><b>13</b> CLIMATE ACTION</p>  | <p><b>14</b> LIFE BELOW WATER</p>             | <p><b>15</b> LIFE ON LAND</p>                 | <p><b>16</b> PEACE AND JUSTICE</p>    | <p><b>17</b> PARTNERSHIPS FOR THE GOALS</p>         | <p><b>THE GLOBAL GOALS</b><br/>For Sustainable Development</p> |



**SDGs**



# Solid Waste Related Goals



**Goal 6: Ensure availability and sustainable management of water and sanitation for all**

**Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable**

**Goal 12: Ensure sustainable consumption and production patterns**





# Waste SDG

## Targets and Indicators



UN-Habitat

### Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable

#### Targets

**11.6** By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management.

#### Indicator

**% of urban solid waste regularly collected and with adequate final discharge with regards to the total waste generated by the city**

UN-Habitat  
& WHO

### Goal 6: Ensure availability and sustainable management of water and sanitation for all

#### Targets

**6.3** By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally environment.

#### Indicator

**% of wastewater safely treated (Definition of 'wastewater' include septage and fecal sludge)**

UNEP

### Goal 12: Ensure sustainable consumption and production patterns

#### Targets

**12.4** By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment.

#### Indicator

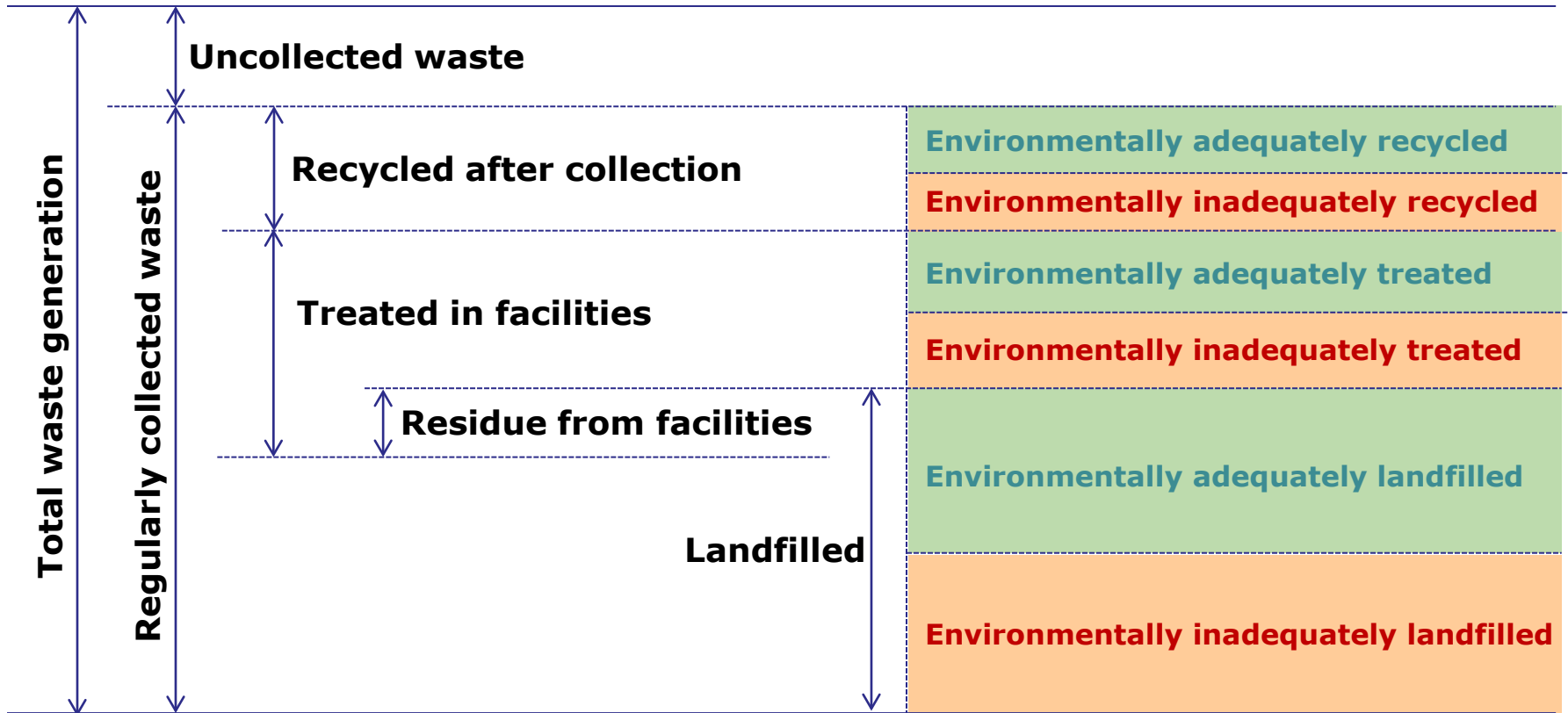
**Treatment of waste, generation of hazardous waste, hazardous waste management, by type of treatment**

**12.5** By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse.

**National recycling rate, tons of material recycled**



# 11.6.1 on Urban Waste Concept Model



*% of urban solid waste regularly collected and with adequate final discharge*

$$= \frac{\text{Amount of waste environmentally adequately recycled, treated \& landfilled} - \text{Residue}}{\text{Total waste generation}}$$



## 11.6.1 on Urban Waste Definitions



### **Scope of Monitoring:**

Municipal solid waste (wastes consisting of everyday items such as product packaging, grass clippings, furniture, clothing, bottles and cans, food scraps, newspapers, appliances, consumer electronics, and batteries.)

### **Environmental Adequacy:**

Intermediate level of control

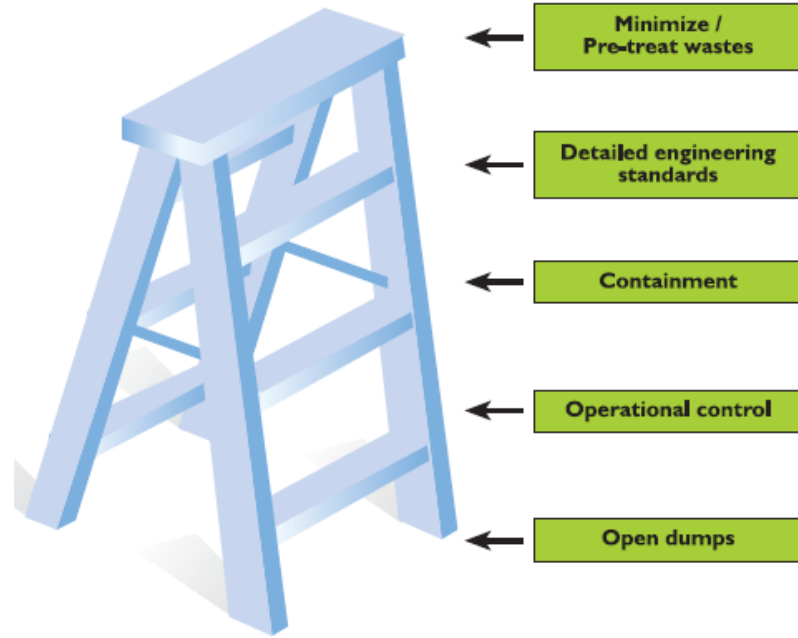
- Control over waste reception and general site management
- Control over waste treatment and disposal
- Degree of monitoring and verification of environmental controls





# 11.6.1 on Urban Waste

## Example of 'intermediate control'



**Example of improvement of open dumps to operational control**

JICA (2016) *Projet de renforcement des capacités pour la gestion des déchets menagers et assimilés dans la commune de Tiznit et les communes avoisinantes dans le Royaume du Maroc : rapport final*

**Stepwise progression controlling disposal**  
UN-Habitat (2010) *Status of Solid Waste Management in the World Cities*





# 6.3.1 on Waste Water Concept Model



diffuse  
agricultural  
sources

it is unfeasible to  
monitoring sources or  
diffuse agricultural pollution  
– therefore only their effect  
on receiving water quality  
is monitored.



Domestic  
wastewater

**Monitored**



Water quality

**Monitored**

Wastewater  
monitoring  
establishes  
causes of poor  
water quality



Industrial wastewater  
(incl. point source  
agriculture)

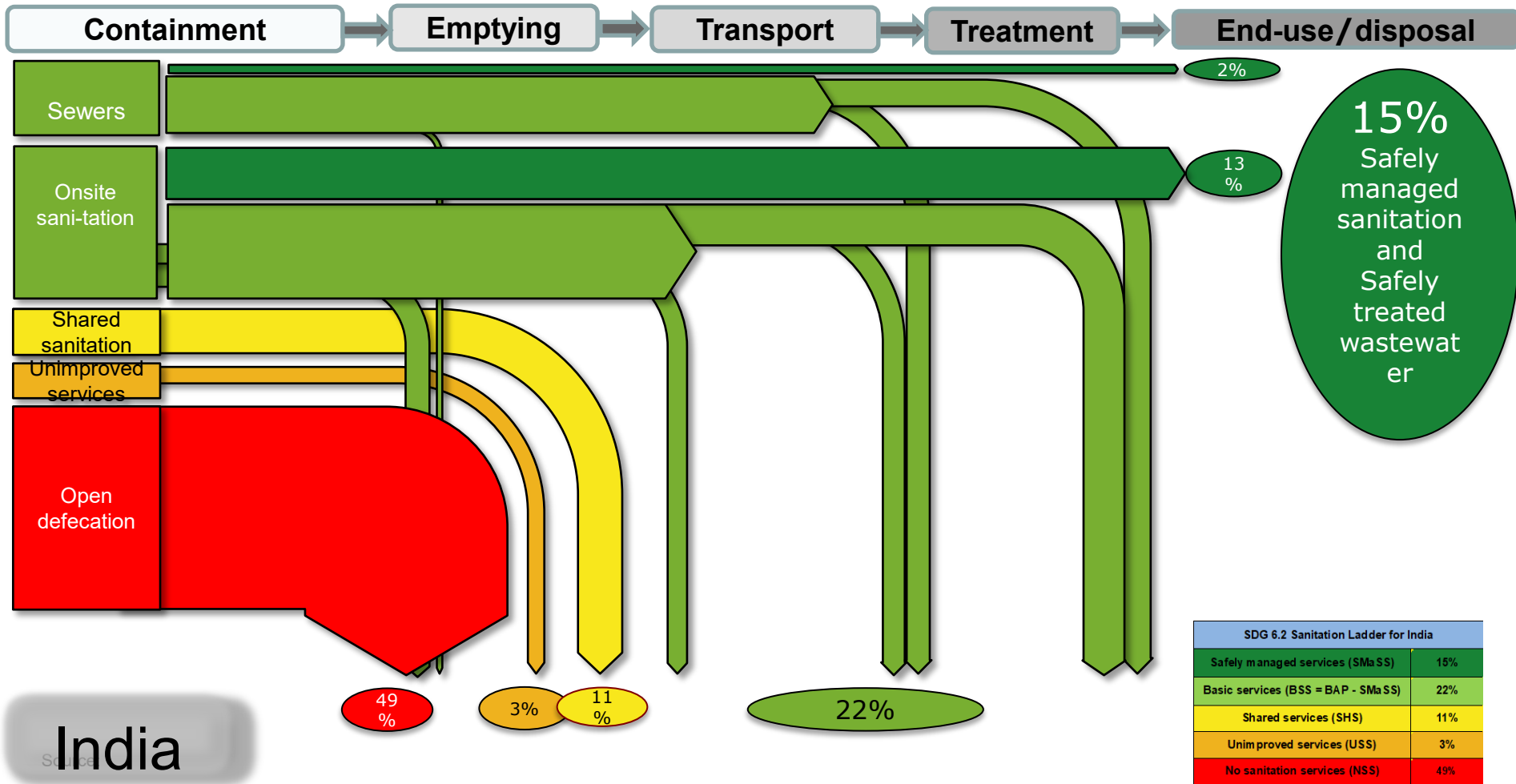
**Monitored**

Verify progress on  
wastewater  
management



# 6.3.1 Waste Water

## Example from India Pilot Test



| SDG 6.2 Sanitation Ladder for India |     |
|-------------------------------------|-----|
| Safely managed services (SMaSS)     | 15% |
| Basic services (BSS = BAP - SMaSS)  | 22% |
| Shared services (SHS)               | 11% |
| Unimproved services (USS)           | 3%  |
| No sanitation services (NSS)        | 49% |



# 12.4.2 on Hazardous Waste Concept Model

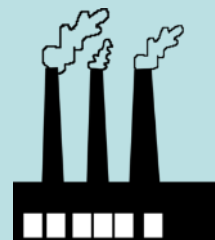


## CATEGORIES OF WASTES TO BE CONTROLLED

### WASTE STREAMS

|     |  |
|-----|--|
| Y1  | Clinical wastes from medical care in hospitals, medical centers and clinics  |
| Y2  | Wastes from the production and preparation of pharmaceutical products  |
| Y3  | Waste pharmaceuticals, drugs and medicines   |
| Y4  | Wastes from the production, formulation and use of biocides and phytopharmaceuticals   |
| Y5  | Wastes from the manufacture, formulation and use of wood preserving chemicals  |
| Y6  | Wastes from the production, formulation and use of organic solvents  |
| Y7  | Wastes from heat treatment and tempering operations containing cyanides  |
| Y8  | Waste mineral oils unfit for their originally intended use   |
| Y9  | Waste oils/water, hydrocarbons/water mixtures, emulsions   |
| Y10 | Waste substances and articles containing or contaminated with polychlorinated biphenyls (PCBs) and/or polychlorinated terphenyls (PCTs) and/or polybrominated biphenyls (PBBs) |
| Y11 | Waste tarry residues arising from refining, distillation and any pyrolytic treatment   |
| Y12 | Wastes from production, formulation and use of inks, dyes, pigments, paints, lacquers, varnish   |
| Y13 | Wastes from production, formulation and use of resins, latex, plasticizers, glues/adhesives  |

**Different  
treatment  
facilities**



**Monitored**

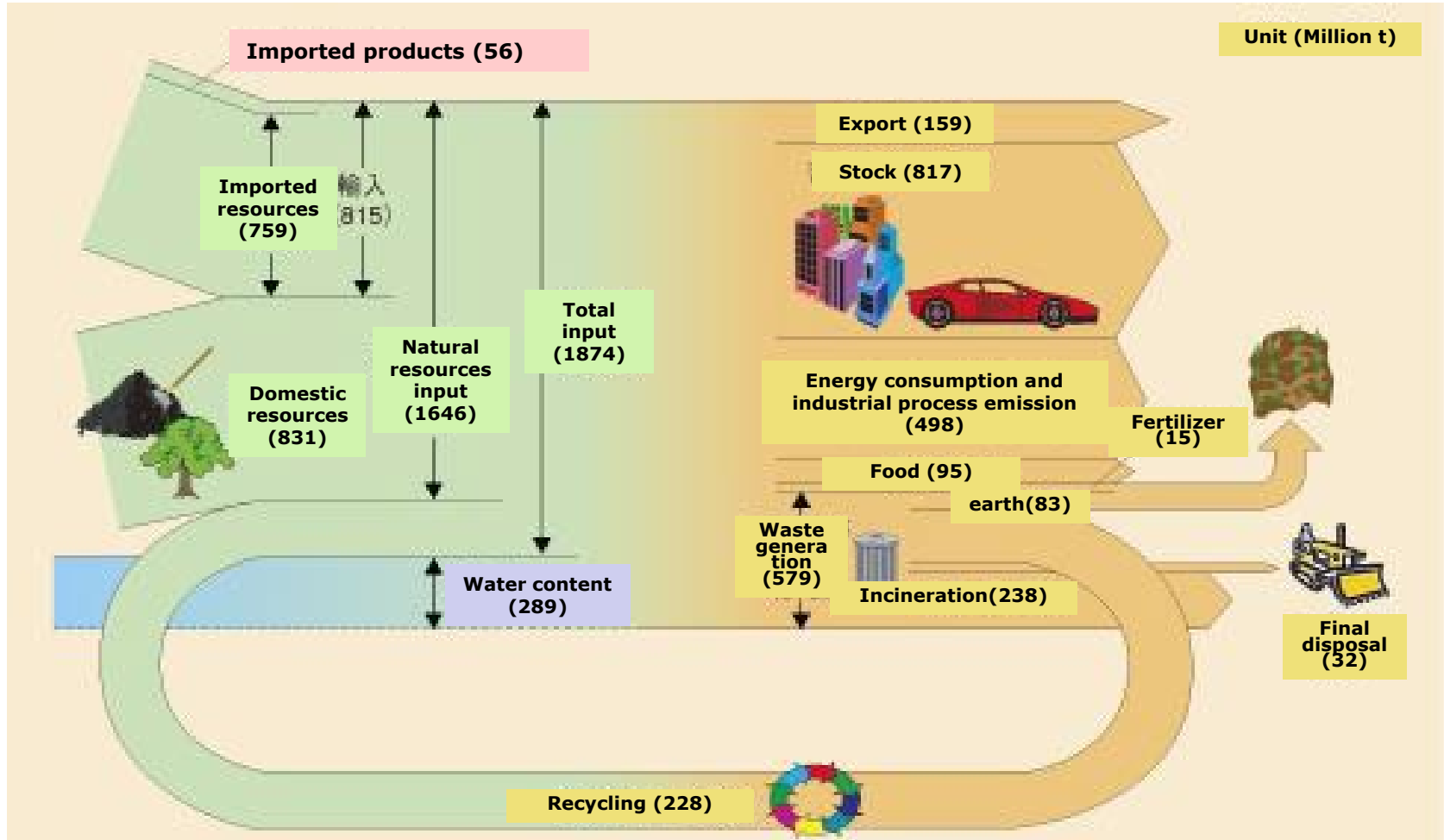
**Environmentally  
Sound  
Disposal**

**Manifest  
system and  
monitoring is  
necessary**



# 12.5 on Recycling Rate

## Concept Model (Example)



Environmental White Paper, Ministry of the Environment of Japan (2005)



### **Challenges**

- Member states should monitor the indicators therefore establishment of monitoring system is essential
- Some data should be collected at the local or municipal level
- Capacity development for the personnel in the related entities on monitoring method is essential

### **Opportunities**

- Measuring the waste related SDG indicators will allow you to have more informed policy making decisions (e.g. for swm master planning, priority areas for intervention, etc.)
- Numbers and data on the fact can tell you what the most effective and efficient interventions are to improve your solid waste management.

This platform can be utilised for the capacity development on monitoring mechanism establishment in your country!



# Waste Monitoring

## Example from Japan





# Waste Monitoring

## Example from Japan



| Level       | Entity  | Municipal solid waste   | Hazardous waste  |
|-------------|---|---|--|
| National    | Ministry of the Environment<br>Dpt. Waste and Recycling | <ul style="list-style-type: none"><li>• Questionnaire distribution</li><li>• Data consolidation and publication</li></ul>                               | <ul style="list-style-type: none"><li>• Questionnaire distribution</li><li>• Data consolidation and publication</li></ul>        |
| Prefectural | Dpt. Environment<br>Solid waste management unit         | <ul style="list-style-type: none"><li>• Questionnaire distribution to municipal government</li><li>• Data consolidation and submission to MOE</li></ul> | <ul style="list-style-type: none"><li>• Data collection based on the facilities inventory according to treatment types</li></ul> |
| Municipal   | Dpt. Environment<br>Solid waste management unit         | <ul style="list-style-type: none"><li>• Data collection from all the facilities managed by municipal government</li></ul>                               |  |



# Waste Monitoring Example from Japan



BaselConventionText-e.p... Hazardous Waste Manag... 平成27年度調査結果(環... x

www.env.go.jp/recycle/waste\_tech/ippan/h27/index.html

Apps Mail - Nao - Outlook webmail.unhabitat.org 英語学習・TOEIC対策 KCB Online Banking UNON Intranet Habnet Inspira Indicator 11.6.1 Virtuo Welcome to UNDSS Publication (PDF); Me

環境省 廃棄物処理技術情報 廃棄物処理の現状と科学研究 MOEJ SW Treatment Technical Information Website

廃棄物処理等科学研究費補助金 一般廃棄物処理実態調査結果 廃棄物処理施設設備費用調査結果 海外の廃棄物処理情報 廃棄物処理施設技術管理者講習

**MSW Treatment Status Data** 一般廃棄物処理実態調査結果

TOP > 一般廃棄物処理実態調査結果 > 統計表一覧 > 平成27年度調査結果

施設整備状況  
 田各都道府県別整備状況  
 田施設別整備状況

田処理状況 **Treatment Status**  
 田各都道府県別データ **Prefectural data**  
 田北海道 **Hokkaido**

北海道集計結果(ごみ処理状況) (xls 4,035KB)  
 北海道集計結果(ごみ処理体制) (xls 4,311KB)  
 北海道集計結果(し尿処理状況) (xls 481KB)  
 北海道集計結果(経費) (xls 2,859KB)  
 北海道集計結果(人員・機材等) (xls 1,151KB)  
 北海道集計結果(災害ごみ処理状況) (xls 4,927KB)  
 北海道集計結果(災害経費) (xls 2,243KB)  
 北海道集計結果(災害人員・機材等) (xls 387KB)

田青森  
 田岩手  
 田宮城  
 田秋田  
 田山形  
 田福島  
 田茨城  
 田栃木  
 田群馬  
 田埼玉

**MSW treatment and disposal status**  
**Institutional arrangement**  
**Septage treatment and disposal status**  
**Financial status**  
**Human resources and equipment**  
**Disaster waste treatment and disposal status**  
**Disaster management finance status**  
**Disaster management human resources and equipment**

BaselConventionT...pdf Show all X

Start e 5:00 6:13 PM 23/04/2017





# Waste Monitoring

## Example of Japan



| 2  | 3   | 4     | Prefecture name | Prefecture code | Municipal government names | Population |                                     |                                       | foreigner population | Waste generation                |                                    |                           |        | Per capita generation |                                      |   | Treated and disposed by their own | Treatment and Disposal |            |                 |     |     |     |     |
|----|-----|-------|-----------------|-----------------|----------------------------|------------|-------------------------------------|---------------------------------------|----------------------|---------------------------------|------------------------------------|---------------------------|--------|-----------------------|--------------------------------------|---|-----------------------------------|------------------------|------------|-----------------|-----|-----|-----|-----|
|    |     |       |                 |                 |                            | Population | Population with collection services | Population with own treatment methods |                      | Collected by collection service | Brought to facilities by generator | Other collection services | Total  | Total                 | Municipal solid waste from household | Municipal solid waste from restaurants, offices, other institutions |                                   | Incinerated            | Landfilled | Other treatment |     |     |     |     |
| 5  | 6   | 7     | 8               | 9               | 10                         | 11         | 12                                  | 13                                    | 14                   | 15                              | 16                                 | 17                        | 18     | 19                    | 20                                   | 21  | 22                                | 23                     | 24         | 25              | 26  | 27  | 28  | 29  |
|    |     |       |                 |                 | (人)                        | (人)        | (人)                                 | (人)                                   | (t)                  | (t)                             | (t)                                | (t)                       | (g/人日) | (g/人日)                | (g/人日)                               | (t)   | (t)                               | (t)                    | (t)        | (t)             | (t) | (t) | (t) | (t) |
| 7  | 北海道 | 01000 | 合計              | 5,401,481       | 5,394,799                  | 6,882      | 24,906                              | 1,560,709                             | 243,907              | 139,800                         | 1,944,416                          | 984                       | 678    | 306                   | 4,586                                | 1,132,353   | 183,993                           | 472,000                |            |                 |     |     |     |     |
| 8  | 北海道 | 01100 | 札幌市             | 1,941,078       | 1,941,078                  | 0          | 10,014                              | 533,531                               | 65,128               | 56,727                          | 655,386                            | 923                       | 630    | 293                   | 0                                    | 401,070   | 32,711                            | 184,000                |            |                 |     |     |     |     |
| 9  | 北海道 | 01202 | 函館市             | 269,079         | 269,079                    | 0          | 867                                 | 93,397                                | 11,826               | 8,489                           | 113,712                            | 1,155                     | 712    | 443                   | 0                                    | 87,459  | 7,826                             | 9,000                  |            |                 |     |     |     |     |
| 10 | 北海道 | 01203 | 小樽市             | 122,088         | 122,088                    | 0          | 485                                 | 48,236                                | 0                    | 3,006                           | 51,242                             | 1,147                     | 706    | 441                   | 0                                    | 34,081  | 2,108                             | 12,000                 |            |                 |     |     |     |     |
| 11 | 北海道 | 01204 | 旭川市             | 345,566         | 345,566                    | 0          | 791                                 | 105,301                               | 2,523                | 10,884                          | 118,708                            | 939                       | 654    | 284                   | 0                                    | 77,690  | 12,218                            | 14,000                 |            |                 |     |     |     |     |
| 12 | 北海道 | 01205 | 室蘭市             | 88,889          | 88,889                     | 0          | 307                                 | 30,362                                | 5,176                | 3,361                           | 38,899                             | 1,196                     | 667    | 528                   | 0                                    | 27,175  | 1,779                             | 6,000                  |            |                 |     |     |     |     |
| 13 | 北海道 | 01206 | 釧路市             | 176,719         | 176,719                    | 0          | 505                                 | 60,584                                | 10,829               | 2,810                           | 74,223                             | 1,148                     | 789    | 379                   | 0                                    | 50,721  | 3,384                             | 17,000                 |            |                 |     |     |     |     |
| 14 | 北海道 | 01207 | 帯広市             | 168,532         | 168,532                    | 0          | 553                                 | 45,172                                | 4,010                | 7,911                           | 57,093                             | 926                       | 679    | 246                   | 0                                    | 35,299  | 0                                 | 13,000                 |            |                 |     |     |     |     |
| 15 | 北海道 | 01208 | 北見市             | 121,264         | 121,264                    | 0          | 316                                 | 35,378                                | 9,043                | 200                             | 44,621                             | 1,005                     | 736    | 269                   | 0                                    | 31,986  | 1,057                             | 11,000                 |            |                 |     |     |     |     |
| 16 | 北海道 | 01209 | 夕張市             | 9,205           | 9,205                      | 0          | 89                                  | 2,873                                 | 697                  | 0                               | 3,570                              | 1,060                     | 683    | 397                   | 0                                    | 0   | 3,291                             | 0                      |            |                 |     |     |     |     |
| 17 | 北海道 | 01210 | 岩見沢市            | 85,059          | 85,059                     | 0          | 119                                 | 22,959                                | 1,948                | 2,965                           | 27,872                             | 895                       | 648    | 247                   | 0                                    | 19,902  | 0                                 | 4,000                  |            |                 |     |     |     |     |
| 18 | 北海道 | 01211 | 網走市             | 37,436          | 37,436                     | 0          | 185                                 | 10,853                                | 3,074                | 559                             | 14,486                             | 1,057                     | 719    | 338                   | 0                                    | 0   | 1,115                             | 12,000                 |            |                 |     |     |     |     |
| 19 | 北海道 | 01212 | 留萌市             | 22,600          | 22,600                     | 0          | 100                                 | 6,480                                 | 414                  | 0                               | 6,894                              | 833                       | 549    | 285                   | 0                                    | 0   | 3,171                             | 1,000                  |            |                 |     |     |     |     |
| 20 | 北海道 | 01213 | 苫小牧市            | 173,800         | 173,800                    | 0          | 478                                 | 56,653                                | 9,933                | 6,564                           | 73,150                             | 1,150                     | 658    | 492                   | 0                                    | 46,604  | 1,104                             | 10,000                 |            |                 |     |     |     |     |
| 21 | 北海道 | 01214 | 稚内市             | 36,325          | 36,325                     | 0          | 349                                 | 14,078                                | 3,935                | 314                             | 17,727                             | 1,393                     | 802    | 531                   | 0                                    | 0   | 12,398                            | 5,000                  |            |                 |     |     |     |     |
| 22 | 北海道 | 01215 | 美唄市             | 23,501          | 23,501                     | 0          | 47                                  | 6,319                                 | 923                  | 0                               | 7,242                              | 842                       | 519    | 323                   | 0                                    | 3,392   | 524                               | 3,000                  |            |                 |     |     |     |     |
| 23 | 北海道 | 01216 | 芦別市             | 14,769          | 14,769                     | 0          | 31                                  | 3,104                                 | 1,849                | 0                               | 4,953                              | 916                       | 574    | 342                   | 0                                    | 0   | 3,366                             | 1,000                  |            |                 |     |     |     |     |
| 24 | 北海道 | 01217 | 江別市             | 119,587         | 119,587                    | 0          | 418                                 | 31,521                                | 1,561                | 7,274                           | 40,356                             | 922                       | 686    | 236                   | 0                                    | 28,779  | 28                                | 4,000                  |            |                 |     |     |     |     |
| 25 | 北海道 | 01218 | 赤平市             | 11,123          | 11,123                     | 0          | 57                                  | 2,177                                 | 1,089                | 0                               | 3,246                              | 797                       | 535    | 263                   | 0                                    | 2,102   | 202                               | 0                      |            |                 |     |     |     |     |
| 26 | 北海道 | 01219 | 紋別市             | 23,384          | 23,384                     | 0          | 337                                 | 8,263                                 | 11                   | 0                               | 8,274                              | 967                       | 756    | 211                   | 0                                    | 5,655   | 0                                 | 2,000                  |            |                 |     |     |     |     |
| 27 | 北海道 | 01220 | 士別市             | 20,004          | 20,004                     | 0          | 59                                  | 6,808                                 | 1,657                | 17                              | 8,482                              | 1,159                     | 693    | 466                   | 129                                  | 0   | 4,488                             | 3,000                  |            |                 |     |     |     |     |
| 28 | 北海道 | 01221 | 名寄市             | 28,760          | 28,760                     | 0          | 130                                 | 7,213                                 | 2,741                | 373                             | 10,327                             | 981                       | 619    | 362                   | 0                                    | 3,094   | 5,568                             | 1,000                  |            |                 |     |     |     |     |
| 29 | 北海道 | 01222 | 三笠市             | 9,300           | 9,300                      | 0          | 17                                  | 3,334                                 | 608                  | 0                               | 3,942                              | 1,158                     | 979    | 179                   | 0                                    | 0   | 0                                 | 3,000                  |            |                 |     |     |     |     |



# Waste Monitoring

## Example of EU



The screenshot shows a web browser window displaying the Eurostat website. The browser's address bar shows the URL [ec.europa.eu/eurostat/web/environment/waste/database](http://ec.europa.eu/eurostat/web/environment/waste/database). The website header includes the Eurostat logo, the text "Your key to European statistics", and navigation links for "Sign In" and "Register". A search bar is present with the placeholder text "Type a keyword, a code, a title...".

The main content area is divided into two columns. The left column, under the "ENVIRONMENT" tab, lists various statistics and reports, including "Overview", "Policy context", "Environmental indicator catalogue", "Air emissions inventories (source: EEA)", "Air emissions accounts", "Material flows and resource productivity", "Physical energy flow accounts", "Environmental taxes", "Environmental protection expenditure", "Environmental goods and services sector", "Waste", "Water", "Biodiversity", and "Hazardous substances".

The right column, under the "DATABASE" tab, provides a hierarchical view of the waste database. It starts with "Waste (env\_was)" and branches into "Waste generation and treatment (env\_wasgt)" and "Waste streams (env\_wasst)". Under "Waste generation and treatment", there are several sub-items such as "Generation of waste by waste category, hazardousness and NACE Rev. 2 activity (env\_wasgen)", "Treatment of waste by waste category, hazardousness and waste operations (env\_wasstr)", "Waste excluding major mineral wastes, by waste operations and hazardousness (env\_wasmin)", "Management of waste excluding major mineral waste, by waste operations - pilot project data (env\_wasoper)", "Management of waste excluding major mineral waste, by waste operations and waste flow - pilot project data (env\_wasflow)", and "Number and capacity of recovery and disposal facilities by NUTS 2 regions (env\_wasfac)". Under "Waste streams", there are items like "Packaging waste by waste operations and waste flow (env\_waspac)", "Waste electrical and electronic equipment (WEEE) by waste operations (env\_waselee)", "Sales and collection of portable batteries and accumulators (env\_waspb)", "Recycling of batteries and accumulators (env\_wasbat)", "End-of-life vehicles by waste operations - detailed data (env\_waselv)", "End-of-life vehicles - reuse, recycling and recovery, totals (env\_waselvt)", "Transboundary shipments of notified waste by partner, hazardousness and waste operations (env\_wasship)", "Municipal waste by waste operations (env\_wasmun)", "Municipal waste by NUTS 2 regions - pilot project data (env\_rwas\_gen)", and "Coverage rate of municipal waste collection by NUTS 2 regions - pilot project data (env\_rwas\_cov)".

The browser's taskbar at the bottom shows the Start button, several application icons (Internet Explorer, File Explorer, Chrome, etc.), and the system tray with the date and time (7:34 PM, 23/04/2017).



# Waste Monitoring

## Example of EU



### NAVIGATION

- Main page
- Statistical themes
- Glossary
- Categories
- Tutorials
- Help

### ONLINE PUBLICATIONS

- Eurostat yearbook
- Regional yearbook
- The EU in the world
- Statistics in focus
- Full list

### LINKS

- Eurostat home
- Contact Eurostat

### TOOLS

- What links here
- Special pages

### IN OTHER LANGUAGES

- English

## File:Municipal waste generated by country in selected years (kg per capita),1995-2015-T1.png



File File history File usage

|                               | 1995 | 2000 | 2005 | 2010 | 2015 | change (%) |
|-------------------------------|------|------|------|------|------|------------|
|                               |      |      |      |      |      | 1995-2015  |
| <b>EU-28</b>                  | :    | 521  | 515  | 504  | 477  | :          |
| <b>EU-27</b>                  | 473  | 523  | 517  | 505  | 477  | 0.8        |
| <b>Belgium</b>                | 455  | 471  | 482  | 456  | 419  | -7.9       |
| <b>Bulgaria</b>               | 694  | 612  | 588  | 554  | 419  | -39.6      |
| <b>Czech Republic</b>         | 302  | 335  | 289  | 318  | 316  | 4.6        |
| <b>Denmark</b>                | 521  | 664  | 736  | :    | 789  | 51.4       |
| <b>Germany</b>                | 623  | 642  | 565  | 602  | 625  | 0.3        |
| <b>Estonia</b>                | 371  | 453  | 433  | 305  | 359  | -3.2       |
| <b>Ireland</b>                | 512  | 599  | 731  | 624  | :    | :          |
| <b>Greece</b>                 | :    | 412  | 442  | 532  | :    | :          |
| <b>Spain</b>                  | 505  | 653  | 588  | 510  | 434  | -14.1      |
| <b>France</b>                 | 475  | 514  | 530  | 533  | 502  | 5.7        |
| <b>Croatia</b>                | :    | 262  | 336  | 379  | 393  | :          |
| <b>Italy</b>                  | 454  | 509  | 546  | 547  | 486  | 7.0        |
| <b>Cyprus</b>                 | 595  | 628  | 688  | 689  | 638  | 7.2        |
| <b>Latvia</b>                 | 264  | 271  | 320  | 324  | 433  | 64.0       |
| <b>Lithuania</b>              | 426  | 385  | 387  | 404  | 448  | 5.2        |
| <b>Luxembourg</b>             | 587  | 654  | 672  | 679  | 625  | 6.5        |
| <b>Hungary</b>                | 460  | 446  | 461  | 403  | 377  | -18.0      |
| <b>Malta</b>                  | 387  | 533  | 623  | 601  | 624  | 61.2       |
| <b>Netherlands</b>            | 539  | 598  | 599  | 571  | 523  | -3.0       |
| <b>Austria</b>                | 437  | 580  | 575  | 562  | 560  | 28.1       |
| <b>Poland</b>                 | 285  | 320  | 319  | 316  | 286  | 0.4        |
| <b>Portugal</b>               | 352  | 457  | 452  | 516  | :    | :          |
| <b>Romania</b>                | 342  | 355  | 383  | 313  | :    | :          |
| <b>Slovenia</b>               | 596  | 513  | 494  | 490  | 449  | -24.7      |
| <b>Slovakia</b>               | 295  | 254  | 273  | 319  | 329  | 11.5       |
| <b>Finland</b>                | 413  | 502  | 478  | 470  | 500  | 21.1       |
| <b>Sweden</b>                 | 386  | 428  | 477  | 439  | 447  | 15.8       |
| <b>United Kingdom</b>         | 498  | 577  | 581  | 509  | 485  | -2.6       |
| <b>Iceland</b>                | 426  | 462  | 516  | 481  | :    | :          |
| <b>Norway</b>                 | 624  | 613  | 426  | 469  | 421  | -32.5      |
| <b>Switzerland</b>            | 600  | 656  | 661  | 708  | 725  | 20.8       |
| <b>Montenegro</b>             | :    | :    | :    | :    | 533  | :          |
| <b>FYR of Macedonia</b>       | :    | :    | :    | 351  | :    | :          |
| <b>Serbia</b>                 | :    | :    | :    | 363  | 259  | :          |
| <b>Turkey</b>                 | 441  | 465  | 458  | 407  | 400  | -9.3       |
| <b>Bosnia and Herzegovina</b> | :    | :    | :    | 332  | :    | :          |



# Waste Monitoring

## How to Do It in Data Scarce Context?



- Waste generation survey
  - Household survey
  - Visit to restaurants, offices, markets, etc
  - Estimate on waste generation per capita

→ **Waste generation/capita x population = total waste (t)**
- Informal recycling activities
  - Interview to informal recyclers
  - Interview to waste pickers
  - Visit to recycling workshops

→ **Create a list of recycling workshops and check their environmental adequacy and daily capacity (t)**
- Disposal site
  - Install weighing bridge / count # of trucks coming in



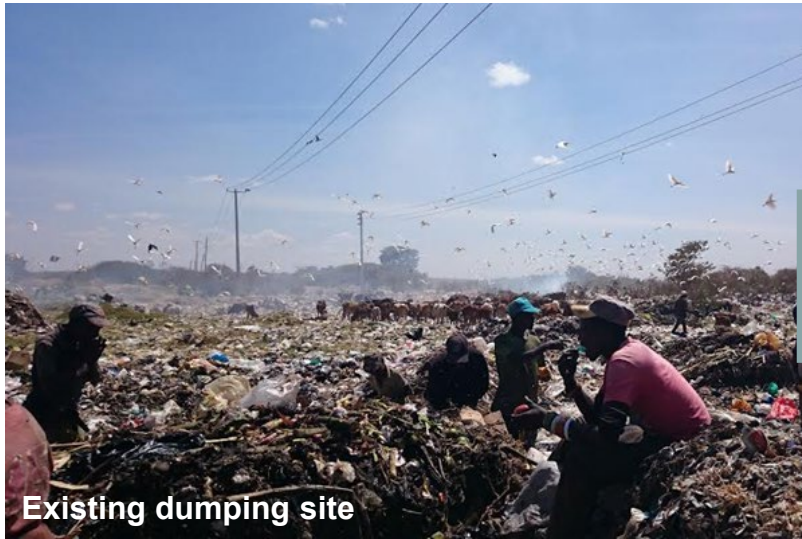


# Waste Monitoring



## Use indicator to improve the SWM

For improvement of disposal site!



Existing dumping site



New pilot landfill site

0%



Could be improve to 60%



# Waste Monitoring



## Use indicator to improve the SWM

For formalization of informal sector!



Could be improve to **70%**

**0%**





**Thank you!**