

Waste Audit Case Collection Form

SAI Name	Contraloría General de la República de Costa Rica	
Auditing theme	Performance auditing related with the effective and efficiency of Costa Rica's municipalities in the waste collection public service.	
Publishing year	2016	
What risks/policy areas did the audit approach?	Waste collection in charge of Costa Rica's municipalities must guarantee the following four criteria: <ul style="list-style-type: none"> • Accessibility. • Separate collection. • Frequency. • Efficient. 	
Main auditing questions and corresponding criteria	Auditing questions:	Criteria¹:
	1. Are the Costa Rica's municipalities providing a waste collection public service in terms of accessibility, frequency, selective waste management and efficiency?	Article 8 (d) of the Law for the Integral Waste Management (N. ° 8839).
	2. Is it linked the Costa Rica's municipalities waste collection coverage with the citizens' waste disposal common practices (waste burning or burying)?	Article 8 (d) of the Law for the Integral Waste Management (N. ° 8839).
	3. Have the Costa Rica's municipalities been moving forward towards the goal aimed at reducing the amount of waste that ends up in disposal sites (dumps and landfills)?	Article 4 of the Law for the Integral Waste Management (N. ° 8839).
	4. Have the Costa Rica's municipalities been providing training and incentives to the citizens in order to encourage the waste recycling?	Article 8 (j and k) of the Law for the Integral Waste Management (N. ° 8839).
	5. Have the Costa Rica's municipalities put into good practices the waste collection services which are worthwhile sharing with all the rest?	Article 8 (g) of the Law for the Integral Waste Management (N. ° 8839).
Which were the data sources and how was data analysed?	Data sources: <ul style="list-style-type: none"> • A survey was conducted among the environmental managers and people in charge of waste collection service of the 81 Costa Rica's municipalities. • A sample of 45 municipalities was selected by using simple random sampling technique. In this respect, the sample had a 95% confidence level with a 5% margin of error. • Two workshops were carried out with the environmental managers and people in charge of waste collection service of 36 Costa Rica's municipalities (all the rest that was not part of the sample). The aim of these workshops was to get inputs from authorities in charge of waste collection service in order to deepen and determine 	

	<p>the causes and solutions regarding the current problems that are linked to the accessibility, separate collection, frequency and efficient in the abovementioned service.</p> <ul style="list-style-type: none"> • The national census in 2011 elaborated by the Instituto Nacional de Estadística y Censos (INEC). • Georeferenced inventory of the disposal sites in Costa Rica (dumps and landfills) elaborated by the Ministry of Health. • The 67 municipal plans for the Integral Waste Management provided by the Ministry of Health. <p>Analysis of the information:</p> <p>The collected data by mean of the survey together with the information provided by INEC and the Ministry of Health were used to calculate the indicators established to measure the effective and efficiency in the waste collection service in charge of the 81 Costa Rica's municipalities.</p> <p>On the other hand, the procedures used to collect the municipal waste in the 45 municipalities sample were inspected by the auditing team. The aim of these inspections was to evaluate how efficient the waste collection procedures were. In addition to that, the auditing team reviewed the questionnaires filled out by the 45 municipalities sample in order to validate the responses and request adjustments, if necessary.</p> <p>Finally, as mentioned above, the two workshops aimed at collecting information about the causes and solutions in the waste collection service.</p>
<p>Conclusions and main recommendations</p>	<p>a) CONCLUSIONS:</p> <p>Five years after that the Law for the Integral Waste Management in Costa Rica was published, there are some examples of how municipalities move forward into providing a better waste collection service. However, most of the municipalities in Costa Rica have significant weaknesses and limitations which consequently lead to not guarantee a waste collection service in terms of accessibility, separate collection, frequency and efficient.</p> <p>In addition, the waste collection services in charge of the majority of Costa Rica's municipalities have not been working within the framework of strict compliance with the effective and efficiency principles.</p> <p>Therefore, there is an urgent need that the authorities in charge of one of the major public service associated with the costarrican's health and environment take measures to provide a waste collection service focused on highest quality standards, process optimization, at the lowest cost possible and taking the most advantage of the real value of municipal solid waste.</p> <p>Besides that, all the improvements in the waste collection service will lead to cleaner cities, more educated citizens; encourage businesses in recycling, valorisation and elimination of wastes.</p> <p>b) LEGAL REQUIREMENTS BASED ON THE REPORT²:</p> <ul style="list-style-type: none"> • To mayors of the 81 municipalities: <p>Taking the report as the starting point, the 81 Costa Rica's municipalities must carry out an analysis to identify the weaknesses and limitations of each one and take measures to ensure a waste collection service in terms of accessibility, separate collection, frequency and efficient.</p>

² The majority of audit reports of Contraloría General de la República de Costa Rica (CGRCR) generate a kind of legal obligation, which must be complied by the audited institutions, according to the articles 183 and 184 of the Political Constitution of Costa Rica, as well as the articles 12 and 21 of Organic Law of the Comptroller General of the Republic. Therefore, the meaning of "recommendations" is commonly different from the legal obligations generated by the audit reports of CGRCR.

	<ul style="list-style-type: none"> • To mayors and council members only of 14 municipalities: <p>To mayors: Issue and circulate the Municipal Plan for the Integral Waste Management.</p> <p>To council members: Solve according to the law, the Municipal Plan for the Integral Waste Management, which will be sent by the mayor.</p> <p>c) RECOMMENDATIONS:</p> <ul style="list-style-type: none"> • To Minister of Health: Take into account the results of this report in order to be used as a primary input in the national planning instruments and improvement initiatives with regards to Integral Waste Management. • To Minister of Education: Take into account the results of this report in order to be used as a primary input in the National Programme of Education in Integral Waste Management and the national education policies as well. <p>d) MONITORING THE IMPLEMENTATION OF LEGAL REQUIREMENTS AND RECOMMENDATIONS:</p> <p>According to the data of the Department in charge of the follow-up the legal requirements and recommendations, this is the current situation in the implementation of abovementioned points b) and c):</p> <ul style="list-style-type: none"> • 30 municipalities have implemented the legal requirements related with carrying out an analysis to identify the weaknesses and limitations of each one and take measures to ensure a waste collection service in terms of accessibility, separate collection, frequency and efficient. • 5 municipalities have implemented the legal requirements associated with issuing and circulate the Municipal Plan for the Integral Waste Management. On the other hand, 9 municipalities are still working on putting in place the mentioned plan. • The recommendations to Ministers of Health and Education have been successfully reached. 					
<p>Which of the following aspects are covered in the auditing and you can provide case?</p> <p>(select all that apply)</p>	Sustainable Development Goals, International Conventions, EU Directives related to waste management	National legal instruments (description of instruments, weakness in legislation and regulation, incoherence of acts)	Economic Incentives in waste management (i.e. charges, taxes, subsidies)	Mapping out the actors of waste management and their responsibilities	Methods of collecting and analysing data	Cooperative audit
		X		X	X	

<p>Challenges and risks</p>	<p>CHALLENGES:</p> <ol style="list-style-type: none"> 1) Inspecting the procedures used to collect the municipal waste in the 45 municipalities sample was a real challenge, since at the beginning the audit team was not well-equipped to evaluate technically the waste collection routes (GPS trackers, etc.). As the performance audit went on, the audit team reached a collaboration agreement with a public university, however it was not possible to make a deal. For that reason, the audit team made innovative decisions such as to use a mobile app to track the waste collection routes and to analyse the tracked routes by means of Google Earth. 2) Establishing the causes linked to weaknesses and limitations of the 81 Costa Rica's municipalities was a complicated task, mainly because every single municipality has a reality in terms of economic resources, geography and territorial extension of theirs cantons, technical expertise and political will. Therefore, in view of the above, two workshops were carried out with the environmental managers and people in charge of waste collection service of 36 Costa Rica's municipalities. Besides that, the audit team performed in-depth data analysis and consulted experts in the field as well. Even, new auditing co-workers were added to the basic audit team. 3) A general performance report that includes as the same time customized data for every municipality represented a challenge, thus the audit team learned how to use tools such as QGIS (free software) to create specific maps. Also, it was necessary to include different annexes in the report to be more specific. <p>RISKS:</p> <ol style="list-style-type: none"> 1) The accuracy and truthfulness with the provided information by municipalities. This is a risk because mainly some crucial figures could not be estimated carefully. This is why, a sample of 45 municipalities was selected not only to inspect their waste collection procedures, but also in order to validate the responses and request adjustments, if necessary. 2) Due to it was a performance report for 81 Costa Rica's municipalities, it could be possible that not all the municipalities follow precisely the instructions to carry out the required analysis to identify the weaknesses and limitations of each one. In other words, the risk arises due to the municipalities might omit crucial input for the improvement measures. Therefore, the team in charge of following up the legal requirements and recommendations must pay carefully attention to this kind of risk.
<p>Link to auditing report</p>	<p>https://cgrfiles.cgr.go.cr/publico/docs_cgr/2016/SIGYD_D_2016002526.pdf</p>

Specifying questions and comments

Question:

How did we use National census (what information and for what purpose)?

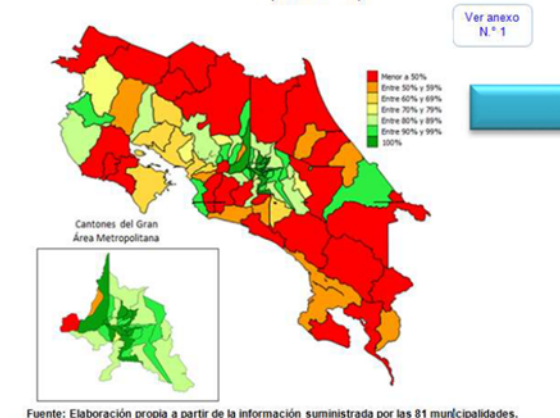
Answer:

The National census 2011 was used specifically for two different purposes. On the one hand, data about the total amount of houses by canton was used as part of the following indicator (denominator of the formula):

Percentage of houses that receive the waste collection service by canton (coverage) =	Total of houses that receive the waste collection service in one specific canton (provided by municipalities)
	Total of houses registered in the canton (provided by national census 2011 because it was not available in the municipalities)

This indicator was estimated for the 81 Costa Rican cantons (look annex 1 of the report) and allowed to create a map with ranges that show up the situation of every canton in terms of the waste collection coverage.

Imagen N.º 4
Mapa con los porcentajes que representan la cobertura del servicio de recolección de residuos por cantón (Periodo 2014)



Ver anexo
N.º 1

The heat map has seven colors that represent ranges of waste collection coverage, so that the red color means that the waste collection coverage is less than 50%, the yellow one indicates that the coverage is placed between 70% and 79% and so on.

Look how the waste collection coverage in the cantons located in the Major Metropolitan Area (Centre of the country) is higher than the peripheral cantons of the country.

On the other hand, the National census 2011 provided key information regarding the percentage of houses that use non-sanitary practices such as waste burning or burying. This piece of information led us to establish a tendency between the waste collection coverage in every canton and the percentage of houses that burn or bury their solid waste. The table 3 shows that tendency (it was translated in English for a better understanding):

Table N.º 3**Comparison between the waste collection coverage and the non-sanitary practices used in the houses of the Costa Rican cantons**

Municipalities with 100% of waste collection coverage		Municipalities with less than 50% of waste collection coverage	
Cantón	Percentage of houses that burn or bury their solid waste	Cantón	Percentage of houses that burn or bury their solid waste
Desamparados	1,49	Guatuso	73,42
Alajuela	1,11	Upala	72,34
Tibás	0,95	Los Chiles	67,69
Moravia	0,59	León Cortés	66,92
San Rafael	0,52	Talamanca	65,93
Curridabat	0,50	Nandayure	65,50
San Isidro	0,45	Turrubares	61,17
Escazú	0,42	Coto Brus	60,68
San José	0,38	Buenos Aires	55,35
Montes de Oca	0,20	Hojancha	54,93
Belén	0,15	Nicoya	53,40

Source: Compiled from information provided by the 81 Costa Rican municipalities and official data (Instituto Nacional de Estadística y Censos, INEC).

Question:

- when/in what circumstance it is good to organize workshops and
- what are important things to remember in order to organize successful workshops

Answer:

a) According to our experience in the SAI of Costa Rica, it is advisable to organize workshops when you have to face circumstances such as:

- In cases when the topic you are auditing is very specialized, so that you need the criteria of experts in order to define better the scope and the criteria of the audit. For instance, during the planning stage we carried out a workshop that got together different experts in the waste management field (engineers, university professors, environmentalists, microbiologist, etc.).
- When the employees' expertise is required to determine the causes and solutions on what you are auditing. For that reason, we met with the environmental managers and people in charge of waste collection service of 36 Costa Rica's municipalities (all the rest that was not part of the sample).
- It could be necessary to carry out a workshop when you need to validate key information, mainly the hypothesis, the causes or the solutions.

b) Important things to remember in order to organize successful workshops:

- You must pay carefully attention to the details. Why? Well, it turns out that during one of the workshops that took place in our SAI with the environmental managers and people in charge of waste collection service, the audit team offered a kind of breakfast (coffee, orange juice and a sandwich). However, some of the environmental managers questioned why we used disposable items rather than biodegradable products. In other words, we overlooked this huge detail.
- It's crucial to organize the workshop by mean of a well-known technique such as focus group. In our waste audit case we got some help from a co-worker who masters the technique known as "Metaplan".

- The key for a successful workshop is to come to an agreement. In our waste audit case we agreed to summarize the inputs and outcomes of the workshop in order to include them in the audit report.
- Last but not least. It's crucial to get outputs or products as a result of the workshop, otherwise, the participants may believe they'll end up empty-handed. Therefore, we consider this is the way that both parties have a good deal (the audit team and the participants).

Question:

Who are the main actors in waste management system in Costa Rica and what are their roles? What role have municipalities in waste management?

Answer:

