No.

シリア・アラブ共和国
環境保全（地方都市廃棄物処理）
プロジェクト形成調査報告書

平成20年3月
（2008年）

独立行政法人国際協力機構
中東・欧州部

地 五
J R
08-001

交換レート表示

本報告書では、以下に示す 2008 年 3 月時点の外貨為替レートを使用した。
（出典：平成 19 年度 JICA 外貨換算レート表）

EXCHANGE RATE
外貨為替レート：1 シリア・ポンド（SYP）＝2.116 円（March 2008）

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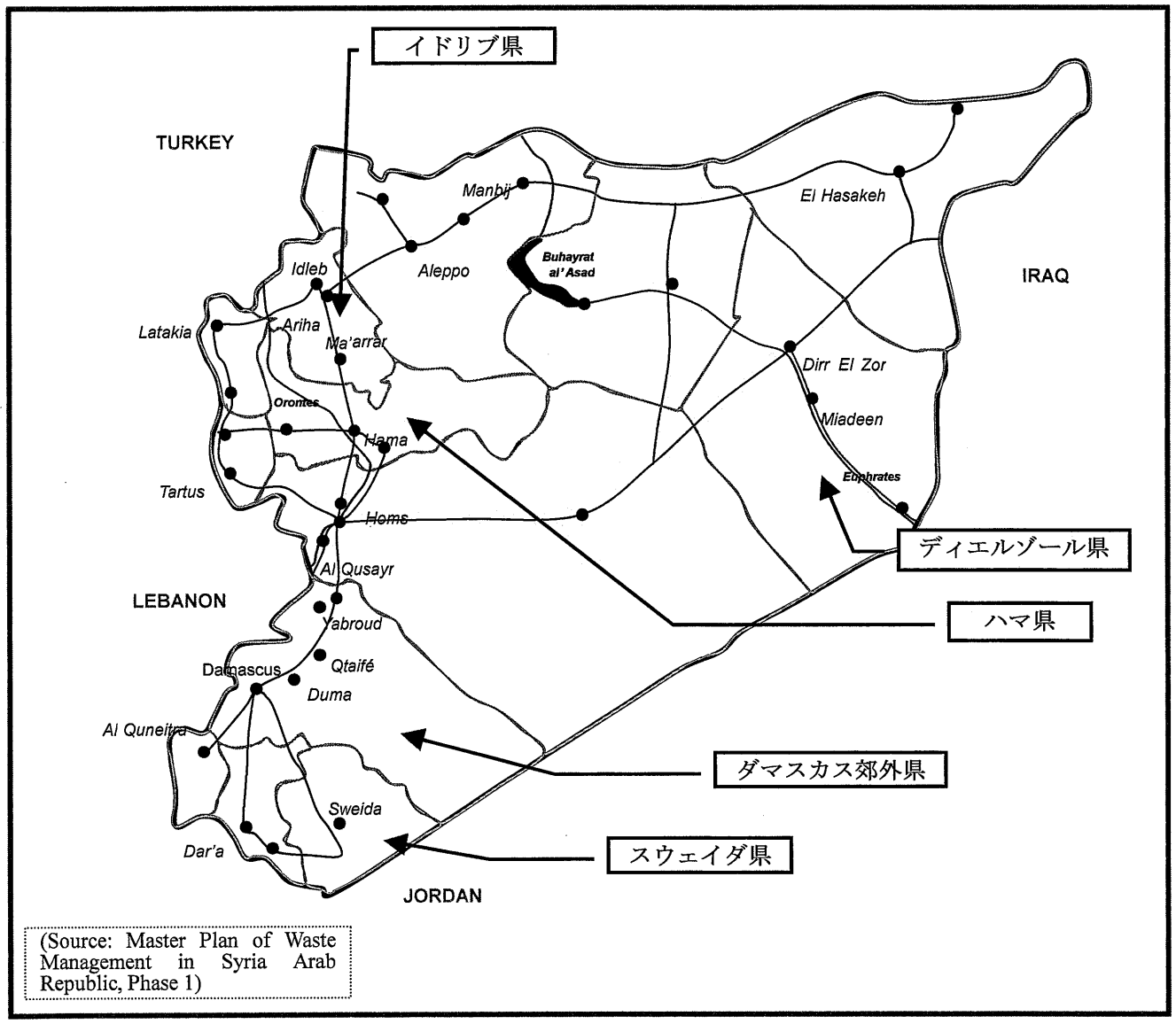

(Source: Master Plan of Waste Management in Syria Arab Republic, Phase 1)

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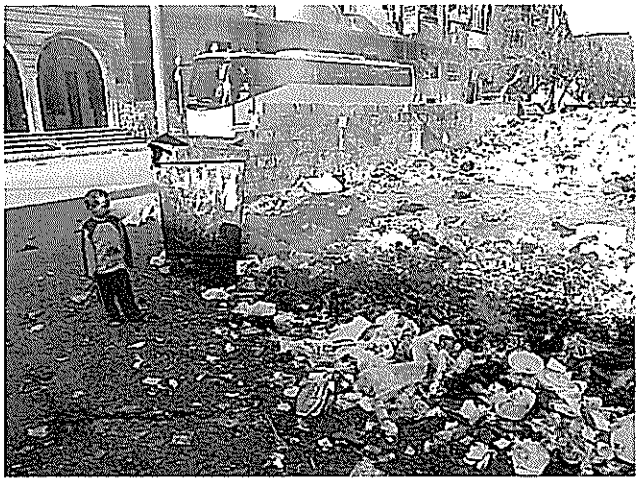

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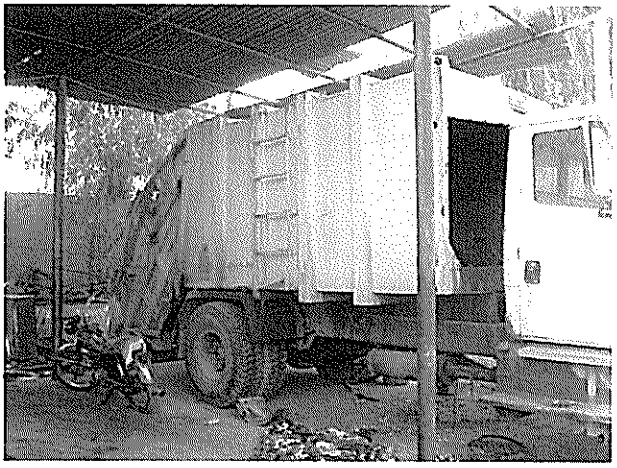

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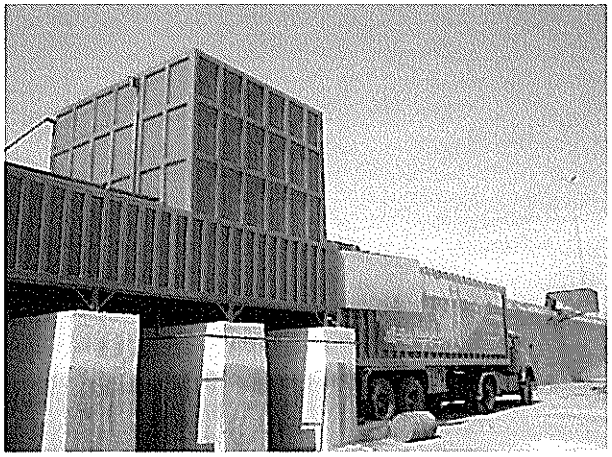

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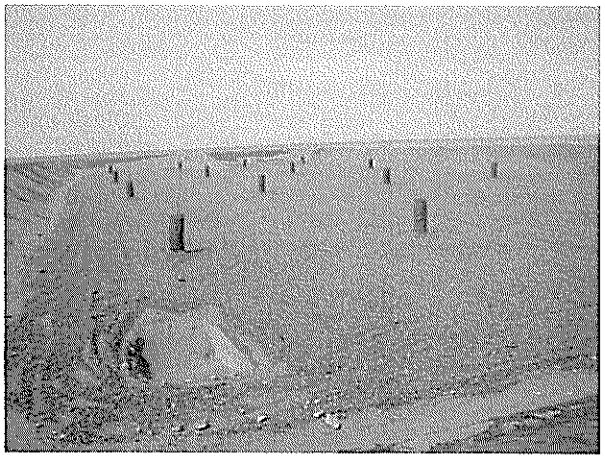

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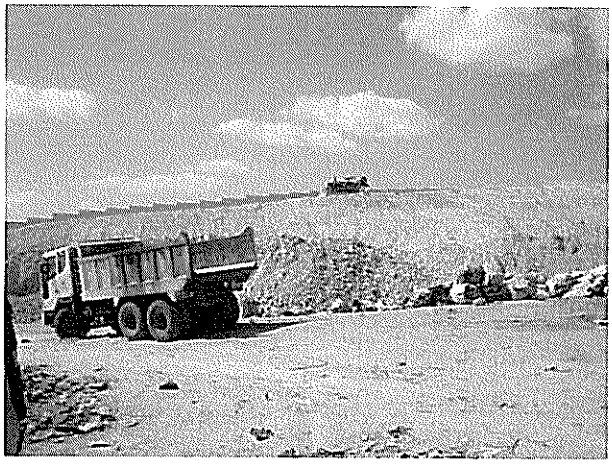

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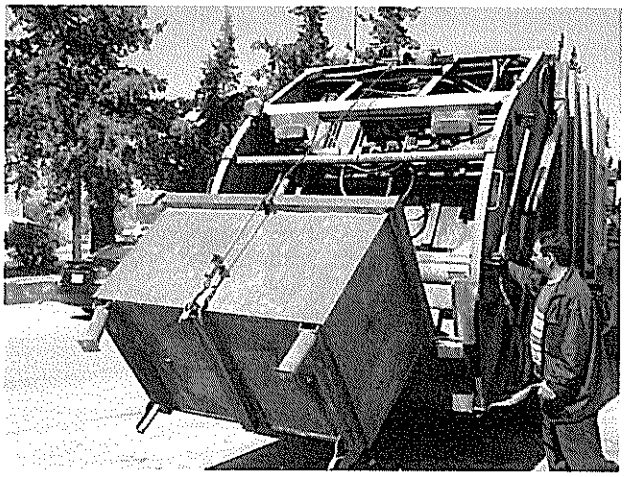

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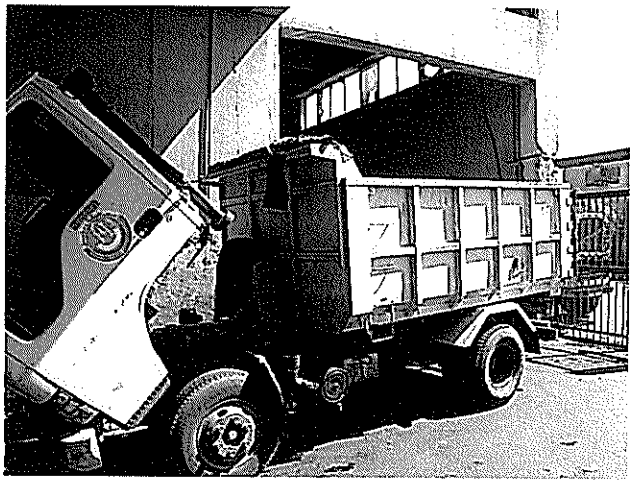

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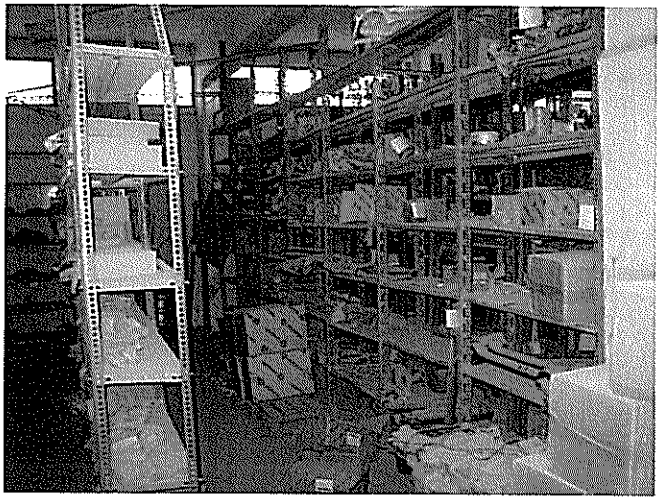

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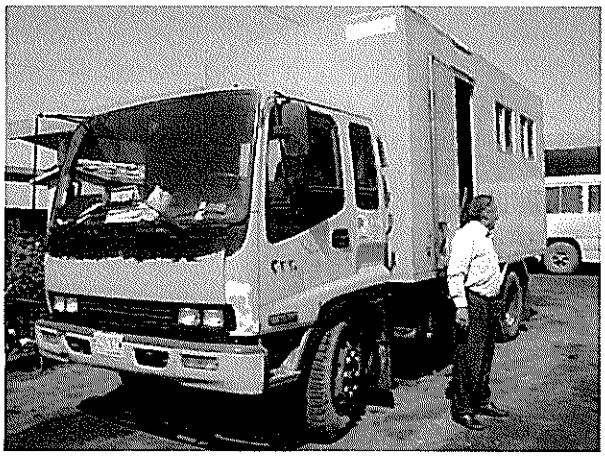

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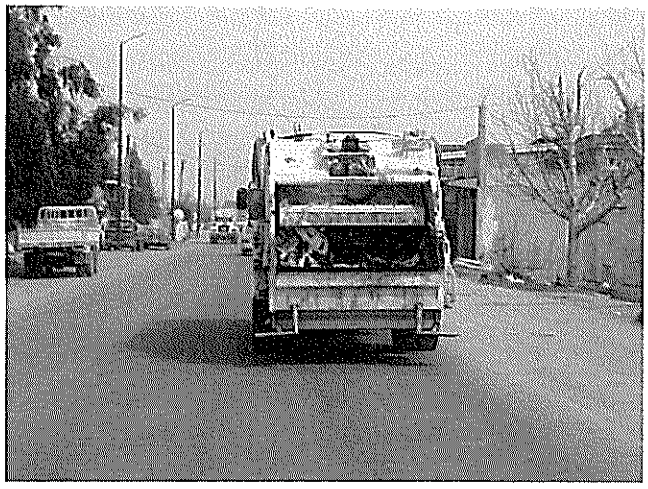

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9.5 既存 Der Alba 最終処分場とコンパクタ

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要　　約

シリア・アラブ共和国（以下シリア）では、経済活動の活発化や人口増加に伴う廃棄物発生量の増加に対し、適切な廃棄物処理ができず、市内での廃棄物堆積などが生じ、都市環境や人々の生活に悪影響を及ぼしている。

廃棄物の適切な処理･管理体制の整備を図るため、わが国はこれまでダマスカス市、アレッポ市、ホムス・ラタキア市及び周辺 3 市に対して無償資金協力や開発調査を実施し協力を行ってきた。しかし他の地方都市でも廃棄物処理の需要が増大しており、廃棄物の市内堆積が散見される。シリア政府は 2007 年にハマ市、ディエルゾール市、スウェイダ市、イドリブ市（非公式な追加でダマスカス郊外県）における廃棄物収集・運搬機材の供与要請をわが国に対し行った。しかしながら、要請書には現行の問題点や機材供与による改善効果等に係る基礎的な情報が不足しており、各都市の優先度についても不明であった。

このような背景を踏まえ、地方都市における廃棄物管理に係る協力の必要性・妥当性を検討し、中長期的展望を整理するとともに、要請のあった無償資金協力に関し、必要情報を収集・整理することを目的として本プロジェクト形成調査を実施した。

調査団は、シリア政府及びいくつかの地方自治体と協議を行い、廃棄物管理行政に係る現状につき聴取し、要請のあった無償資金協力案件の意義や妥当性について確認した。

シリアには廃棄物管理を含む環境行政全般の基本を規定している環境基本法ともいうべき法律 50 が 2002 年に公布されている。また、廃棄物種類の定義、廃棄物管理、処理等の内容、責任、罰則等を規定した法律 49「公衆衛生及び美観に係る法律」〔2004 年に規則（Decree）から法律に昇格〕も制定されている。

また、シリアでは廃棄物管理に係る全国マスタープランを策定し、これに基づいて各県においてアクションプランの準備を進めている。アクションプランに従い衛生埋め立て処分場の整備等を進めている現状も、調査した多くの県で確認することができ、シリアが総合的見地から廃棄物処理体制の改善に取り組んでいることが判明した。しかし、廃棄物収集に関しては、調査した地方自治体の所有する機材はおおむね古く、使用期間が 10 年を超えているものが大半で、機材不足は明らかであった。過去に無償資金協力により供与されたダマスカス市やアレッポ市の機材現状を確認したところ、それらが 10 年以上たった現在も、適切な維持管理により大多数が活用されていることが判明した。新たに要請のあった機材についても、これらの過去案件と同様に有効活用され、環境改善に資することが期待される。

都市の優先度についてシリア側と協議を行う際には、客観的に検討できるよう評価表作成による比較を調査団側から提案した。評価項目は、維持管理状況（実施体制や収集状況、スペアパーツの入手しやすさ等）、予算措置、現有機材の状況、埋め立て地の状況、アクションプランの策定状況、その他とし、単に機材の不足・老朽度合いだけでなく総合的見地から検討した。その評価結果は、ダマスカス郊外県、イドリブ、ハマが同点で 1 位、次にスウェイダ、ディエルゾールの順であった。なお、人口増加と首都圏の一部を成す地理関係から、特にダマスカス郊外県の重要性が強調された。

なお、ダマスカス郊外県にはイラクからの避難民が多数滞在しており、シリアの負担となっていることから、同県への協力はシリア・イラク避難民双方への裨益が期待できると考えられる。

また、現地調査の結果、各地方自治体において廃棄物管理に従事する担当者の能力向上の必要性がみられたため、既に JICA との協力により地方自治環境省が実施している廃棄物管理現地国内研修の内容を充実化し、廃棄物管理全般に関する知識の修得、現状分析の手法、計画手法等に係る項

目を研修に取り入れることを調査団より提言した。このほか、シリアに対する日本の中長期的協力の方向性としては、アクションプランで示されている廃棄物管理システム運営、管理のためのキャパシティ・ビルディング、環境教育・住民啓発、代表的一都市を選んでの一貫したモデル事業の実施、環境社会配慮に即したソフト面での協力〔ウェストピッカーへの対応、廃棄物管理にあたっての環境影響調査（EIA）など〕といった事項が考えられる。

上述の各都市現状や優先度、能力向上に係る提言などをミニッツに取りまとめ、シリア地方自治環境省副大臣と援助窓口機関である国家企画庁国際協力局長、並びに当調査団長である JICA シリア事務所長との間で署名し取り交わした。

なお、追加されたダマスカス郊外県に係る機材供与要請は正式書類の提出がなされていなかったため、早急に外交ルートを通じて正式要請書を提出するよう、調査団よりシリア側へ依頼をした。

第１章　調査概要

１－１　調査の背景と目的

シリア・アラブ共和国（以下、「シリア」と記す）では、経済活動の活発化（経済成長率 5.1%：2005 年世界銀行）や人口増加（人口増加率 2.5%：同）に伴う廃棄物発生量の増加に対し、適切な廃棄物処理ができず、市内での廃棄物堆積などが生じ、都市環境や人々の生活に悪影響を及ぼしている。

廃棄物の適切な処理・管理体制の整備を図るため、わが国はこれまでダマスカス市に無償資金協力（ダマスカス市ごみ処理機材改善計画：1995 年度）による廃棄物収集・運搬機材の供与、アレッポ市に同様の無償資金協力（アレッポ市ごみ処理機材整備計画：1997 年度）、ホムス、ラタキア市及び周辺 3 市には開発調査による廃棄物管理マスタープラン作成（地方都市廃棄物管理計画調査：2001 年）、及び無償資金協力（地方都市廃棄物処理機材整備計画：2006～2007 年度）による廃棄物収集・運搬機材供与を実施してきた。しかし他の地方都市でも廃棄物処理の需要が増大しており、廃棄物の市内堆積が散見される。

シリア政府は 2007 年にハマ市、ディエルゾール市、スウェイダ市、イドリブ市における廃棄物収集・運搬機材の供与要請をわが国に対し行った。しかしながら、要請書には現行の問題点や機材供与による改善効果等に係る基礎的な情報が不足していた。また、近年イラク国避難民が流入し、処理能力を超える廃棄物が排出され環境が悪化しているダマスカス郊外県を上記要請都市に追加したい旨の要請もシリア側から寄せられており、各都市の優先度を再確認することが必要となっていた。

このような背景を踏まえ、地方都市における廃棄物管理に係る協力の必要性・妥当性を検討し、中長期的展望を整理するとともに、要請のあった無償資金協力に関し、必要情報を収集・整理することを目的として本プロジェクト形成調査を実施した。

１－２　調査団員

担当分野	氏　名	所　　属
総　括	富田　明子	独立行政法人国際協力機構　シリア事務所長
調査企画	船場　玲子	独立行政法人国際協力機構中東・欧州部　中東第一チーム
廃棄物管理計画	佐藤　信介	日本工営株式会社
廃棄物管理・機材計画	佐藤　尚文	国際航業株式会社

１－３　調査日程

調査期間：2008 年 2 月 29 日（金）～3 月 25 日（火）

日順	月　日	曜日	調査業務概要	
			佐藤信介団員（廃棄物管理計画）	佐藤尚文団員（廃棄物管理・機材計画）
1	2 月 29 日	金	移動　日本発（JL5097）→ドバイ経由	
2	3 月 1 日	土	移動　ダマスカス着（EK913）	
3	3 月 2 日	日	JICA シリア事務所打合せ、地方自治環境省表敬、国家企画庁（SPC）表敬	
4	3 月 3 日	月	ハマ調査	ダマスカス郊外県調査
5	3 月 4 日	火	ハマ調査	ダマスカス郊外県調査
6	3 月 5 日	水	アレッポ調査	ダマスカス郊外県調査
			船場団員合流	
7	3 月 6 日	木	アレッポ調査	ダマスカス郊外県調査
8	3 月 7 日	金	JICA シリア事務所にて打合せ	
9	3 月 8 日	土	ディエルゾールへ移動	資料整理
10	3 月 9 日	日	ディエルゾール調査	スウェイダ調査
11	3 月 10 日	月	マヤディーン調査 ダマスカスへ移動	スウェイダ調査
12	3 月 11 日	火	資料整理、アレッポへ移動	スウェイダ調査
13	3 月 12 日	水	イドリブ調査	ダマスカス調査
14	3 月 13 日	木	イドリブ調査 ダマスカスへ移動	ダマスカス郊外県調査
15	3 月 14 日	金	JICA シリア事務所にて打合せ	
16	3 月 15 日	土	地方自治環境省との協議（進捗報告、ミニッツ協議）	
17	3 月 16 日	日	資料整理、評価表作成	
18	3 月 17 日	月	評価表作成 JICA シリア事務所にて打合せ	
19	3 月 18 日	火	ホムス調査	ラタキア調査
20	3 月 19 日	水	報告書作成	
21	3 月 20 日	木	報告書作成	
22	3 月 21 日	金	報告書作成	
23	3 月 22 日	土	報告書作成	
24	3 月 23 日	日	地方自治環境省との協議（ミニッツ協議）	
25	3 月 24 日	月	ミニッツ署名 移動　ダマスカス発（EK914）→ドバイ経由	
25	3 月 25 日	火	移動　日本着（EK314）	

１－４　主要面談者

＜シリア側＞

（1）地方自治環境省（Ministry of Local Administration and Environment：MOLAE）

Mr. Sadek Abo Watfa	Deputy Minister
Ms. Roula Abazeed	Head of Solid Waste Management Department（廃棄物管理局）

（2）国家企画庁（State Planning Committee：SPC）国際協力局

Mr. Nader Sheikh Ali	Director

（3）ダマスカス郊外県

Eng. Louay Kharita	Rural Damascus	General Manager of Directorate of Technical Service
Eng. Sana Essa	Rural Damascus	Head of Regional Planning Department
Hassan AL Assadi	Rural Damascus	Director of Technical Affair
Hijazei AL Masri	Rural Damascus	Director of Solid Waste Department
Kaleel AL Jasem	Rural Damascus	Execution Engineering
Mayada AL-Fadel	Rural Damascus	Director of Treatment
Fatema Dib	Rural Damascus	Director of Studies and planning
Eng. E AL Namlee	Duma	Mayor
Eng. Fuaad Kareem	Duma	Head of Technical service
Thhaa AL-Touhish	AL-Saidaa Zinab	Mayor
Eng. Youseff AL-Saleh	AL-Saidaa Zinab	Head of Technical service
Abed AL Nasser Auratt	Harasta	Mayor
Ahmad Abdal Jalil	Harasta	In charge of Garage
Ghassanle Jasem	Harasta	In charge of Project planning
Abed AL Azeez AL-Assffar	AL-Kesswa	Mayor
Khaled Abarah	AL-Dumir	Mayor
Ghanem Kammrah	AL-Dumir	Accountant
Eng.Ammel AL-Kajem	AL-Dumir	Engineer

（4）スウェイダ県

Eng. ALI Ahmad Mansoura	Sweida Governorate	Governor
Eng. Hussam Hamed	Sweida Governorate	Head of SWM Sweida Governorate
Eng. Bassam AL Baadesh	Sweida Governorate	SWM of Sweida Governorate
Sfwan Abu Saada	Sweida city	Mayor
Malek Assfoor	Sweida city	Secretary
Dr. Emad Salammh	Sweida city	Health care officer
Nehal Hatem	Sweida city	Garage section
Fidaa Harb	Sweida city	Administration
Emad Al Tawil	Shahba city	Mayor

Tyssier AL-Shohf	Shahba city	Accountant
Adnan Abofaoor	Salkhad city	Mayor

(5) ディエルゾール県

Eng. Salama Mohamud	Dirr El Zor governorate	Director of Directorate of Dirr El Zor Technical Service
Eng. Mohammad Nory Helwany	Dirr El Zor city	Director of Directorate of Cleaner of Dirr El Zor City Council
Eng. Mouafab Mohammed	Dirr El Zor city	Director of Transfer Station of Dirr El Zor City Council
Eng. Hatiwa Afand	Dirr El Zor city	Director of Dept. of Waste Material and Health of Dirr El Zor City Council
Eng. Mouath Al Mahmmoud	Dirr El Zor governorate	Manager of Waste Materials of Dirr El Zor Technical Service
Eng. Alai Suadi Alali	Mayaden city	Mayor

(6) ハマ県

Eng. Mohamad Mashal	Hama governorate	Director of Directorate of Hama Technical Service
Eng. Mahaoud Kaisii	Hama governorate	Head of Dept. of Studying of Directorate of Technical Service
Eng. Pasem Aliwi	Hama governorate	Head of Dept. of Solid Waste of Directorate of Technical Service
Eng. Adnan Abo Rabieh	Hama city	Director of Directorate of Cleaner of Hama City Council
Eng. Usama Mohamad	Hama city	Head of Dept. of Solid Waste of Hama City Council

(7) イドリブ県

Eng. Ismael Ismael	Idleb governorate	Director of Directorate of Idleb Technical Service
Eng. Maan Armnazi	Idleb governorate	Architect/Head of Plan Office in Directorate of Idleb Technical Service
Dr. Abdelmounem Kourani	Idleb city	Chief of Cleaner Dept. of Idleb City Council
Eng. Manar Mazloum	Idleb governorate	Head of Solid Waste Management Dept. in Directorate of Idleb Technical Service

(8) ダマスカス市

Abed AL-Salam	Damascus city	Cleansing Department
Wailed jehaa	Damascus city	Cleansing Department
Qassem Salama	Damascus city	Workshop Department
Mourice Hddad	Damascus city	Compost plant Manager

Eng. Burhann al-hafezz	Damascus city	Compost plant assistant

（9）アレッポ市

Eng. Mohamad Hazzny	Aleppo city	Director of Directorate of Cleaner of Aleppo City Council
Eng. Ahmad Ajam	Aleppo city	Director of Directorate of Vehicle of Aleppo City Council
Eng. Raed Ghazal	Aleppo city	Engineer of Directorate of Vehicle of Aleppo City Council
Eng. Mustafa Esgea	Aleppo city	Head of Directorate of Vehicle of Aleppo City Council
Dr. Abed Al Razzak	Aleppo governorate	Head of Directorate of Aleppo Technical Service

（10）ラタキア県、ジャブレ市

Eng. Yhya Masri	Lattakia governorate	Technical service
Eng. Fayz Zyatt	Jableh	Mayor
Eng. Muhammad Kassab	Jableh	Technical service
Eng. Feras Kassab	Jableh	Technical service
Eng. Moustafa Darwish	Jableh	Technical service
Eng. Walid Hassan	Lattakia governorate	Manager of solid waste
Eng. Zuher Taffaha	Lattakia governorate	

（11）ホムス県

Eng. Khaleel Jdeed	Homs governorate	Director of Directorate of Homs Technical Service
Dr. Abu Mohamad		Professor of Al Baath University
Eng. Hassan Darweish	Homs governorate	Head of Solid Waste Management Dept. of Directorate of Homs Technical Service
Eng. Moffed Abittar	Homs city	Head of Vehicle Dept. of Directorate of Homs City Council

＜日本側＞

JICA シリア事務所

日比野　崇	所　員
Ousama Lazini	所　員

１－５　協議内容概要

調査団は、国家企画庁、地方自治環境省、要請のあった 5 県及びいくつかの地方自治体と協議を行い、廃棄物管理行政に係る現状及びシリア側の取り組み状況につき聴取するとともに、要請のあった無償資金協力案件の先方国家計画中における位置づけ、並びに意義や妥当性について確認した。

シリアの環境関連法としては法律 49 及び法律 50 が制定されており、それぞれ廃棄物種類の定義、

廃棄物管理、処理等の内容、責任、罰則等、及び廃棄物管理を含む環境行政全般の基本について規定している。

また、シリアでは廃棄物管理に係る全国マスタープランを 2004 年に策定し、これに基づいて各県においてアクションプランの準備を進めている。アクションプランに従い衛生埋め立て処分場の整備等を進めている現状も、調査した多くの県で確認することができ、シリアが総合的見地から廃棄物処理体制の改善に取り組んでいることが判明した(ディエルゾールはアクションプランを策定していない)。しかし、廃棄物収集に関しては、調査した地方自治体の所有する機材はおおむね古く、使用期間が 10 年を超えているものが大半であることが判明した。地方自治環境省副大臣からは改めて機材の不足による窮状が訴えられた。

また、要請のあった無償資金協力による機材供与を実施する場合の都市の優先度についてシリア側と協議した。先方に、政治的あるいは行政上優先度を上げたい地域の有無について数回確認したが、これに対する回答はなかったものの、人口増加と首都圏の一部を成す地理関係からダマスカス郊外県の重要性が強調された。客観的に検討できるよう評価表作成による比較を調査団側から提案し、先方も賛同した。評価項目は、維持管理状況（実施体制や収集状況、スペアパーツの入手しやすさ等)、予算措置、現有機材の状況、埋め立て地の状況、アクションプランの策定状況、その他とし、単に機材の不足・老朽度合いだけでなく総合的見地から検討した。この評価の結果、ダマスカス郊外県、イドリブ、ハマが同点で 1 位、次にスウェイダ、ディエルゾールの順であった。各県の評価表は次項 1－6 のミニッツに Appendix2 として添付されているとおりである。

また、現地調査の結果、各地方自治体において廃棄物管理に従事する担当者の能力向上の必要性がみられたため、特に、既に JICA との協力により地方自治環境省が実施している廃棄物管理現地国内研修の内容を充実化し、廃棄物管理全般に関する知識の修得、現状分析の手法、計画手法等に係る項目を研修に取り入れることを調査団より提言した。これについてもシリア側よりおおむね同意を得た。

1－6　ミニッツ

MINUTES OF MEETING
ON PROJECT FORMULATION STUDY
FOR ENVIRONMENTAL CONSERVATION PROGRAM
IN TERMS OF SOLID WASTE TREATMENT IN LOCAL CITIES
IN THE SYRIAN ARAB REPUBLIC

Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched to the Syrian Arab Republic (hereinafter referred to as "Syria") the project formulation team (hereinafter referred to as "Team") for Project Formulation Study for Environmental Conservation Program in terms of Solid Waste Treatment in local cities (hereinafter referred to as "Study") from March 1st to 24th, 2008.

The Team held discussions with the officials concerned of the Government of Syria and conducted field survey at the study areas.

In the course of discussions, both parties confirmed the main items described on the attached sheets.

Damascus, 24th March 2008

Ms. Akiko Tomita	Mr. Nader Sheikh Ali	Eng. Sadek Abo Watfa
Resident Representative	Director General	Deputy Minister
JICA Syria Office	International Cooperation	Ministry of Local Administration and Environment
	State Planning Commission	The Syrian Arab Republic
	The Syrian Arab Republic	

Attachment

1. Objective of the Study

The Team was dispatched to Syria in order to clarify the needs and necessity of cooperation in the field of solid waste management and collect preparatory data related to the Grant Aid project which was submitted to Japan in fiscal year 2007.

The Team explained to the Syrian side that this mission does not mean any commitment to adopt the Grant Aid project, and the Syrian side understood this point.

2. Findings of the Team

The Team prepared the Fact Findings Report (hereinafter referred to as "Report") attached hereto as Appendix 1 based on the site survey result. The Team found that equipments in almost all municipalities which were surveyed are quite old (more than ten years) and they face the difficulty in solid waste management operation due to shortage of equipment. The Ministry of Local Administration and Environment side agreed and accepted in principle the contents of the Report.

3. Priority of the projects

The Syrian side and the Team agreed on the priority as possible Grant Aid project as follows;

1) Rural Damascus(10 municipalities)
1) Hama (Hama city)
1) Idleb (Idleb city)
2) Sweida (Sweida city, Shahba city and Salkhad city)
3) Dirr El Zor (Dirr El Zor city, Mayaden city, Abo Kamal city, Hajeen city, Sbekhan city)

This priority was confirmed based on the Rating Result attached as Appendix 2 in which Rural Damascus, Hama, Idleb got the equal evaluation scores. Especially the urgent need for Rural Damascus governorate was emphasized by the Ministry of Local Administration and Environment citing the influx of people from other governorates and importance of the governorate surrounding the capital.

4. Recommendation by the Team

The Team has found that it is necessary to enhance the capability of the staff who are engaged in solid waste management after visiting many municipalities. There were also several requests from local authorities for technical cooperation regarding capacity development of the staff in order to implement their Action Plan properly. Besides the needs for some particular engineering themes, **overall understanding of solid waste management is quite important.**

There are already several efforts made by the Ministry of Local Administration and Environment and governorates such as to prepare the National Master Plan, to facilitate the preparation and

implementation of Action Plan in each governorate, to dispatch civil engineers from governorate to local authorities in order to supervise solid waste management, to improve local authorities' budget by introducing waste collection fares, to hold workshops in cooperation with JICA, etc. Nevertheless the capability of staff in local municipalities is still rather weak, for instance staff of some governorates feel less confident in implementing and managing their Action Plan. Especially the necessity of establishing transfer stations and composting plants differs depending on the many aspects and conditions in each governorate though they are defined as components of Integrated Centers in the National Master Plan.

For that reason the objective of capacity development should be said to gain **overall understanding of solid waste management** and the targeted persons are to be mainly engineers in local authorities who are in charge of solid waste management.

The Team emphasized the importance of analysis of the current conditions, planning capability and implementation since quantity and composition of wastes change rapidly along with the economic growth. The Team recommended the following points to be covered in the coming workshops with JICA in addition to the current curriculum which is aiming to understand collection and transportation methods;

1) Analysis of the current conditions
   - ✓ Quantity and composition of municipal, medical and industrial wastes
   - ✓ Waste stream - distribution of wastes starting from origin, composting amount, final treatment amount, illegal dumping amount, recycled amount, etc.
   - ✓ Collection and transportation task
   - ✓ Environment for workforce such as workers, drivers and vehicles
   - ✓ Finance
   - ✓ Laws and regulations
2) Planning for implementation

The following four points are to be included in addition to the mentioned-above six points;

- ✓ Issues of 3R-Reduce, Recycle, Reuse
- ✓ Environmental and social consideration
- ✓ Environmental education and awareness campaign
- ✓ Monitoring by local authorities

In addition, environmental monitoring in terms of leachate, offensive odor, methane gas, scenery and so on is also important.

The solid waste management department of the Ministry of Local Administration and Environment is also to be enhanced since their duties would increase more and more in the course of implementation of the National Master Plan, and the Ministry should support local authorities technically furthermore in order to facilitate the implementation of the Action Plans in each governorate.

Lastly the Team pointed out the serious situation in several governorates that the medical wastes are not collected nor treated appropriately, not even separated in the hospitals despite the Cleanliness Law number 49, 2004. It is also important issue to be tackled by the Ministry of Local Administration and Environment to make both medical and cleansing people aware the great risk of treating medical wastes and importance of following the Cleanliness Law number 49.

Fact Findings Report

1. "Master Plan of Waste Management in Syria Arab Republic"

The Syrian National Master Plan of Solid Waste Management was formulated in 2004 by the Ministry of Local Administration and Environment, and some of the governorates have prepared an Action Plan in accordance with the National Master Plan.

The principle of the Master Plan is to implement an integrated management program in each governorate. **Integrated Centers** which consist of sanitary landfill site, composting plant, sorting plant, hazardous waste storage, medical waste treatment facility and administration buildings are planned to be constructed in single locations in each governorate.

2. Action Plan in each governorate

The progress reached in preparing the Action Plan in the five governorates is as follows:

	Rural Damascus	Sweida	Dirr El Zor	Hama	Idleb
Ph1	○	○	×	○	○
Ph2	△	○	×	△	○
English	×	○	-	×	○

Ph1: diagnosis of the current situation and plan for implementing scenario defined in Master Plan

Ph2: detailed design and tender document preparation

○: completed; △: in progress; ×: none

2-1. Rural Damascus

The Action Plan for the governorate of Rural Damascus is to construct four Integrated Centers[1] and 15 transfer stations in the following five areas:

Jayroud, Ramadan, Ghizianeya, Rakhla, Sa'a Sa'a

The detailed designs and tenders of two transfer stations in Rakhla were completed and the **construction contract was exchanged in December 2007.**

2-2. Sweida

The Sweida governorate Action Plan is to construct one Integrated Center and one sanitary landfill site - without a composting plant or sorting plant – and four transfer stations. **One transfer station and Integrated Center are planned to be constructed and in operation by the end of 2008.**

2-3. Dirr El Zor

[1] There will be no Integrated Center in Sa'a Sa'a.

Though Dirr El Zor governorate **did not prepare an Action Plan**, it made plans to construct five sanitary landfill sites, one of which is now in operation in Dirr El Zor city. The remaining four sites are planned to be constructed by the end of 2008. In addition to the sanitary landfill site constructed in Dirr El Zor city, one transfer station equipped with a compactor was constructed and has been in operation since 2007.

2-4. Hama

The Action Plan of the Hama governorate is to construct four sanitary landfill sites, four composting plants, four sorting plants, and twelve transfer stations instead of constructing Integrated Centers since some of the components are not necessary in Hama. There are 14 existing dumping sites,including Kasoun Al-Jabal which Hama city is now utilizing, some of which will be rehabilitated and integrated into the four sanitary landfill sites mentioned above. The Hama governorate is now **preparing tender documents for the sanitary landfill sites.**

2-5. Idleb

The Idleb governorate Action Plan is to construct four sanitary landfill sites, five composting plants, five sorting plants, one medical waste treatment facility, and four transfer stations instead of constructing Integrated Centers.

Idleb city has already **put some components to tender**, namely the installation of the medical waste treatment facility, composting plants and sorting plants. The tender for composting plants and sorting plants failed and the contract process for the medical waste treatment plant has been delayed for administrative reasons. Tender for the sanitary landfill sites has been announced.

3. Current condition of each governorate

3-1. Rural Damascus (Duma city, Al-Saidaa Zinab village, Harasta city, Al-Dumir city, Al-Kesswa city were surveyed based on the guidance of the Rural Damascus governorate)

3-1-1. Population and number of local authorities, target local authorities

The population of the governorate reported in 2006[2] is 1.6 million, and there are 156 local authorities. Grant aid for 10 municipalities[3] is requested from the Syrian side. The Team surveyed Al-Saidaa Zinab village, Harasta city, Al-Dumir city out of those ten and referred to Duma city and Al-Kesswa city as samples. The relation between Action Plan areas and the selected target municipalities are shown in the chart below. The populations of the surveyed municipalities are: Duma

[2] 2006 statistics, registered number (actual number is 2.4 million)

[3] Though the formal application form for Grant Aid for Rural Damascus governorate has not been submitted to Japanese side yet, the following 10 municipalities were selected as the target by the Syrian side during this project formulation study; Al-Dumir, Harasta , Aurbeen, Al-Saidaa Zinab, Dariaa, Al-Hajjaar al-asswadd, Jaramana, Kudsaiaa, Mudamiate al-shamm, Al-Tell. At first the Rural Damascus governorate intended to submit the application of the Grant Aid for 23 municipalities including Duma and Al-Kesswa, but finally those cities were excluded.

(350,000), Al-Saidaa Zinab (40,000), Harasta (250,000), Al-Dumir (40,000), Al-Kesswa (75,000)[4].

Areas	Target municipalities
Jayroud	
Ramadan	Al-Dumir ,Harasta, Al-Tell
Ghizianeya	Aurbeen, Al-Saidaa Zinab,Dariaa, Al-Hajjaar al-asswadd, Jaramana
Rakhla	Kudsaiaa, Mudamiate al-shamm
Sa'a Sa'a	

3-1-2. Budget

The governorate budget for solid waste management in 2008 is **75 million SP**. 70 million SP will be used for the construction of two transfer stations in Rakhla, and the remaining 5 million SP for design and supervision. The municipality budgets of Duma, Al-Saidaa Zinab, Harasta, Al-Dumir, Al-Kesswa are as follows:

Municipality	Population*	Collection quantity*	Annual Budget* (2007)	Budget for Solid Waste Management*
Duma	350,000	234t/day	40 million SP	about 1/3 of annual city budget
Al-Saidaa Zinab	40,000	152 t/day	45 million SP	12million SP
Harasta	250,000	176 t/day	55 million SP	13 million SP
Al-Dumir	40,000	33 t/day	30 million SP	6 million SP
Al-Kesswa	75,000	28 t/day	44 million SP	6 million SP

*Approximation

3-1-3. Administration and Management

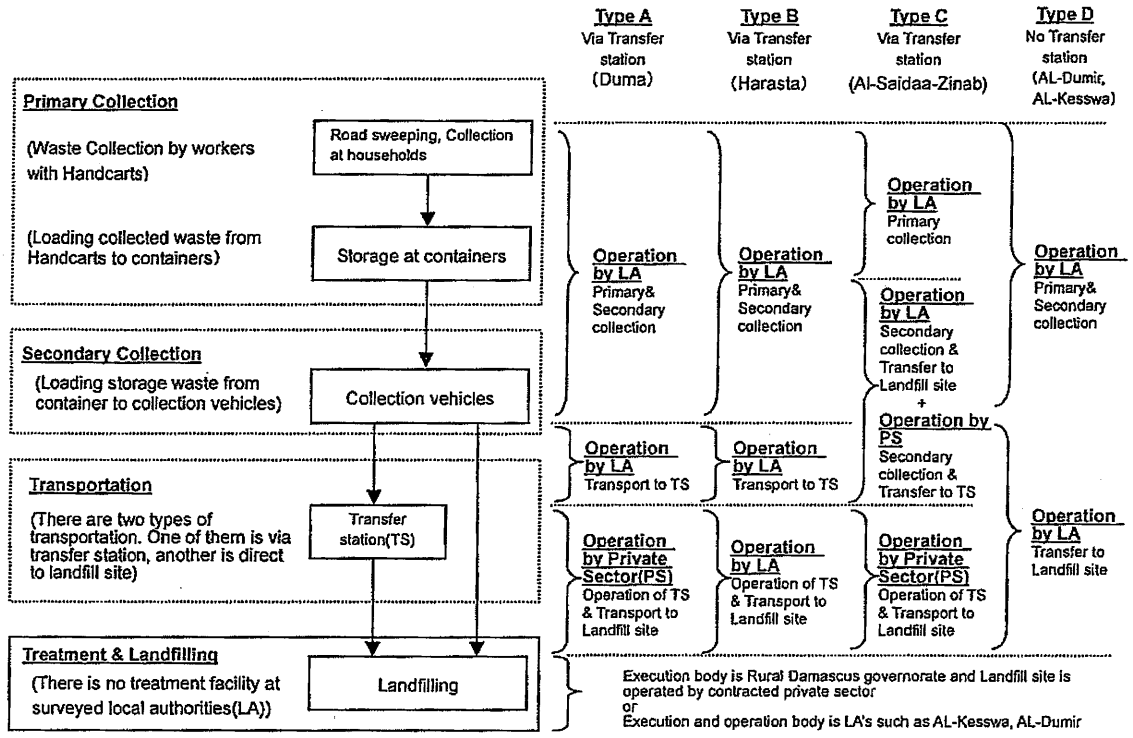
The governorate: operation of landfill sites

Headed by the Solid Waste Management division, Technical Service department.

Local authorities: collection of waste and transportation, operation of transfer stations

Headed by the Technical Services department.

[4] based on the answers to the questionnaire for this project formulation study



Task flow in Rural Damascus governorate; *demarcation of operation differs in each governorate*

3-1-4. Equipment

Duma city owns 15 collection vehicles, almost all of which have been **in operation 10-30 years**: compactor (8), tractor (4), and dump truck (3).

Al-Saidaa Zinab village owns 11 collection vehicles, almost all of which have been **in operation 20-30 years**: compactor (3), tractor (5), dump truck (1), wheel loader (1), and small dumper (1). The village has **contracts with private companies for collection since the above-mentioned 11 vehicles are not enough to cover its area,** and these contracts include usage of the following equipment: tractor (12), dump truck (2), and wheel loader (4).

Harasta city owns 14 collection vehicles, almost all of which have been **in operation 10-20 years**: compactor (4), tractor (1), dump truck (3), wheel loader (3), and small dumper (3).

Al-Dumir city owns 5 collection vehicles, almost all of which have been in operation less than 10 years: compactor (1), tractor (3), and bobcat (1).

Al-Kesswa city owns 7 collection vehicles, all of which have been **in operation 10-20 years**: compactor (2), tractor (1), dump truck (2), small dumper (1), and road sweeper (1).

The five municipalities above do not have their own workshops.

3-1-5. Existing Landfill sites

There are two landfill sites with facilities such as fence, gate, and administration building in the Rural Damascus governorate. The Ghizianeya landfill site is used by 28 local authorities and the Rakhla

landfill site is used by 8 local authorities. Neither of them is adequately equipped to operate as a sanitary landfill site. Each of the other 120 local authorities operates open dumping sites without fence nor administration buildings.

3-1-6. Collection

The amount of waste collected in Duma city is 234t/day. Garbage can been seen scattered in areas such as channels and the roadside, while container wastes are regularly collected. The city faces the problem of a **shortage of primary collection[5] capability.**

In Al-Saidaa Zinab village, the amount of waste collected is 152t/day. Garbage can been seen scattered in areas such as channels and the roadside. **Container wastes are not regularly collected** and they are scattered. The village faces the problem of a **shortage of secondary collection[6] capability.**

The amount of wastes collected in Harasta city, Al-Dumir city, and Al-Kesswa city is 176t/day, 33ton/day, 28t/day respectively.

3-1-7. Issues to be tackled

- Dividing transportation tasks from transfer stations to landfill sites, and distinguishing terms of operation for transfer stations and budget sharing between the governorate and local authorities has not yet been discussed toward upcoming operation of new facilities which will be constructed according to Action Plan.
- Existing landfill sites, especially Ghizianeya, need to be rehabilitated as sanitary landfill sites and new sites to be constructed in the future are also to be well planned and operated as sanitary landfills.

3-2. Sweida (Sweida city, Shahba city and Salkhad city were surveyed)

3-2-1. Population and number of local authorities, target local authorities

The population of the governorate reported in 2006[7] is 443,000. There are 61 local authorities. Grant aid for the cities of Sweida, Shahba and Salkhad is requested from the Syrian side. The populations of Sweida, Shahba, Salkhad are 96,000, 35,000, and 13,000 respectively[8].

3-2-2. Budget

The governorate budget for solid waste management in 2008 is **18 million SP** which will be used for implementing its Action Plan. The budgets for Sweida, Shahba, Salkhad are as follows:

Municipality	Population*	Collection quantity*	Annual Budget*	Budget for Solid Waste Management*
Sweida	96,000	142t/day	33 million SP	10 million SP

[5] Road sweeping and collection from household to container
[6] Collection and transportation from container to transfer station or landfill site
[7] 2006 statistics, registered number (actual number is 341,000)
[8] based on the answers to the questionnaire for this project formulation study

Shahba	35,000	38 t/day	21million SP	7million SP
Salkhad	13,000	24 t/day	12million SP	5million SP

*Approximation

3-2-3. Administration and Management

The governorate: operation of landfill sites and implementation of Action Plan

Headed by the Solid Waste division, Technical Service department.

Local authorities: collection of waste and transportation to landfill sites

Headed by the Technical Service section.

3-2-4. Equipment

Sweida city owns 17 collection vehicles, almost all of which have been **in operation about 10-20 years**: compactor (8), tractor (7) and road sweeper (2). The city has its own workshop.

Shahba city owns 9 collection vehicles, almost all of which have been **in operation about 10-20 years**: compactor (3), tractor (5) and road sweeper (1). The city doesn't have its own workshop.

Salkhad city owns 3 collection vehicles, most of which were newly purchased about five years ago: compactor (1) and tractor (2). The city doesn't have its own workshop.

3-2-5. Existing Landfill sites

Each city dumps wastes in different sites. Sweida city uses Kanker landfill site, which is now **being improved as a sanitary landfill site** as well. Shahba and Salkhad cities use open dumping sites.

3-2-6. Collection

In Sweida city, the amount of waste collected is 142t/day. In Shahba city, the amount of waste collected is 38t/day and in Salkhad city, 24t/day. **Container wastes are regularly collected** in these three cities.

3-2-7. Issues to be tackled

- Dividing transportation tasks from transfer stations to landfill sites, and distinguishing terms of operation for transfer stations and budget sharing between the governorate and local authorities has not yet been discussed toward upcoming operation of new facilities which will be constructed according to Action Plan.

3-3. Dirr El Zor (Only Dirr El Zor city and Mayaden city were surveyed; information on other cities is based on answers retrieved through the questionnaire)

3-3-1. Population and number of local authorities, target local authorities

Population of the governorate is 1.4 million in 2006[9]. Number of local authorities is 105. Grant aid for Dirr El Zor, Mayaden, Abo Kamal, Hajeen, Sbekhan cities is requested from the Syrian side. Dirr El Zor, Mayaden, Abo Kamal, Hajeen, Sbekhan cities' population is 350,000, 75,000, 70,000, 65,000, and

[9] 2006 statistics, registered number (actual number is 1.0 million)

28,000 respectively[10].

3-3-2. Budget

The Dirr El Zor city budget for solid waste management in 2008 is **81.5 million SP**. 59 million SP will be used for construction of sanitary landfill sites, and the remaining 10 million SP for purchasing vehicles for landfill sites operation. The budgets for the cities of Dirr El Zor, Mayaden, Abo Kamal, Hajeen, Sbekhan are as follows:

Municipality	Population*	Collection quantity*	Annual Budget*	Budget for Solid Waste Management*
Dirr El Zor	350,000	300t/day	338.6 million SP	81.5 million SP
Mayaden	75,000	60 t/day	52.3 million SP	23.5 million SP
Abo Kamal	70,000	55 t/day	93.9 million SP	22.0 million SP
Hajeen	65,000	25 t/day	38.4 million SP	4.0 million SP
Sbekhan	28,000	14 t/day	20.3 million SP	3.5 million SP

*Approximation

3-3-3. Administration and Management

The governorate: they are not in charge of any collection task, transportation, landfill operation and engaged mainly in monitoring generally.

Headed by the Solid Waste division, Technical Service department.

Local authorities: collection of waste and transportation, landfill operation

Headed by the Directorate of Cleaner, Directorate of Vehicle and Directorate of Maintenance in each local authority. There is no directorate for solid waste management in small cities where, instead a person that deals with solid waste management is designated by the Mayor.

3-3-4. Equipment

Dirr El Zor city owns 33 collection vehicles, almost all of which have been **in operation about 10-20 years**: 16 m^3 compactor (5), 11 m^3 compactor (6), tractor (18), sweeper (1) and dump truck (3). The city has its own workshop.

Mayaden city owns 6 collection vehicles, almost all of which have been **in operation about 10-30 years**: compactor (1), trailer (2), truck (1) and dump truck (2). The city has its own workshop.

Abo Kamal city owns 11 collection vehicles: compactor (1), trailer (8) and truck (2). Hajeen city owns only two trailers. Sbekhan city owns 7 collection vehicles: trucks(4) and dump trucks(3).

A **donation from Shell**, the oil company, to the Dirr El Zor governorate in 2007 will be utilized to purchase equipment for Dirr El Zor city in 2008. The plan is to procure **compactor (3), dump truck (3), tractor (2) and sweeper (1)**.

3-3-5. Existing Landfill sites

There is a plan to construct five sanitary landfill sites in Dirr El Zor city, Mayaden city, Abo Kamal city,

[10] based on the answers to the questionnaire for this project formulation study

Hajeen city, Sbekhan city which are the target authorities of Grant aid requested to Japan. Only the sanitary landfill site of Dirr El Zor city is now in operation. The remaining four sites are scheduled to be constructed by the end of 2008.

Mayaden city has one open dumping site located on the windward side of the city.

3-3-6. Collection

In Dirr El Zor city, the amount of waste collected is 300t/day. In Mayaden city, the amount of waste collected is 60t/day. Container wastes are regularly collected in both cities. In Abo Kamal city, Hajeen city and Sbekhan city, the amount of waste collected is 55t/day, 25t/day, and 14t/day respectively.

3-3-7. Issues to be tackled

- There is difficulty to procure parts and spare parts because some of them are too old to be produced nowadays. Furthermore, the dealers are mainly located in Damascus and Aleppo and it usually takes time to procure foreign parts though them.

3-4. Hama (Hama city was surveyed)

3-4-1. Population and number of local authorities, target local authorities

The population of the governorate reported in 2006[11] is 1.8 million. There are 183 local authorities. Grant aid is requested by the Syrian side only for Hama city. The population of Hama city is 900,000[12].

3-4-2. Budget

The governorate budget for solid waste management in 2008: **40 million SP**

-15 million for sanitary landfill sites

-25 million for purchasing vehicles for landfill sites

Hama city's annual budget is 1,073 million SP in 2007. About 40-60% of the city's entire budget was allocated for solid waste management.

Municipality	Population*	Collection quantity*	Annual Budget*	Budget for Solid Waste Management
Hama	900,000	330t/day	1,073 million SP	About 40-60% of annual budget

*Approximation

3-4-3. Administration and Management

The governorate: they are not in charge of any collection task, transportation, landfill operation and engaged mainly in monitoring of Action Plan implementation.

Headed by the Solid Waste division, Technical Service department.

Local authorities: collection of waste and transportation, landfill operation

Headed by the Directorate of Cleaner, Directorate of Vehicle, Directorate of Maintenance in each local authority.

[11] 2006 statistics, registered number (actual number is 1.5 million)

[12] based on the answers to the questionnaire for this project formulation study

A-7

3-4-4. Equipment

Hama city owns 41 collection vehicles, almost all of which have been **in operation about 10-30 years**: compactor (22), tractor (12) and truck (7). The city has its own workshop.

3-4-5. Existing Landfill sites

Hama city uses Kasoun Al Jabal dumping site which will be rehabilitated as a sanitary landfill site according to the Action Plan.

3-4-6. Collection

The amount of waste collected in Hama city is 330t/day. **Container wastes are regularly collected.**

3-4-7. Issues to be tackled

- There is difficulty to procure parts and spare parts because some of them are too old to be produced nowadays. Furthermore, the dealers are mainly located in Damascus and Aleppo and it usually takes time to procure foreign parts though them.

3-5. Idleb (Idleb city was surveyed)

3-5-1. Population and number of local authorities, target local authorities

The population of the governorate reported in 2006[13] is 1.7 million. There are 488 local authorities. Grant aid was requested by the Syrian side only for Idleb city. The population of Idleb city is 150,000[14].

3-5-2. Budget

The governorate budget for solid waste management in 2008: **96 million SP**

-60 million for sanitary landfill sites

-30 million for purchasing vehicles for landfill sites

Idleb city's entire budget is 319 million SP in 2008. More than 30% will be used for solid waste management.

Municipality	Population*	Collection quantity*	Annual Budget*	Budget for Solid Waste Management
Idleb	150,000	100t/day	319 million SP	More than 30% of annual budget

*Approximation

3-5-3. Administration and Management

The governorate: transportation from container, landfill operation

Headed by the Solid Waste division, Technical Service department.

Local authorities: collection of waste to container

Headed by the Directorate of Cleaner, Directorate of Vehicle, Directorate of Maintenance in each local authority.

[13] 2006 statistics, registered number (actual number is 1.3 million)

[14] based on the answers to the questionnaire for this project formulation study

3-5-4. Equipment

Idleb city owns 21 collection vehicles, almost all of which have been **in operation about 10-30 years**: compactor (10), dump truck (3), trailer truck (2), backhoe (3) and sweeper (3). The city has its own workshop.

3-5-5. Existing Landfill sites

Idleb city uses Msbin dumping site. A new sanitary landfill site is to be constructed adjacent to the existing dumping site according to the Action Plan and this new site will be used by Idleb city, Areha city and Srakeb city.

3-5-6. Collection

The amount of waste collected in Idleb city is 100t/day. **Container wastes are regularly collected.**

3-5-7. Issues to be tackled

- There is difficulty to procure parts and spare parts because some of them are too old to be produced nowadays. Furthermore, the dealers are mainly located in Damascus and Aleppo and it usually takes time to procure foreign parts though them.
- Lack of knowledge and experience relating to tender procedure especially with sorting plant and composting plant.

Evaluation Sheet for the Current Condition of Solid Waste Management (SWM)

Rural Damascus governorate

Duma city, AL-Saida Zinab town,Harsta city, AL Dumir city and AL Kasswa city

Items		Evaluation and Rating		Score
1.Operation &Maintenance of SWM	1.1Execution body of SWM	■ Not clarified ■ Clarified	+ ++	++
	1.2 Repair system	■ Repairing at public workshop ■ Slight repair at public workshop, while major repair at private workshop ■ Repairing at private workshop	+ ++ +++	+++
	1.3Availablity of spare parts	■ Difficult ■ Not so difficult, however it takes time. ■ Not difficult	+ ++ +++	++
	1.4 Waste collection	■ Good ■ Lack of capacity of primary collection; waste scattering on the sidewalk, curve stone and drainage. ■ Lack of capacity of secondly collection; waste scattering at the containers and waste collection point	+ ++ +++	++
	1.5 Environmental education & awareness program of SWM	■ None ■ Some ■ Active	+ ++ +++	+
2.Budget	2.1 Percentage (%) of SWM budget of the city's whole budget.	■ Over 50% ■ 30%-50% ■ Less than 30%	+ ++ +++	+++
3.Condition of collection vehicles and heavy equipment	3.1 Percentage of old vehicles and heavy equipment(more than 10 years)	■ Less than 20% of all numbers ■ 20%-50% of all numbers ■ Over 50%	+ ++ +++	+++
	3.2 Frequency of cleaning	■ Irregularly ■ Regularly	+ ++	++
4.Landfill site	4.1Condition of existing landfill site operation	■ Poor ■ Rather poor ■ Good	+ ++ +++	+
	4.2 Environmental and social consideration	■ Negative impact ■ Some ■ None	+ ++ +++	+
	4.3Future plan	■ none ■ some, however not yet determined ■ Implementing	+ ++ +++	+++
5. Action plan		■ Not prepared ■ Prepared	+ ++	++
6.Others	6.1Medical waste	■ Separation of infectious waste ■ No separation	+ ++	++
Total				27

Note: Though the formal application form for Grant Aid for Rural Damascus governorate has not been submitted to Japanese side yet, the following 10 municipalities were selected as the target by the Syrian side during this project formulation study; Al-Dumir, Harasta , Aurbeen, Al-Saidaa Zinab, Dariaa, Al-Hajjaar al-asswadd, Jaramana, Kudsaiaa, Mudamiate al-shamm, Al-Tell. At first the Rural Damascus governorate intended to submit the application of the Grant Aid for 23 municipalities including Duma and Al-Kesswa, but finally those cities were excluded.

Evaluation Sheet for the Current Condition of Solid Waste Management (SWM)

Sweida governorate Sweida city, Shahba city and Salkhad city

Items		Evaluation and Rating		Score
1.Operation &Maintenance of SWM	1.1Execution body of SWM	■ Not clarified ■ Clarified	+ ++	++
	1.2 Repair system	■ Repairing at public workshop ■ Slight repair at public workshop, while major repair at private workshop ■ Repairing at private workshop	+ ++ +++	++
	1.3Availablity of spare parts	■ Difficult ■ Not so difficult, however it takes time. ■ Not difficult	+ ++ +++	++
	1.4 Waste collection	■ Good ■ Lack of capacity of primary collection; waste scattering on the sidewalk, curve stone and drainage. ■ Lack of capacity of secondly collection; waste scattering at the containers and waste collection point	+ ++ +++	+
	1.5 Environmental education & awareness program of SWM	■ None ■ Some ■ Active	+ ++ +++	++
2.Budget	2.1 Percentage (%) of SWM budget of the city's whole budget.	■ Over 50% ■ 30%-50% ■ Less than 30%	+ ++ +++	++
3.Condition of collection vehicles and heavy equipment	3.1 Percentage of old vehicles and heavy equipment(more than 10 years)	■ Less than 20% of all numbers ■ 20%-50% of all numbers ■ Over 50%	+ ++ +++	+++
	3.2 Frequency of cleaning	■ Irregularly ■ Regularly	+ ++	++
4.Landfill site	4.1Condition of existing landfill site operation	■ Poor ■ Rather poor ■ Good	+ ++ +++	+
	4.2 Environmental and social consideration	■ Negative impact ■ Some ■ None	+ ++ +++	+
	4.3Future plan	■ none ■ some, however not yet determined ■ Implementing	+ ++ +++	+++
5. Action plan		■ Not prepared ■ Prepared	+ ++	++
6.Others	6.1Medical waste	■ Separation of infectious waste ■ No separation	+ ++	++
Total				25

Note: The request form mentions only Sweida city, however Shahba city and Salkhad city were also surveyed since it was found through hearing from the Sweida governorate that those two cities are to be included as well.

Evaluation Sheet for the Current Condition of Solid Waste Management (SWM)

Dirr El Zor governorate

Dirr El Zor city, Mayadeen city

Items		Evaluation and Rating		Score
1.Operation &Maintenance of SWM	1.1Execution body of SWM	■ Not clarified ■ Clarified	+ ++	++
	1.2 Repair system	■ Repairing at public workshop ■ Slight repair at public workshop, while major repair at private workshop ■ Repairing at private workshop	+ ++ +++	+
	1.3Availablity of spare parts	■ Difficult ■ Not so difficult, however it takes time. ■ Not difficult	+ ++ +++	+
	1.4 Waste collection	■ Good ■ Lack of capacity of primary collection; waste scattering on the sidewalk, curve stone and drainage. ■ Lack of capacity of secondly collection; waste scattering at the containers and waste collection point	+ ++ +++	++
	1.5 Environmental education & awareness program of SWM	■ None ■ Some ■ Active	+ ++ +++	+
2.Budget	2.1 Percentage (%) of SWM budget of the city's whole budget.	■ Over 50% ■ 30%-50% ■ Less than 30%	+ ++ +++	+++
3.Condition of collection vehicles and heavy equipment	3.1 Percentage of old vehicles and heavy equipment(more than 10 years)	■ Less than 20% of all numbers ■ 20%-50% of all numbers ■ Over 50%	+ ++ +++	+++
	3.2 Frequency of cleaning	■ Irregularly ■ Regularly	+ ++	+
4.Landfill site	4.1Condition of existing landfill site operation	■ Poor ■ Rather poor ■ Good	+ ++ +++	++
	4.2 Environmental and Social consideration	■ Negative impact ■ Some ■ None	+ ++ +++	+
	4.3Future plan	■ none ■ some, however not yet determined ■ Implementing	+ ++ +++	+++
5. Action Plan		■ Not prepared ■ Prepared	+ ++	+
6.Others	6.1Medical waste	■ Separation of infectious waste ■ No separation	+ ++	++
Total				23

Note: The request form mentions Dirr El Zor, Mayaden, Abo Kamal, Hajeen, Sbekhan cities but site survey was conducted only in Dirr El Zor and Mayaden cities due to the time limitation.

Evaluation Sheet for the Current Condition of Solid Waste Management (SWM)

Hama governorate

Hama city

Items		Evaluation and Rating		Score
1.Operation &Maintenance of SWM	1.1Execution body of SWM	■ Not clarified ■ Clarified	+ ++	++
	1.2 Repair system	■ Repairing at public workshop ■ Slight repair at public workshop, while major repair at private workshop ■ Repairing at private workshop	+ ++ +++	+
	1.3Availablity of spare parts	■ Difficult ■ Not so difficult, however it takes time. ■ Not difficult	+ ++ +++	++
	1.4 Waste collection	■ Good ■ Lack of capacity of primary collection; waste scattering on the sidewalk, curve stone and drainage. ■ Lack of capacity of secondly collection; waste scattering at the containers and waste collection point	+ ++ +++	++
	1.5 Environmental education & awareness program of SWM	■ None ■ Some ■ Active	+ ++ +++	++
2.Budget	2.1 Percentage (%) of SWM budget of the city's whole budget.	■ Over 50% ■ 30%-50% ■ Less than 30%	+ ++ +++	++
3.Condition of collection vehicles and heavy equipment	3.1 Percentage of old vehicles and heavy equipment(more than 10 years)	■ Less than 20% of all numbers ■ 20%-50% of all numbers ■ Over 50%	+ ++ +++	+++
	3.2 Frequency of cleaning	■ Irregularly ■ Regularly	+ ++	++
4.Landfill site	4.1Condition of existing landfill site operation	■ Poor ■ Rather poor ■ Good	+ ++ +++	++
	4.2 Environmental and Social consideration	■ Negative impact ■ Some ■ None	+ ++ +++	++
	4.3Future plan	■ none ■ some, however not yet determined ■ Implementing	+ ++ +++	+++
5. Action Plan		■ Not prepared ■ Prepared	+ ++	++
6.Others	6.1Medical waste	■ Separation of infectious waste ■ No separation	+ ++	++
Total				27

Evaluation Sheet for the Current Condition of Solid Waste Management (SWM)
Idleb governorate
Idleb city

Items		Evaluation and Rating		Score
1.Operation &Maintenance of SWM	1.1Execution body of SWM	■ Not clarified ■ Clarified	+ ++	++
	1.2 Repair system	■ Repairing at public workshop ■ Slight repair at public workshop, while major repair at private workshop ■ Repairing at private workshop	+ ++ +++	+
	1.3Availablity of spare parts	■ Difficult ■ Not so difficult, however it takes time. ■ Not difficult	+ ++ +++	++
	1.4 Waste collection	■ Good ■ Lack of capacity of primary collection; waste scattering on the sidewalk, curve stone and drainage. ■ Lack of capacity of secondly collection; waste scattering at the containers and waste collection point	+ ++ +++	++
	1.5 Environmental education & awareness program of SWM	■ None ■ Some ■ Active	+ ++ +++	++
2.Budget	2.1 Percentage (%) of SWM budget of the city's whole budget.	■ Over 50% ■ 30%-50% ■ Less than 30%	+ ++ +++	++
3.Condition of collection vehicles and heavy equipment	3.1 Percentage of old vehicles and heavy equipment(more than 10 years)	■ Less than 20% of all numbers ■ 20%-50% of all numbers ■ Over 50%	+ ++ +++	+++
	3.2 Frequency of cleaning	■ Irregularly ■ Regularly	+ ++	++
4.Landfill site	4.1Condition of existing landfill site operation	■ Poor ■ Rather poor ■ Good	+ ++ +++	++
	4.2 Environmental and Social consideration	■ Negative impact ■ Some ■ None	+ ++ +++	++
	4.3Future plan	■ none ■ some, however not yet determined ■ Implementing	+ ++ +++	+++
5. Action Plan		■ Not prepared ■ Prepared	+ ++	++
6.Others	6.1Medical waste	■ Separation of infectious waste ■ No separation	+ ++	++
Total				27

Existing and requested equipment in each local authority

1.Rural Damascus

Local authorities	Existing equipment		Requested equipment (compactor truck)		
	Vehicle type	Amount	6ton	4 ton	2 ton
1 AL-Tell	compactor	4			
	tractor	2			
	dump truck	3			
	road sweeper	1			
			1	2	1
2 AL-Dumire	compactor	1			
	tractor	3			
				2	1
3 Harasstaa	compactor	4			
			3	2	1
4 Aurbeen	compactor	3			
	tractor	3			
	dump truck	3			
	road sweeper	1			
			1	2	1
5 AL-Saydah Zynabb	compactor	2			
			3	4	2
6 Dariaa	compactor	7			
	tractor	8			
	road sweeper	1			
			3	3	3
7 AL-Hajjaar,AL-asswadd	compactor	2			
	tractor	14			
	road sweeper	1			
			3	3	3
8 Jarmanaa	compactor	4			
	tractor	5			
	dump truck	2			
			6	4	2
9 Kudsaiaa	compactor	1			
	tractor	1			
	dump truck	1			
				2	1
10 Mudamiate AL-Shamm	compactor	2			
	tractor	3			
	road sweeper	1			
				4	3
subtotal			20	28	18
Total					66

2.Sweida

Collection vehicles

Local authorities	Existing equipment		Requested equipment					
	Vehicle type	Amount	Collection vehicle			Road sweeping		Medical waste
			compactor truck		dump truck	road sweeper	waste tank truck	special vehicle
			8m3	3m3				
1 Sweida	compactor truck	8						
	tractor	7						
	road sweeper	2						
			4	4	2	2	2	2
2 Shahba	compactor truck	3						
	tractor	5						
	road sweeper	2						
			2	2	1	1	1	1
3 Salkad	compactor truck	1						
	tractor	2						
			2	2	1	1	1	1
subtotal			8	8	4	4	4	4
Total								32

Heavy machines

facilities	Requested equipment								
	Transfer station					Heavy machines			
	dump truck		tank truck	trailer	pick-up	wheel loader		bulldozer	excavator
	8ton	10ton	12m3	20ton		1.2m3	3m3	385HP	0.7m3
1 AL-Swaraa transfer station				2			1		
2 Shakaa transfer station			1	2			1		
3 AL-Khade transfer station			1	2	1		1		
4 AL-Sweida transfer station			1	2	1		1		
5 Areekkaa Integrated center	2	1				2	2	1	1
6 AL-Rasheedaa transfer station		1						1	1
sub total	2	2	3	4	2	2	6	2	2
Total									25

3.Dirr El Zor

Collection

Local authorities	Existing equipment		Requested equipment		
	Vehicle type	Amount	Collection vehicle		
			compactor truck	truck	bobcat
1 Dirr El Zor	compactor truck	11			
	tractor	18			
	dump truck	3			
	road sweeper	1			
			1	30	5
2 Mayaden	compactor truck	1			
	trailer	2			
	truck	1			
	dump truck	2			
			1	5	1
3 Abo Kamal	compactor truck	1			
	trailer	8			
	truck	2			
			1	4	2
4 Hajeen	trailer	2			
			1	3	1
5 Sbekhan	truck	4			
	dump truck	3			
			1	3	1
subtotal			5	45	10
Total					60

Heavy machines

Local authorities	Existing equipment		Requested equipment			
	Vehicle type	Amount	Heavy machines			
			pickup	loader	bulldozer	dozer
1 Dirr El Zor	Wheel loader	2	2	1	1	2
2 Mayaden			1			1
3 Abo Kamal			1	1		1
4 Hajeen						1
5 Sbekhan						1
subtotal			4	2	1	6
Total						13

4.Hama

Collection

Local authorities	Existing equipment		Requested equipment					
	Vehicle type	Amount	Collection vehicle				Road sweeping	Medical waste
			compactor truck			dump truck	road sweeper	special vehicle
			12m3	8m3	4m3			
1 Hama	compactor	22	10	25	8	5	10	2
	dump truck							
	tractor	12						
	truck	7						
Total								60

Heavy machines

Local authorities	Existing equipment		Requested equipment			
	Vehicle type	Amount	Heavy machines			
			bulldozer	dump truck	compactor	loader
1 Hama			3m3	10m3		2m3
	pickup truck	3	4	5	2	1
	waste truck	4				
	trailer truck	2				
Total						12

5.Idleb

Local authorities	Existing equipment		Requested equipment					
	Vehicle type	Amount	Collection vehicle				Road sweeping	
			compactor truck			dump truck	bobcat	small sweeper	large sweeper
			10m3	5m3					
1 Idleb	compactor	10	15	12	10	5	10	10
	dump truck	3						
	trailer truck	2						
	backhoe	3						
	road sweeper	3						
Total								62

There is no request for heavy machines from Idleb.

１－７　所　感

シリア政府は、収集用機材については日本の援助を希望している一方で、シリア側としても最終処分場の建設を自国予算で進めている動きがあり、先進国並みとはいえないにしても、総合的な廃棄物管理体制を築こうとする意欲が確認された。

これまでわが国からダマスカス及びアレッポに供与した機材について、10 年以上たった今なお、手入れをしながら大切に使用されている現状が今回の調査により把握された。シリアでは、機材等の更新は減価償却の概念によるというよりも、とにかく壊れるまで使用するという傾向が顕著にあり、まだ使用可能であるものに対して予算措置しておくということが行政の手続き上もなかなか認められない状況にある。この結果、古いものでは 30 年前に購入したという車両もいまだ現役で使用される状況が全国各地で発生している。

機材の運用状況を適切に管理し、必要ならば新規購入のための予算措置を図っていくようシリア側に働きかけていくことは援助する側として当然今後も必要である。しかし過去の機材活用状況を見るに、今般要請のあった無償資金協力により廃棄物収集車両を供与することで収集状況を改善することが可能であり、機材は有効活用されるであろう。

機材が老朽化し不足しているために廃棄物収集が十分に行えていない状況があるなかで、最終処分場の整備など受入体制の改善に進捗もあり、また、過去案件の状況を見ても機材の維持・活用が十分に期待されることから、要請のあった無償資金協力案件は必要性、妥当性があると考えられる。

また、ダマスカス郊外県にはイラク避難民が数多く滞在している。統計上の数値は把握できなかったが、シリア側の負担となっていると考えられる。評価表でも上位にあがったダマスカス郊外県（特にセイドゼイナブやジャラマナ）に支援を行うことで、シリア人・イラク避難民双方への裨益が期待できるものと思われる。