Annex 5.3 Forms to be Submitted to MOI

Annex 5.3.1 Request Form for Transport Permit

Form : DIW-13-AP-FN-20(03)

Permission Request Form for Off-Site Transport of Waste or Unused Materials,
As defined under the Notification of MOI No 6 B.E. 2540(1997)

No.: .....(1)

Date: .....

Subject: Request for permission to off-site transport of waste or unused materials under the Notification of MOI, No.1 B.E. 2541(1998)

To: .....(2)

Attachment:
1. Copy of Factory License or Form: Raw Ngor 4 (complete set)
2. Copy of Certificate of Juristic Person Registration, together with copy of ID card of the power authorized persons
3. Details of disposal method of waste or unused materials
4. Letter of Power of Attorney (Original) affixed 30-Baht duty stamps (in case of proxy operator)
5. Flow chart of production process of waste or unused materials generation
6. Notification of waste or unused materials details (Form: Raw Ngor 6)

Company / Part., Ltd. / Factory .....
Type of Business ..... Factory Registration Number:.....
Located at .....Telephone:.....

Request for permission to off-site transport of waste or unused materials for disposal which have characteristics and properties under the Notification of Ministry of Industry No. 6 B.E. 2540(1997), between.....(date)..... and .....(date)..... Details are as follows:

No.	Section	Article	Name of Waste or Unused Materials (3)	Time/ Year	Volume (Ton/Year)	Method of Disposal	Operator (4)
1							
2							
3							
4							

This is for your action in accordance with the set out criteria by strictly monitoring transport and disposal in order to prevent the troubles.

For your information.

Yours faithfully,

(.....)
Factory License's holder
(PTO.)

Explanation:

(1) refers to Number of company letter (if any)

(2) refers to Director General of Department of Industrial Works

(3) refers to Waste or unused materials which have characteristics and properties under the Notification of Ministry of Industry No. 6 B.E. 2540(1997)

(4) refers to Disposer / recycler (identify name or company name or Factory name, etc.)

Attachment No. 3

1. In case of using **other disposal service contractors**
   1.1 Holding Type 101 factory licensee for hazardous waste disposal, a letter of consent or waste disposal contract must be attached.
   1.2 In case of recycle, reuse, recovery, exchange of waste or unused materials must be
   - Attached a copy of factory license of recycler
   - Attached details of production process, recycled waste volume including waste management generated from the recycling process
   - Attached a disposal contract or letter of consent to dispose waste or unused materials

2. In case of self-landfilling, a landfill layout, according to DIW criteria in the appendix 2, together with clay quality test and HDPE sheet.

3. In case of self-incineration, a certified document of efficient incinerator, according to DIW criteria in the appendix 2, must be attached.

4. In case of disposal by other methods, certified documents to affirm the operation result must be attached.

Attachment No. 6

Form Raw Ngor 6 refers to theNotification of waste or unused materials details – Appendix of Notification of MOI No. 6 B.E. 2540 (1997) (Data of hazardous waste from the previous year)

Form : DIW-13-AP-FN-21(03)

Permission Request Form for Off-Site Transport of Waste or Unused Materials
As defined under the Notification of MOI No 1 B.E. 2541(1998)

No.: .....(1)

Date: .....

Subject: Request for permission to off-site transport of waste or unused materials under the Notification of MOI, No.1 B.E. 2541(1998)

To: .....(2)

Attachment:
1. Copy of Factory License or Form: Raw Ngor 4 (complete set)
2. Copy of Certificate of Juristic Person Registration, together with copy of ID card of the power authorized persons
3. Details of disposal method of waste or unused materials
4. Letter of Power of Attorney (Original) affixed 30-Baht duty stamps (in case of proxy operator)
5. Flow chart of production process of waste or unused materials generation
6. Analysis result report of leachate extraction test (in particular of waste or unused materials according to Section 2, No.3)

Company / Part., Ltd. / Factory .....
Type of Business ..... Factory Registration Number:.....
Located at..... .....Telephone:.....

Request for permission to off-site transport of waste or unused materials for disposal which have characteristics and properties under the Notification of Ministry of Industry No. 1 B.E. 2541(1998), between.....(date)..... and .....(date)..... Details are as follows:

No.	Section	Article	Name of Waste or Unused Materials (3)	Time/ Year	Volume (Ton/Year)	Method of Disposal	Operator (4)
1							
2							
3							
4							

This is for your action in accordance with the set out criteria by strictly monitoring transport and disposal in order to prevent the troubles.

For your information.

Yours faithfully,

(.....)
Factory License's holder

(PTO.)

Explanation:

(1) refers to Number of company letter (if any)
(2) refers to Director General of Department of Industrial Works
(3) refers to Waste or unused materials which have characteristics and properties under the Notification of Ministry of Industry No. 1 B.E. 2541(1998)
(4) refers to Disposer / recycler (identify name or company name or Factory name, etc.)

Attachment No. 3

1. In case of using **other disposal contractors**, a copy of factory license of the said contractors together with letter of consent or disposal contract must be attached. For example: landfilling – a copy of factory license type 101 for centralized waste adjustment, waste or unused materials recycle in Section 1, Article 1-10. The operator name must be identified (may not be factory name).
2. In case of self-landfilling, a landfill layout, according to DIW criteria in the appendix 2, article 1.1, must be attached together with clay quality test.
3. In case of self-incineration, a certified document of efficient incinerator, according to DIW criteria in the appendix 2, article 1.2, must be attached.
4. In case of recycle of waste or unused materials, according to article 3 of section 2, a copy of factory license of recycler must be attached, together with details of production process, recycled waste volume including waste management generated from the recycling process.
5. In case of tipping into lowlands, map of land and a letter of landlord consent must be attached.
6. In case of dispatch to others for fertilizer process, the procedures and operator's name must be attached.

Attachment No. 6
Result report of leachate extraction procedure

1. Registered laboratory with Department of Industrial Works in waste or unused materials analysis
2. State laboratory

Annex 5.3.2 Notice of Details of Wastes or Unusable Materials Attached to the Ministry of Industry No.6 [B.E. 2540 (1997)] (Ro Ngo 6)

Date : .....

I, ..., Factory operator, office located at ....., Village....., Lane/Soi ....., Road ....., Sub-District/Sub-Area ....., District/Area ....., Province ....., Tel. ....., Fax .....,Factory Registration no. ....., located at .....,Village . ....., Lane/Soi ....., Road ....., Sub-District/Sub-Area ....., District/Area....., Province ....., Tel. ....., Fax ....., hereby notify of details on wastes or unusable materials as per the following particulars :-

Article 1.	The details about the wastes and unuseful materials and disposal method	Shown in Document no. 1
Article 2.	Sketch map of the place of storage, detoxification, disposal, discarding or landfilling	Shown in Document no. 2
Article 3.	Transportation details	Shown in Document no. 3
Article 4.	Landfill and monitoring action plan	Shown in Document no. 4
Article 5.	Emergency response plan for any accident	Shown in Document no. 5

Signed : .....

( )

The owner of factory.

DETAILS ON WASTES OR UNUSABLE MATERIALS AND DISPOSAL METHOD

Order	Belonging in Annex		Name of wastes or unusable materials	Quantity	Disposal method	Remark
	Section	Article				

Signed : .....

( )

The owner of factory.

SKETCH MAP OF PLACE OF STORAGE, DETOXIFICATION, DISPOSAL OR LANDFILL

Signed : .....

( )

The owner of factory.

MOVEMENT AND TRANSPORT

1. Method of movement and transport.

2. The container, the vehicle type and the vehicle registration number.

3. The transportation route for storage, detoxification, disposal, discarding or landfilling.

4. The transporter (if any) :-

   4.1 Name .....

   Address / Office.....

   .....

   4.2 Name .....

   Address / Office.....

   .....

5. Copy of Uniform Industrial Hazardous waste manifest.

Signed : .....

( )

The owner of factory.

LANDFILL AND MONITORING PLAN (IF ANY)

1. Landfill procedure

2. Monitoring procedure

Signed : .....

( )

The owner of factory.

EMERGENCY RESPONSE PLAN

1. While storing

2. While moving or transporting

3. While detoxifying, disposing, discarding or landfilling

Signed : .....

( )

The owner of factory.

Annex 6

Annex to Chapter 6
of the Main Report

Annex 6.1 Non-HW DB User's Manual

1. To start the program, click Start --> NonHIW as in Figure 1

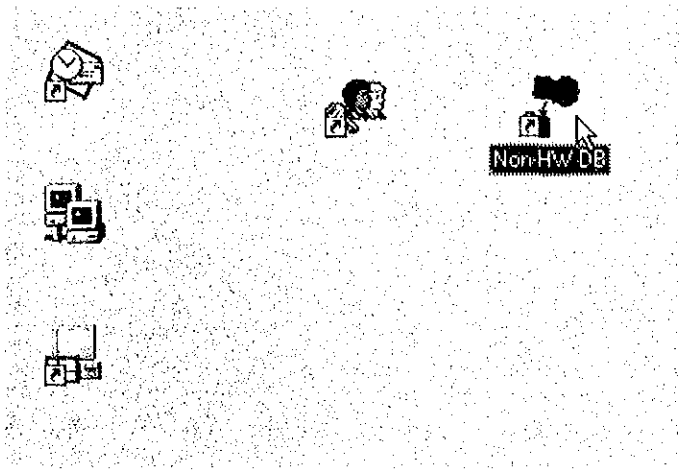


Figure 1

2. After enter to the program, the following screen will appear. Login name and Password should be correctly filled and click "Login" button as in Figure.2

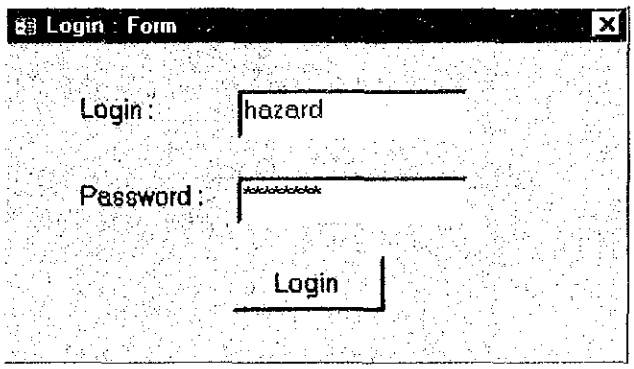


Figure 2

3. After the password is verified, the main menu will appear as in Figure 3

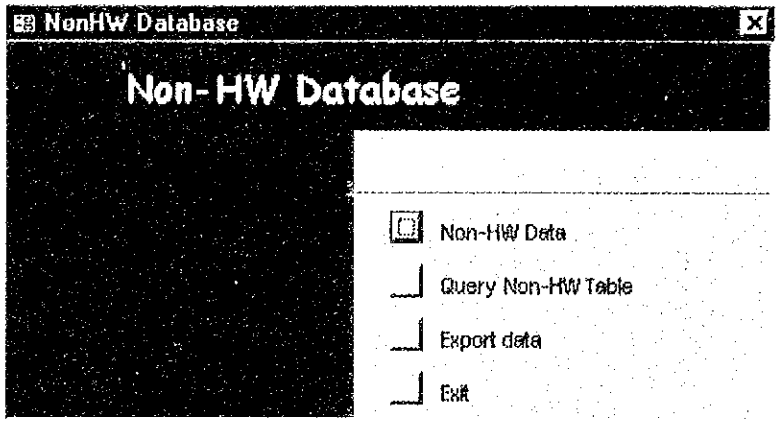


Figure 3

4. In the main menu click [Non-HW Data] and the Factory Data form will appear as in Figure 4.

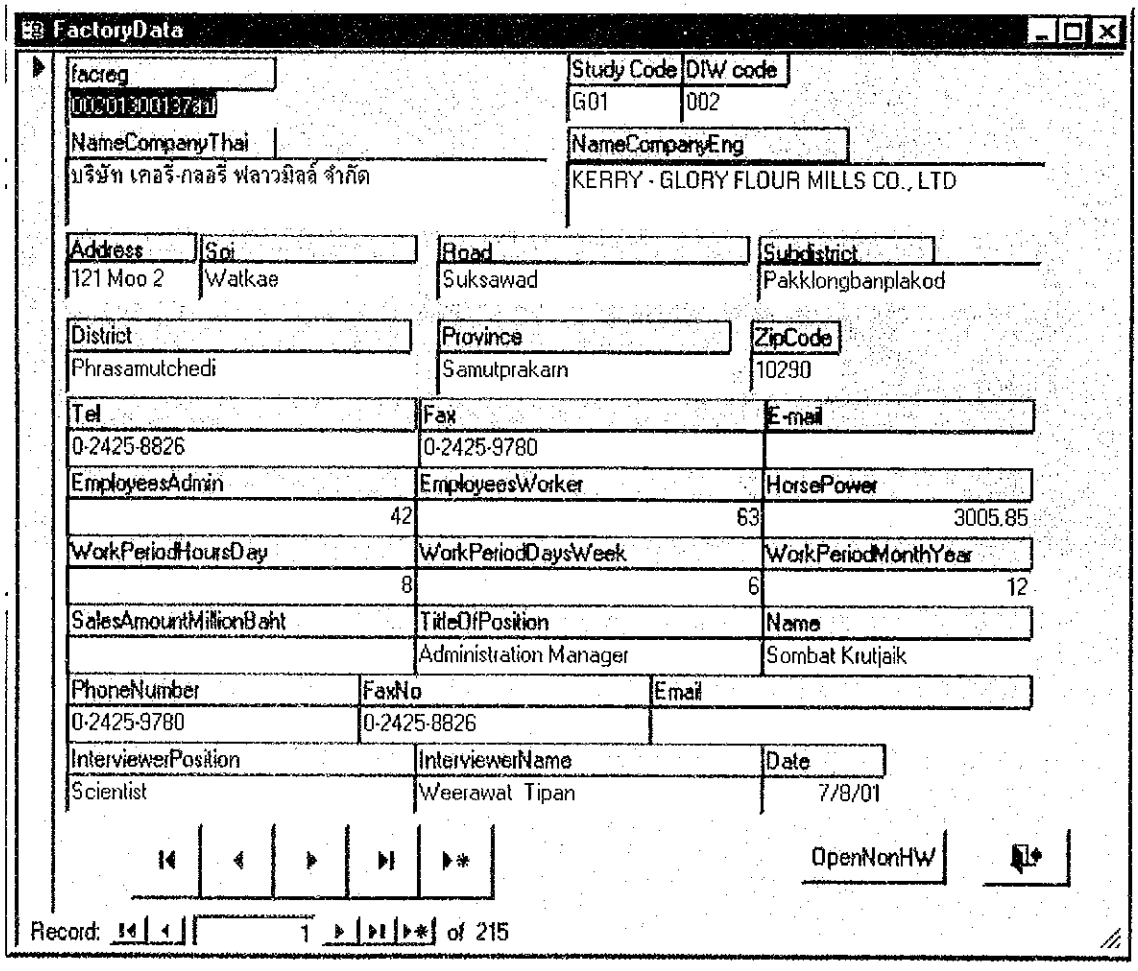


Figure 4

- User can use  to show the previous, next, and last data and also add new data

- To view a Non-HIW data of the factory, click  and the following form will appear as in Figure 5.

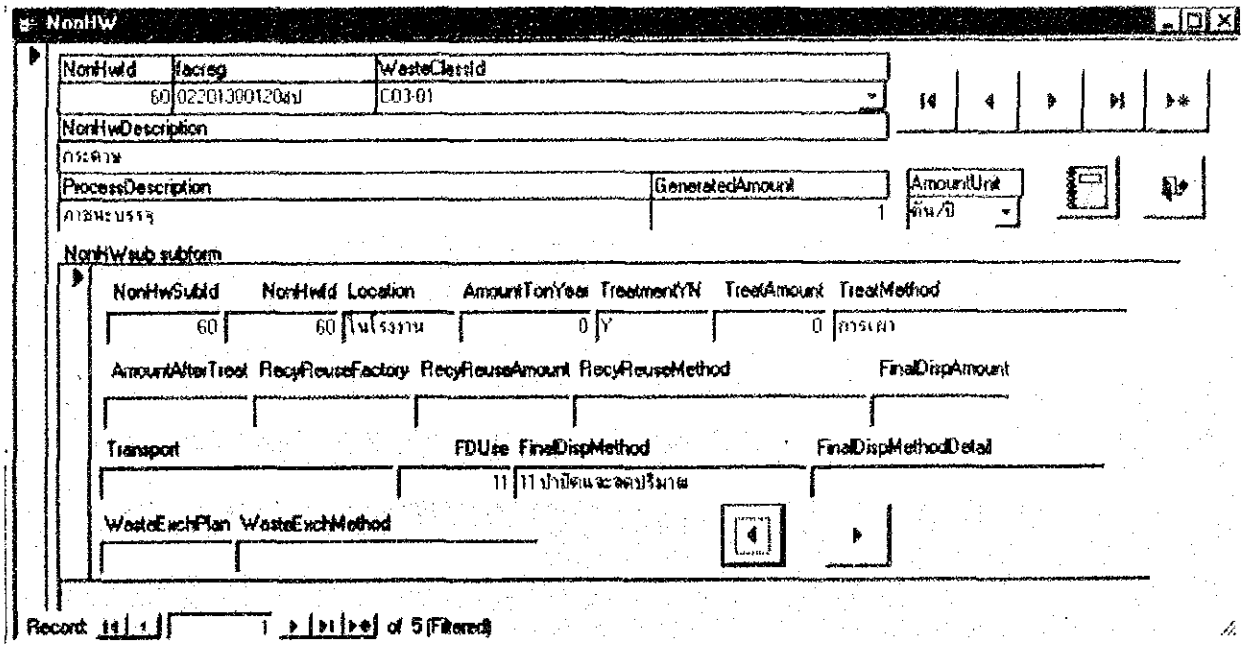


Figure 5

- To print the report, click  and the preview print will appear as in Figure 6

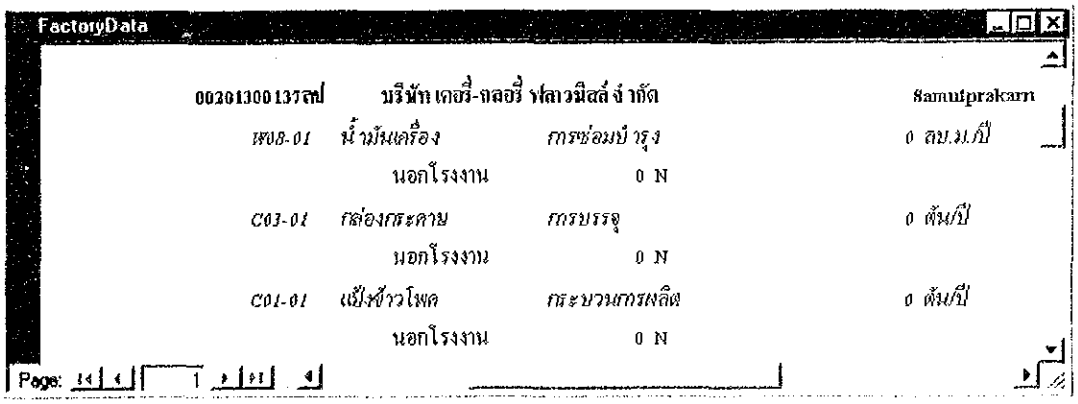
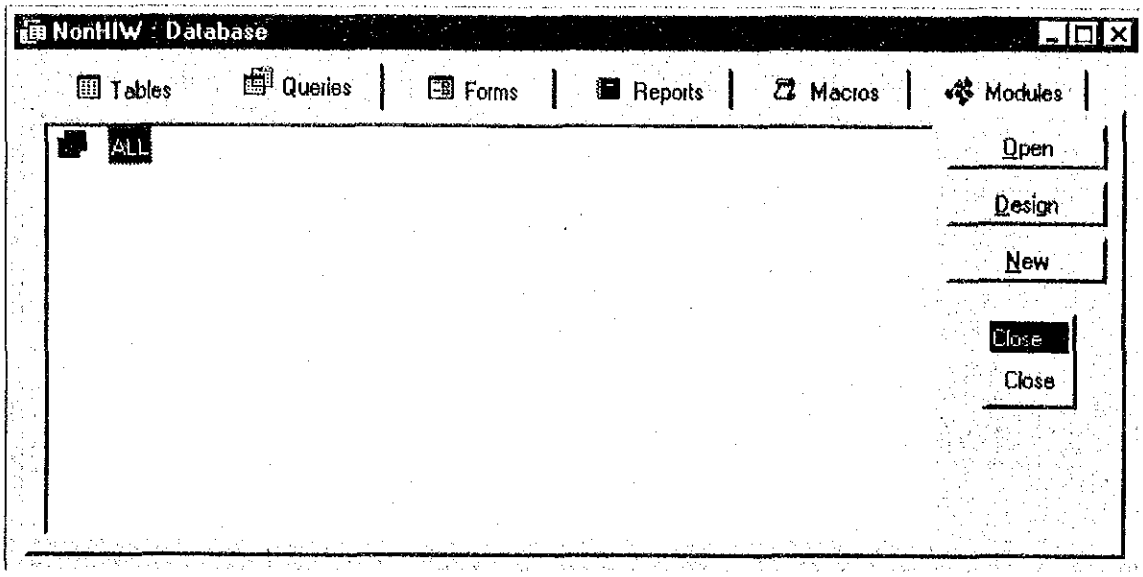


Figure 5

- To exit, click 

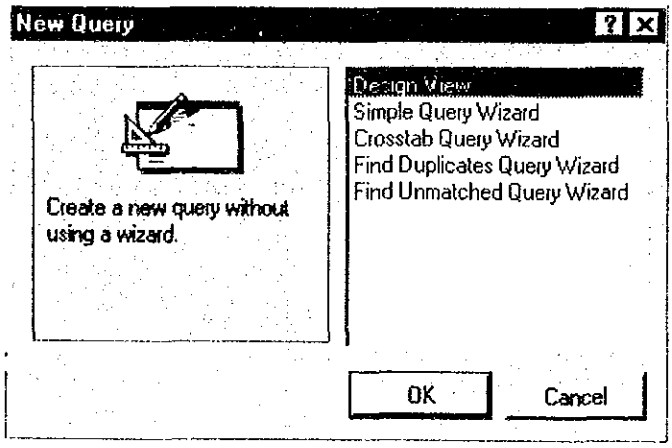
5. To make a Query using Non-HW data, in the main menu click [Query Non-HW Table] and the Queries form will appear as in Figure 6



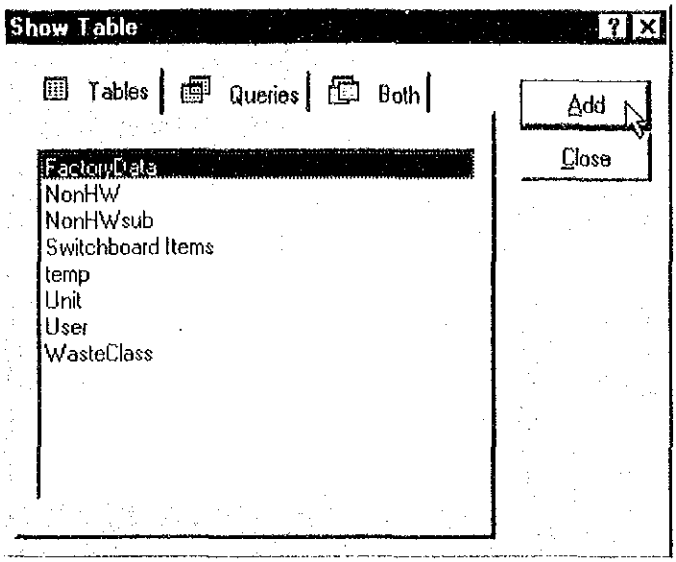
A query is a series of actions such as sorting data, choosing data by predetermined criteria, and selecting tables and fields. You can also do substantial calculations with queries. Once you make a query and save it with a specific name, you do not need to go through all the actions again. Instead, you can simply run the query to do the series of actions.

Steps to Create a New Query (Below is an example to make a query which shows data in a field "FactoryData*" in a database table "FactoryData" in the Non-HW DB in an ascending order.)

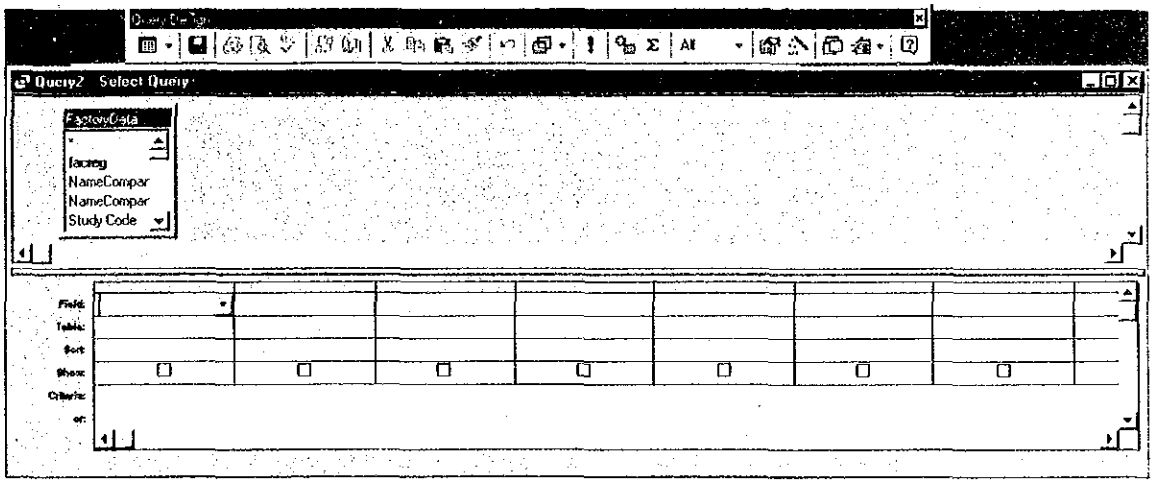
- Click  and the next screen will appear



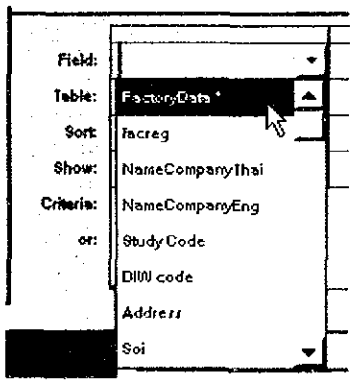
- Select [Design View]



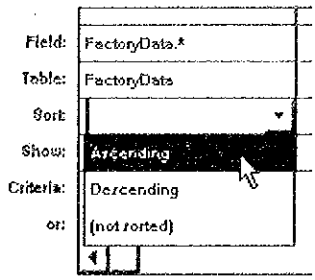
- Select the table and the next screen will appear



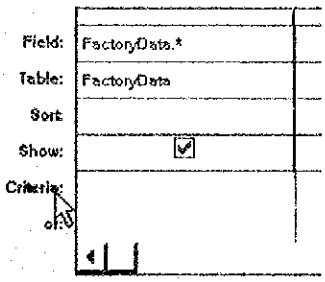
- Select the fields from the Field List that you want to select the Query Design grid, along with any fields you will use for selection criteria.



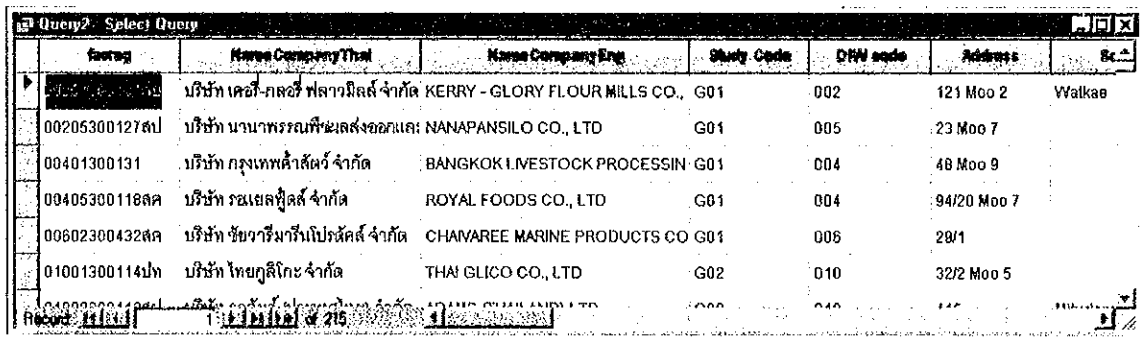
- Enter the type of sort.



- Enter the criteria for creating the result set in the Query Design grid.

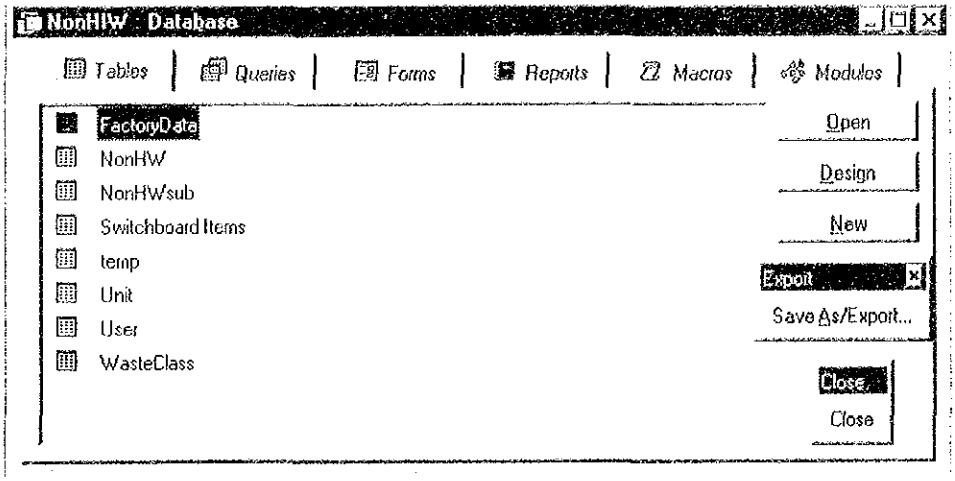


- Click the Run button and will appear like next screen with all the data selected.



If you want different query repeats the same steps. Close the windows to go back to the main menu.

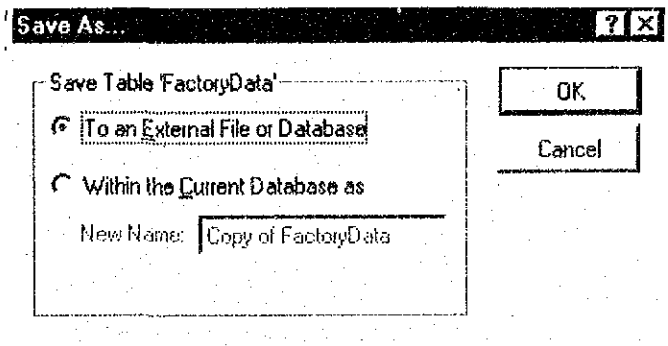
6. To export a data of Non-HW DB, in the main menu click [Export data] and the next screen will appear.



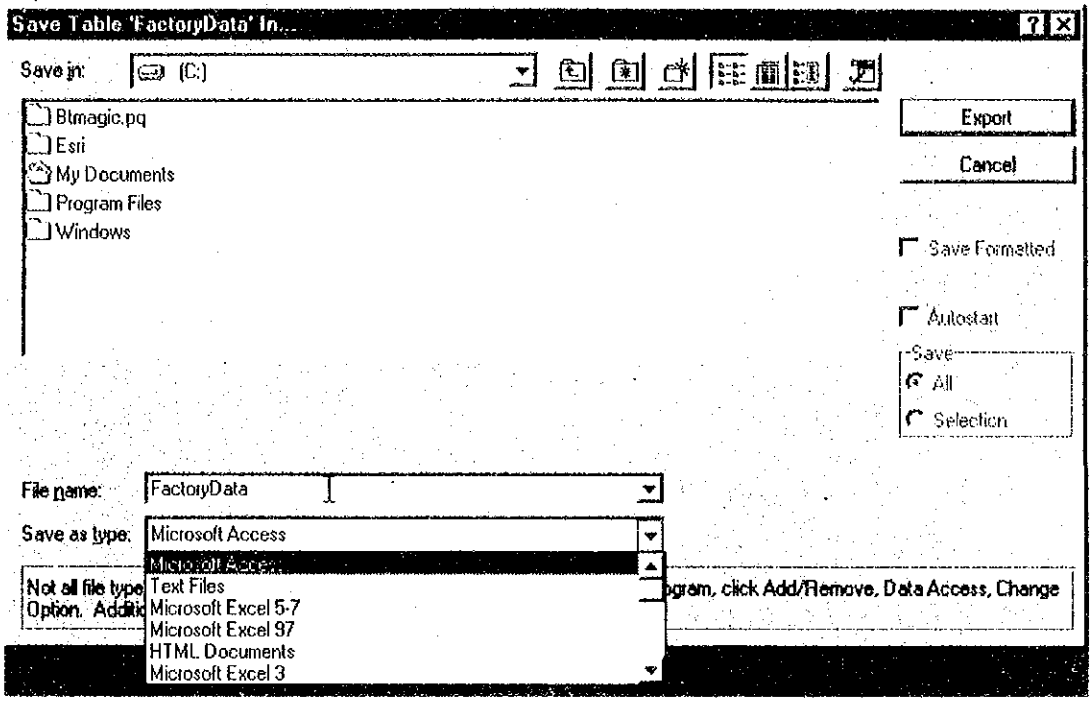
You can export tables of Non-HW DB to a different file format. In this way you can use different applications to manage the data.

Steps to Export Data

- Select the tables in the [Tables windows] and click [Save As/Export] button and the next screen will appear.



- Select [To an External File or Database] and click [ok]



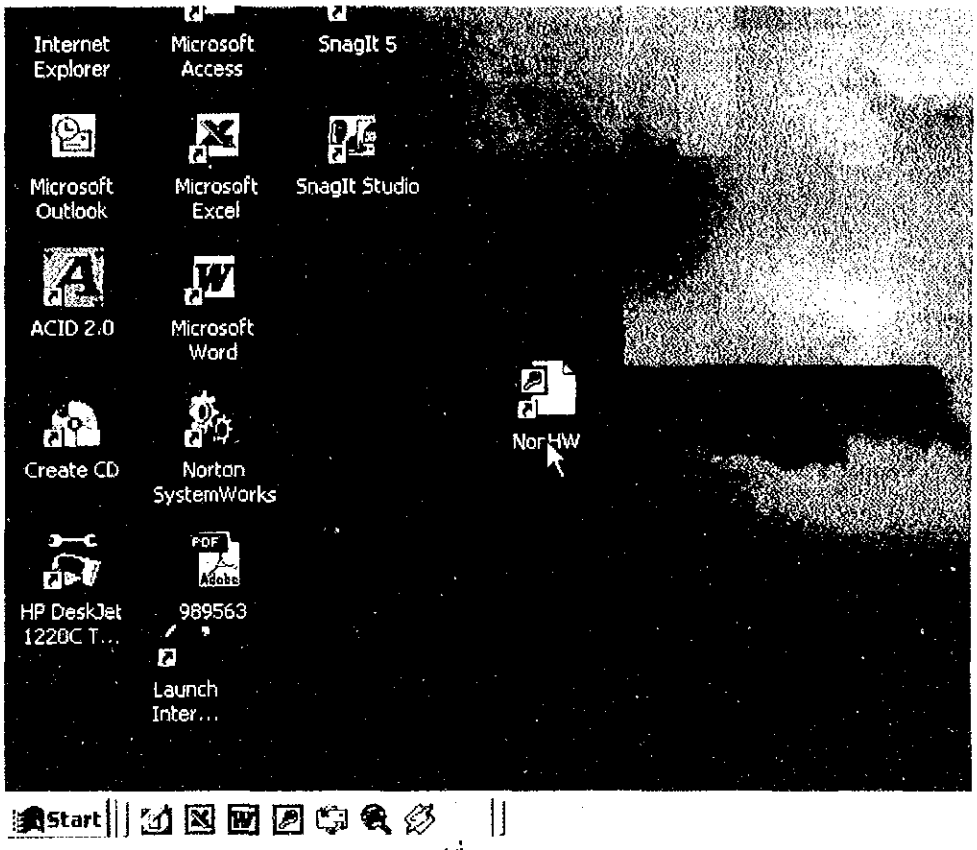
- Select the location to save the file, enter the file name, select the type of file and click the [Export] button. To export another table, repeat the same steps.

7. To exit the system, click [Exit] in the main menu.

Non-HW DB User's Manual in Thai

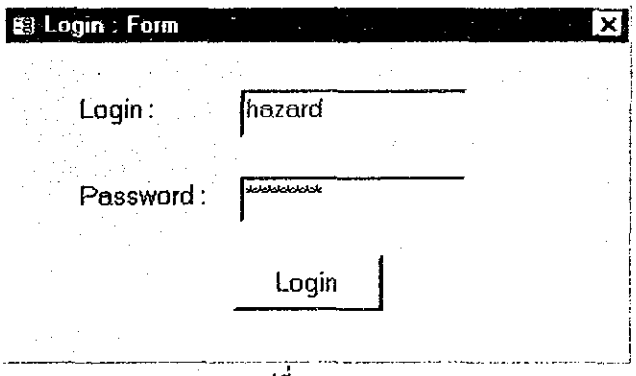
การใช้งานโปรแกรม Non-HIW

1. เข้าใช้โปรแกรมโดยคลิ๊กที่ Start --> Non-HIW ดังรูปที่ 1



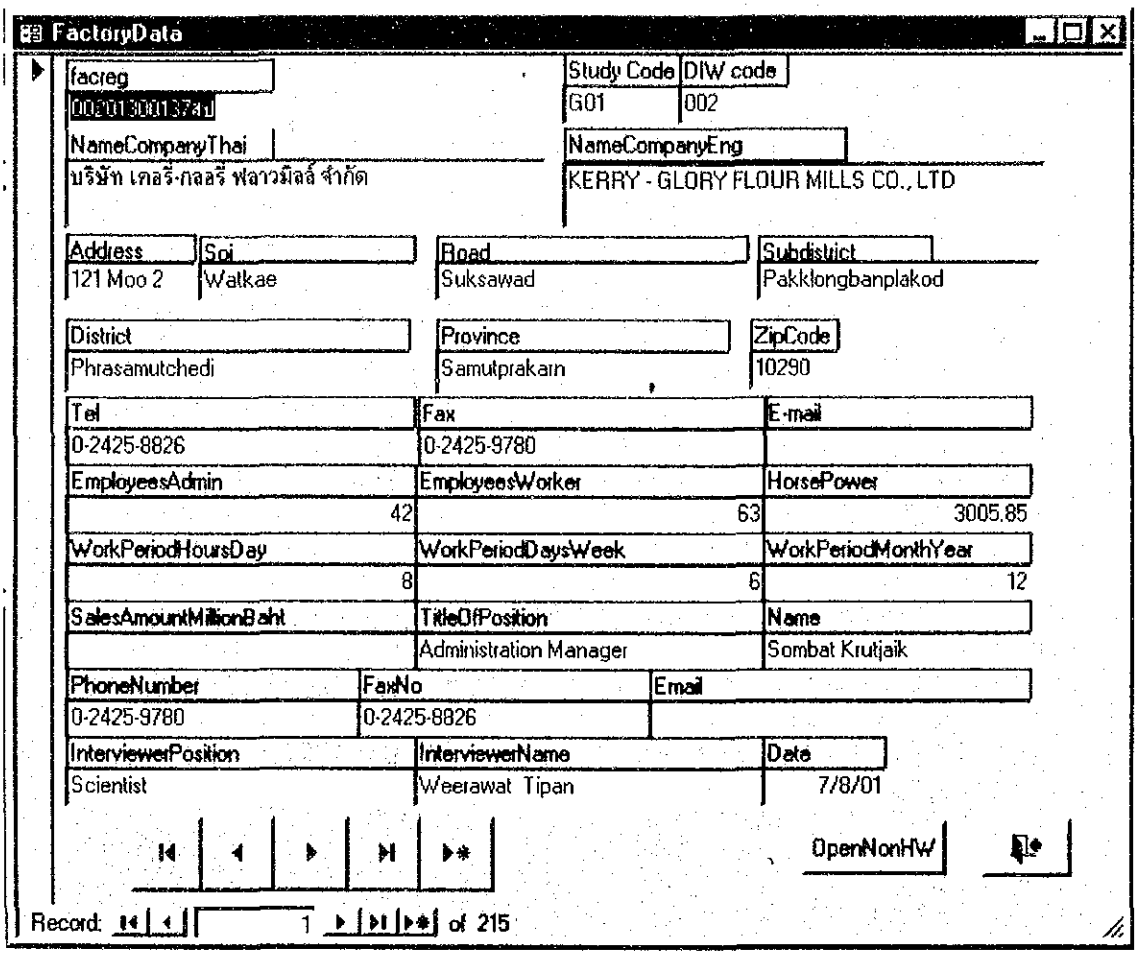
รูปที่ 1

2. เมื่อเข้าสู่โปรแกรมจะปรากฏฟอร์มสำหรับตรวจสอบผู้ใช้ ซึ่งจะต้องใส่ชื่อ Login และ Password ให้ถูกต้อง แล้วคลิ๊กที่ปุ่ม "Login" ดังรูปที่ 2



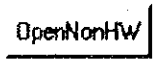
รูปที่ 2

3. ถ้าผ่านการตรวจสอบผู้ใช้แล้ว จะปรากฏฟอร์มแสดงข้อมูลโรงงาน ดังรูปที่ 3

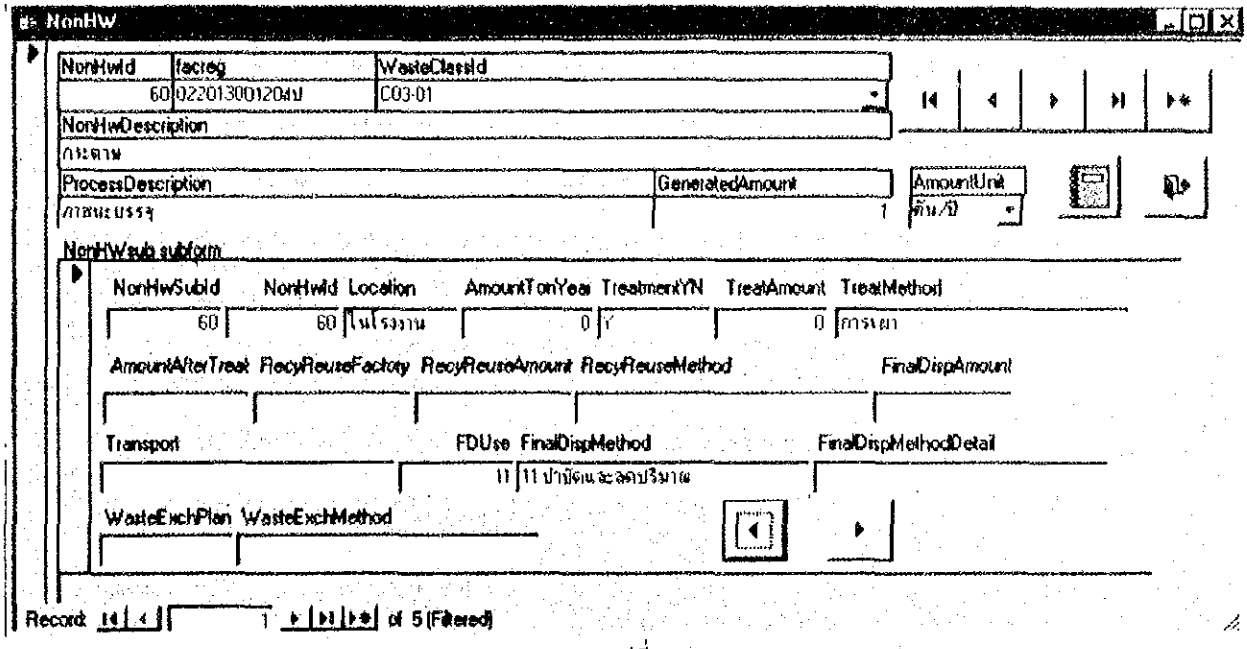


รูปที่ 3

ผู้ใช้สามารถใช้ปุ่ม  เพื่อเลื่อนไปยังข้อมูลแรก ข้อมูลก่อนหน้า ข้อมูลต่อไปข้อมูลสุดท้าย และเพิ่มข้อมูลใหม่ ตามลำดับ

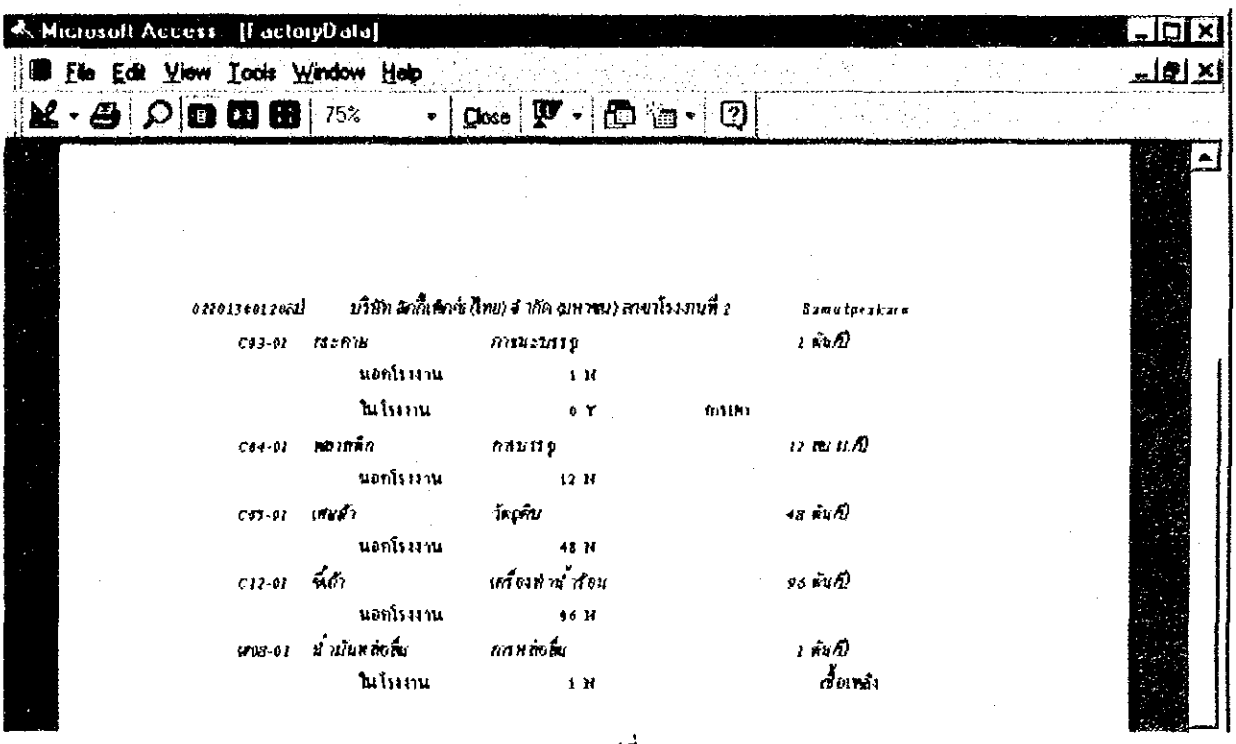
4. หากต้องการดูข้อมูลในส่วนกากของเสียไม่อันตรายของโรงงาน ให้คลิ๊กที่ปุ่ม 

จะปรากฏฟอร์ม แสดงดังรูปที่ 4



รูปที่ 4

5. เมื่อต้องการพิมพ์รายงานให้คลิ๊กที่ปุ่ม  จะปรากฏรายงานพร้อมสำหรับพิมพ์ ดังรูปที่ 5



รูปที่ 5

6. เมื่อใช้งานเสร็จเรียบร้อยแล้วให้ออกจากโปรแกรมโดยคลิ๊กที่ปุ่ม 

Annex 6.2 Manifest DB User's Manual

1. To enter the program, click Start → Manifest.

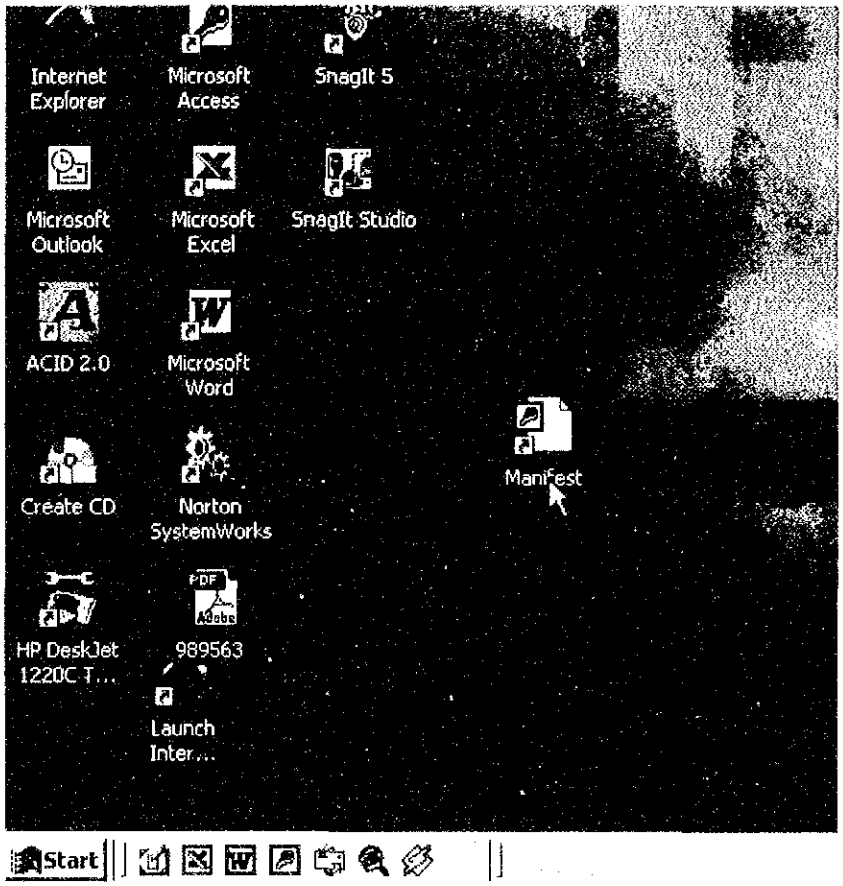


Figure 1

2. Then the following form will appear. Fill Login and Password, and click "Login" bottom as in Figure 2.

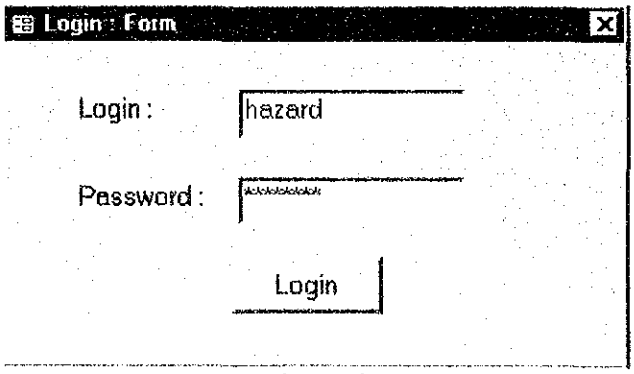


Figure 2

3. After password is verified, the following form will appear as in Figure 3

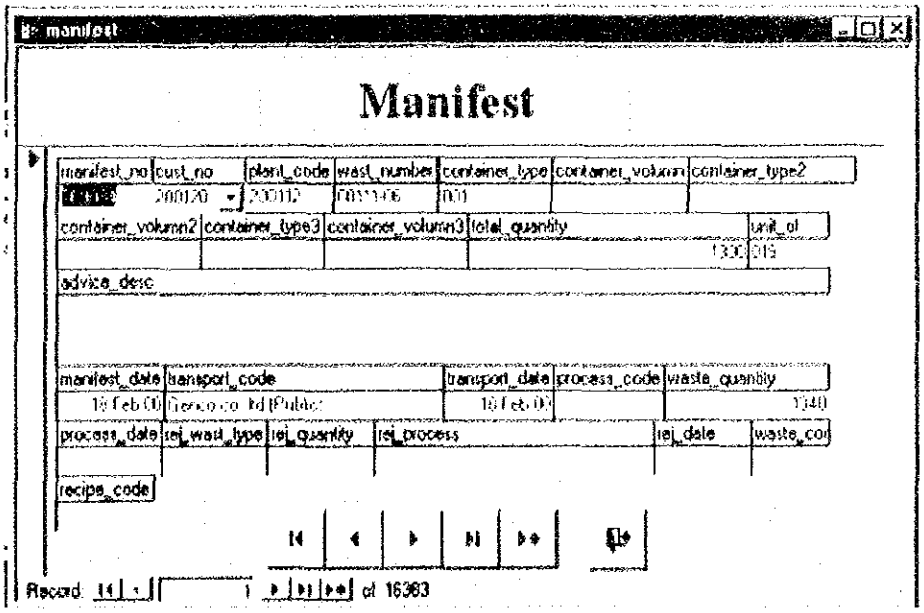


Figure 3

- User can use  to show the previous, next, and last data and also add new data.

4. To exit, click  .

5. To search and report by using Queries, click 

a. Then create a new Query at  and the Dialog will appear.

b. Choose "Design View" button and click OK as in Figure 4.

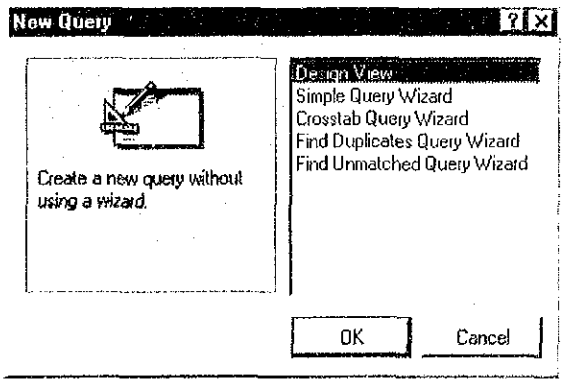


Figure 4

c. Choose manifest and click "Add" and "Close" buttons respectively as in Figure 5

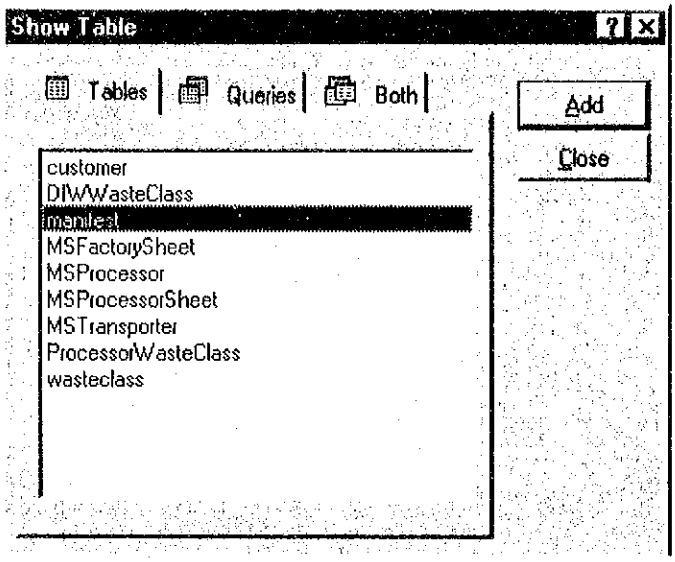


Figure 5

d. And the result will appear as in Figure 6.

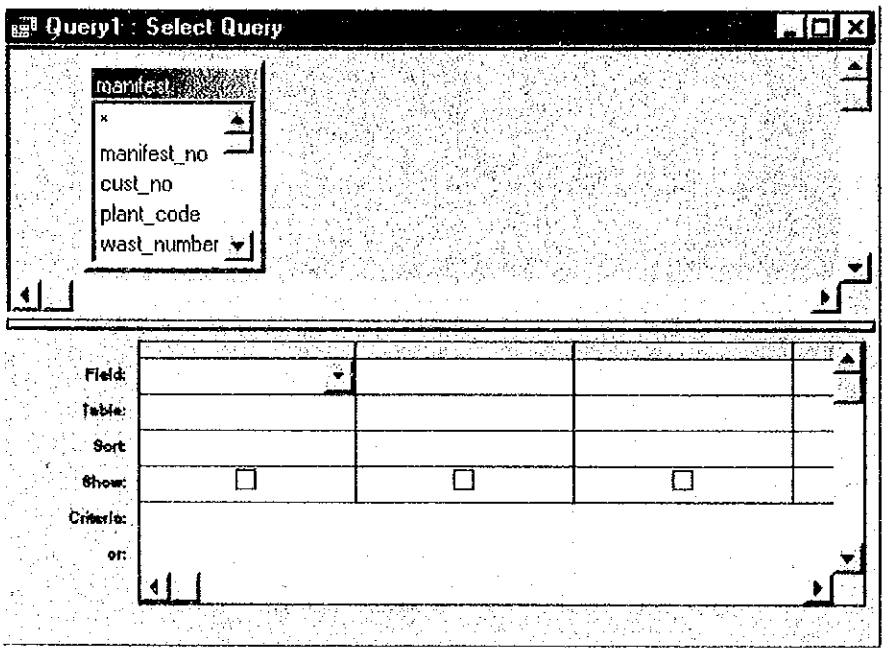


Figure 6

e. Then double click on the icon result of which is wanted. The data will be displayed as in Figure 7

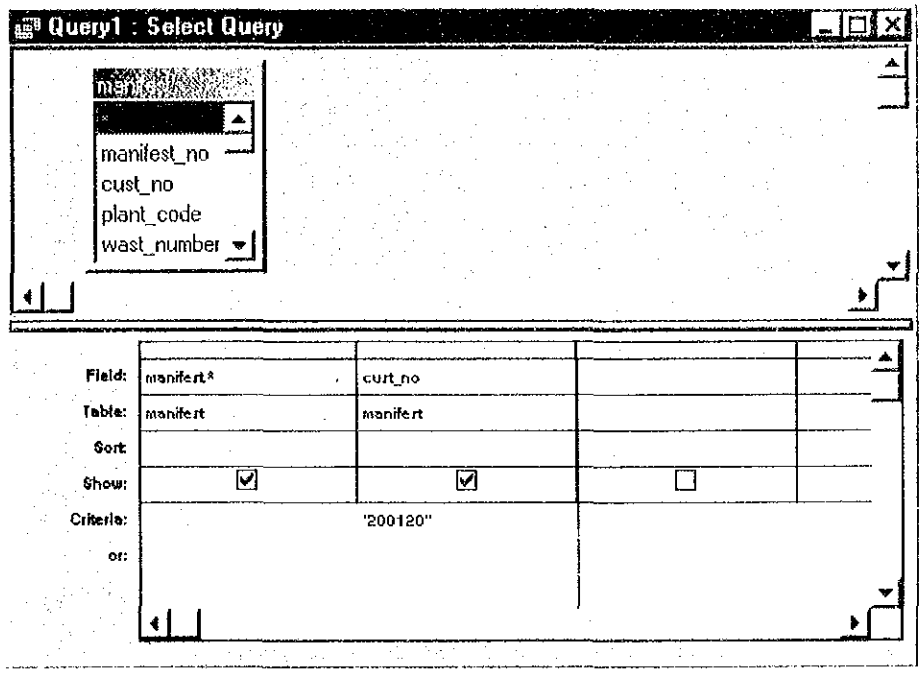


Figure 7

f. Fill the condition, such as cust_no = "200120" in Criteria, then click  to display the result as in Figure 8

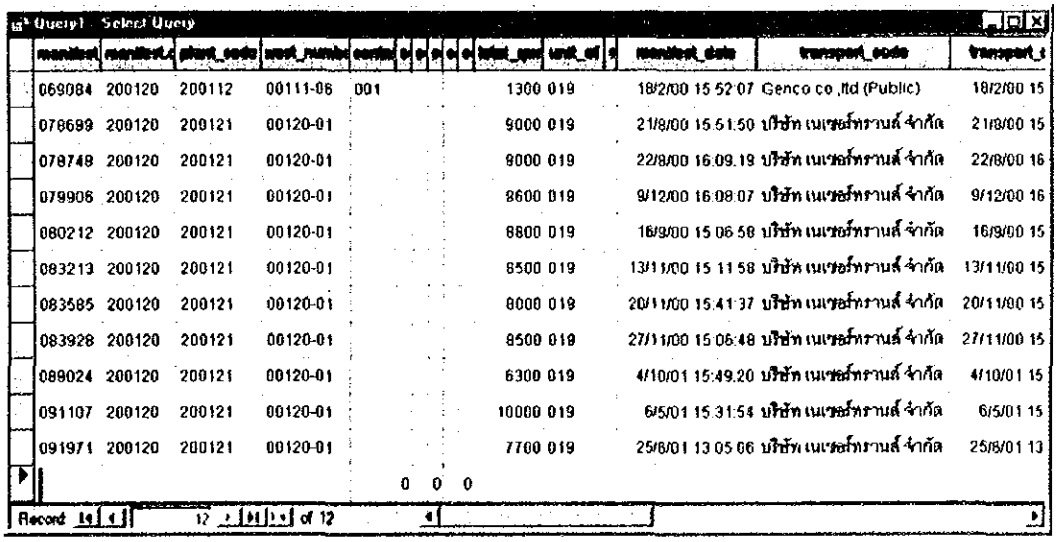


Figure 8

g. Correct the data then close Dialog. Then, the program will ask if data needs to be saved or not. Click "Yes" button as in Figure 9. After that put name of the query in the box "Query Name:" such as "Query1" and click OK button.

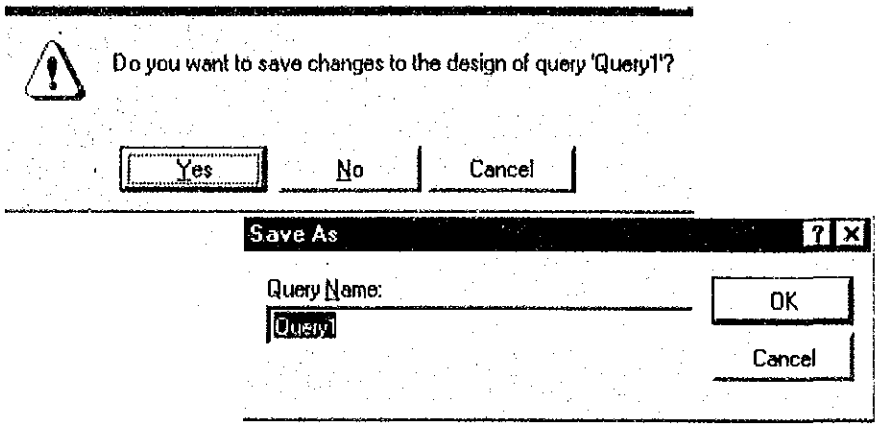


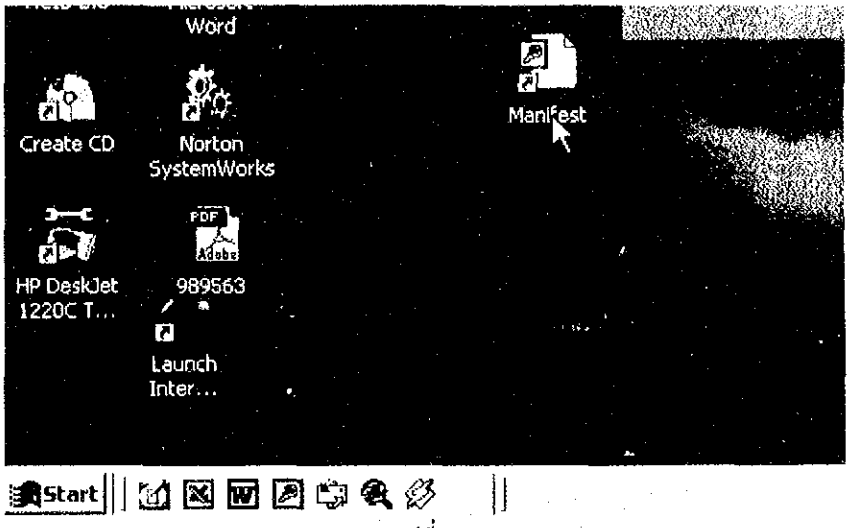
Figure 9

h. The user also can use this query to print a report.

Manifest DB User's Manual in Thai

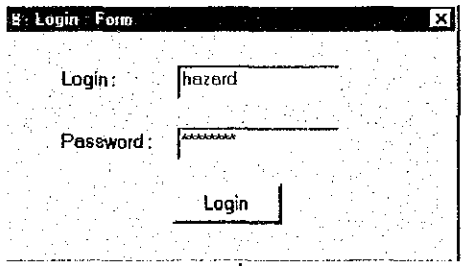
คู่มือการใช้งานฐานข้อมูล Manifest

1. การเข้าใช้โปรแกรมโดยคลิ๊กที่ Start → Manifast



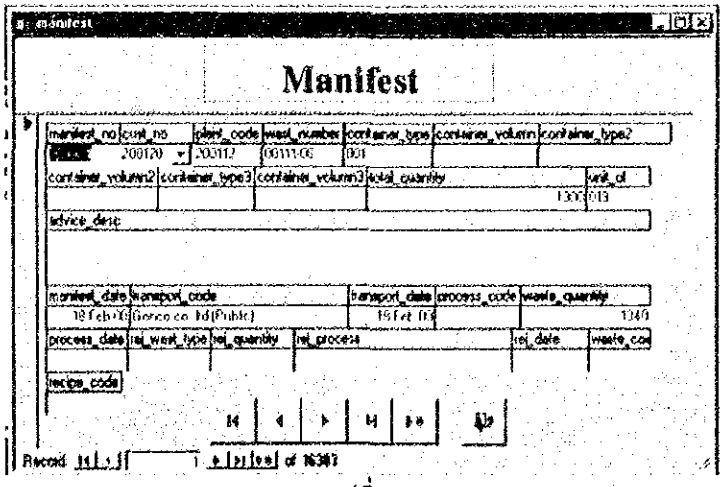
รูปที่ 1

2. เมื่อเข้าสู่โปรแกรมจะปรากฏฟอร์มสำหรับตรวจสอบผู้ใช้ ซึ่งจะต้องใส่ชื่อ Login และ Password ให้ถูกต้อง แล้วคลิ๊กที่ปุ่ม "Login" ดังรูปที่ 2



รูปที่ 2

3. ถ้าผ่านการตรวจสอบผู้ใช้แล้ว จะปรากฏฟอร์ม ดังรูปที่ 3



รูปที่ 3

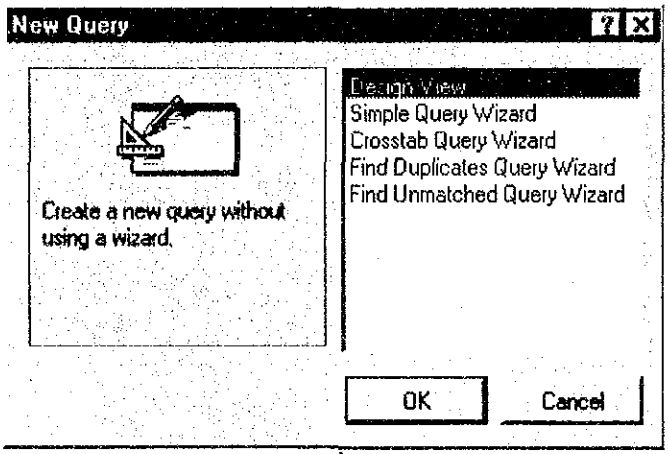
ผู้ใช้สามารถใช้ปุ่ม  เพื่อเลื่อนไปยังข้อมูลแรก ข้อมูลก่อนหน้า ข้อมูลต่อไป ข้อมูลสุดท้าย และเพิ่มข้อมูลใหม่ ตามลำดับ สามารถทำการแก้ไขข้อมูลที่ต้องการ โดยใช้ Mouse คลิ๊กเลือกที่ข้อมูล แล้วพิมพ์ข้อมูลใหม่ลงไป

4. เมื่อใช้งานเสร็จเรียบร้อยแล้วให้ออกจากโปรแกรมโดยคลิ๊กที่ปุ่ม 

5. การสืบค้นและรายงานผล สามารถทำได้โดยการใช้ Queries โดยคลิ๊กที่แถบ 

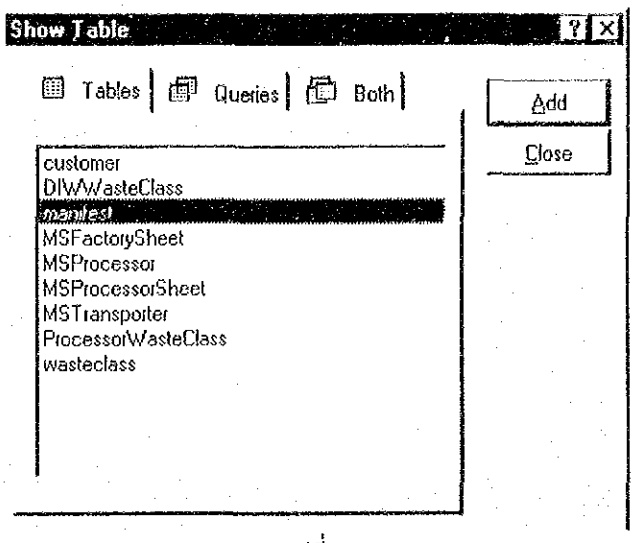
แล้วสร้างแบบสอบถามใหม่ที่ปุ่ม 

จะปรากฏ Dialog ให้เลือก โดยเลือก "Design View" แล้วคลิ๊กปุ่ม OK ดังรูปที่ 4

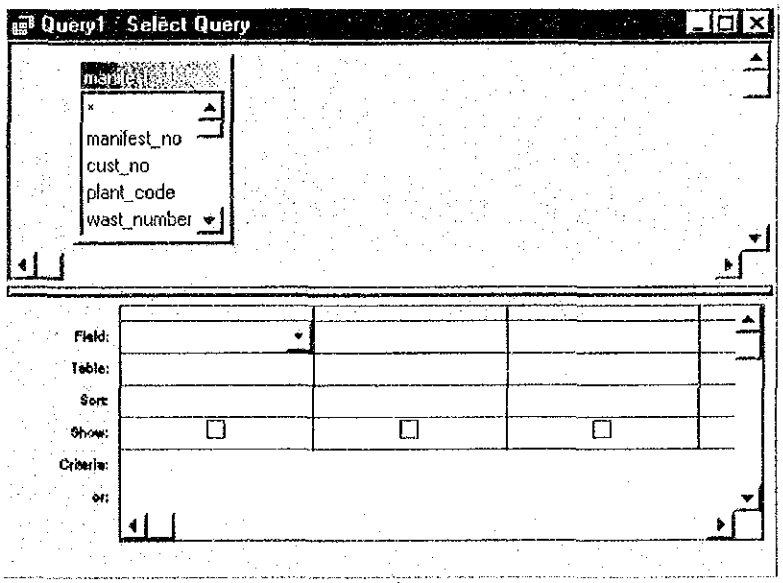


รูปที่ 4

เลือกตารางข้อมูล manifest แล้วคลิ๊กที่ปุ่ม "Add" และปุ่ม "Close" ตามลำดับ ดังรูปที่ 5 แล้วจะได้ผลลัพธ์ ดังรูปที่ 6 ตามลำดับ

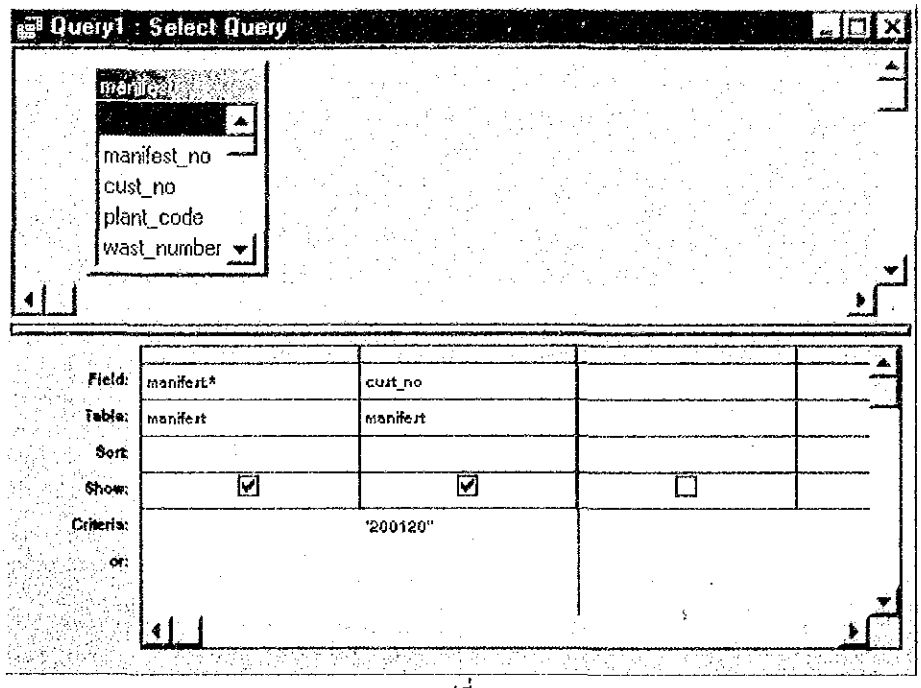


รูปที่ 5



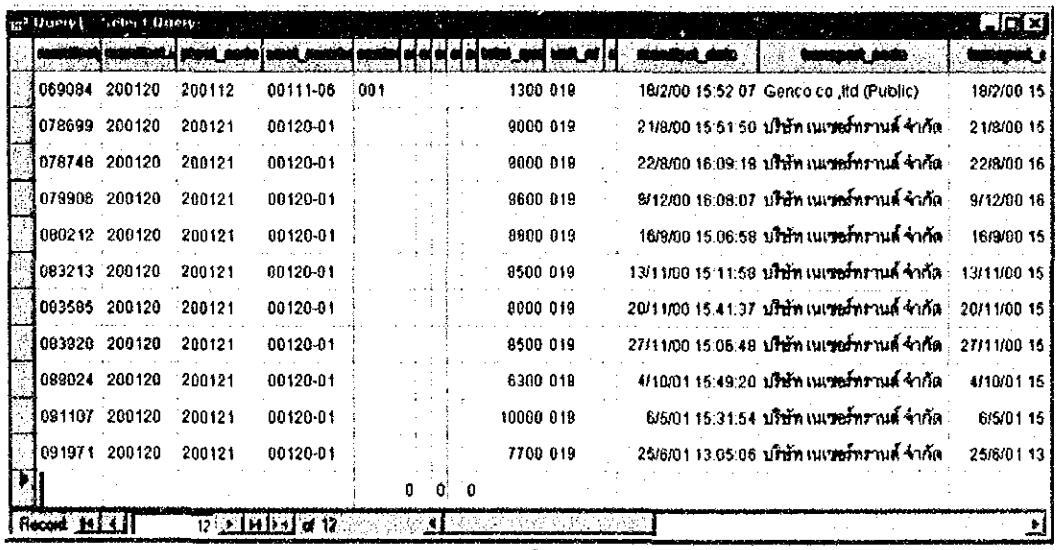
รูปที่ 6

หลังจากนั้นให้ดับเบิ้ลคลิ๊กเลือกข้อมูลที่ต้องการแสดงผล และข้อมูลที่เป็นเงื่อนไข ซึ่งข้อมูลดังกล่าวจะปรากฏในช่องด้านล่าง ตัวอย่างดังรูปที่ 7



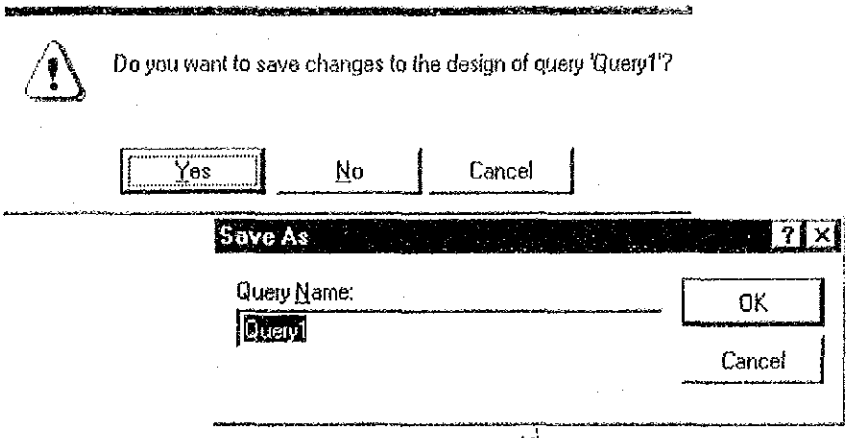
รูปที่ 7

ใส่เงื่อนไขที่ต้องการเช่น cust_no = "200120" ในช่อง Criteria หลังจากนั้นให้คลิ๊กที่ปุ่ม  เพื่อดูผลลัพธ์ที่ได้ ดังตัวอย่ งรู ที ่8



รูปที่ 8

ตรวจสอบความถูกต้องแล้วปิด Dialog นี้ จะมีการถามว่าต้องการ Save หรือไม่ ให้เลือกที่ปุ่ม "Yes" ดังรูปที่ 9 จะมีข้อความให้ใส่ชื่อแบบสอบถาม ให้ใส่ชื่อแบบสอบถามในช่อง "Query Name:" เช่น ชื่อ "Query1" แล้วคลิ๊กที่ปุ่ม OK



รูปที่ 9

ผู้ใช้สามารถนำแบบสอบถามนี้ไปใช้สำหรับการทำรายงานได้ต่อไป

Annex 12

Annex to Chapter 12
of the Main Report

Annex 12.1 Survey Sheet of IWM Plan for the Paint Industry

Survey sheet for Paint manufacturing factory survey The Study on the Master Plan on Industrial Waste Management in the Bangkok Metropolitan area and Its Vicinity in the Kingdom of Thailand

1. General Information

1. Name of Company	(Thai):	
	(English):	
2. Factory Registration No.		
3. Address		
4. Number of employees	Employees in the factory	..... persons
	Hereof in the Administration	..... persons
	Total Employees	..... persons
5. Engine Power (Ror Ngor.4)	..... Horse power	
6. Total Production Amount		(ton or m^3/year)
7. Production Flow Chart	(Please attach catalog copies)	

2. Interviewee and Interviewer

2.1 Interviewee	1. Title of Position	
	2. Name	
	3. Phone Number	
	4. Facsimile Number	
	5. E-mail Address	
2.2 Interviewer	1. Title of Position	
	2. Name	
	3. Signature	
2.3 Date of Interview		

3. Outline of Factory

Q.1 What types of paints are you manufacturing in your factory?
(Plural answers are allowed)

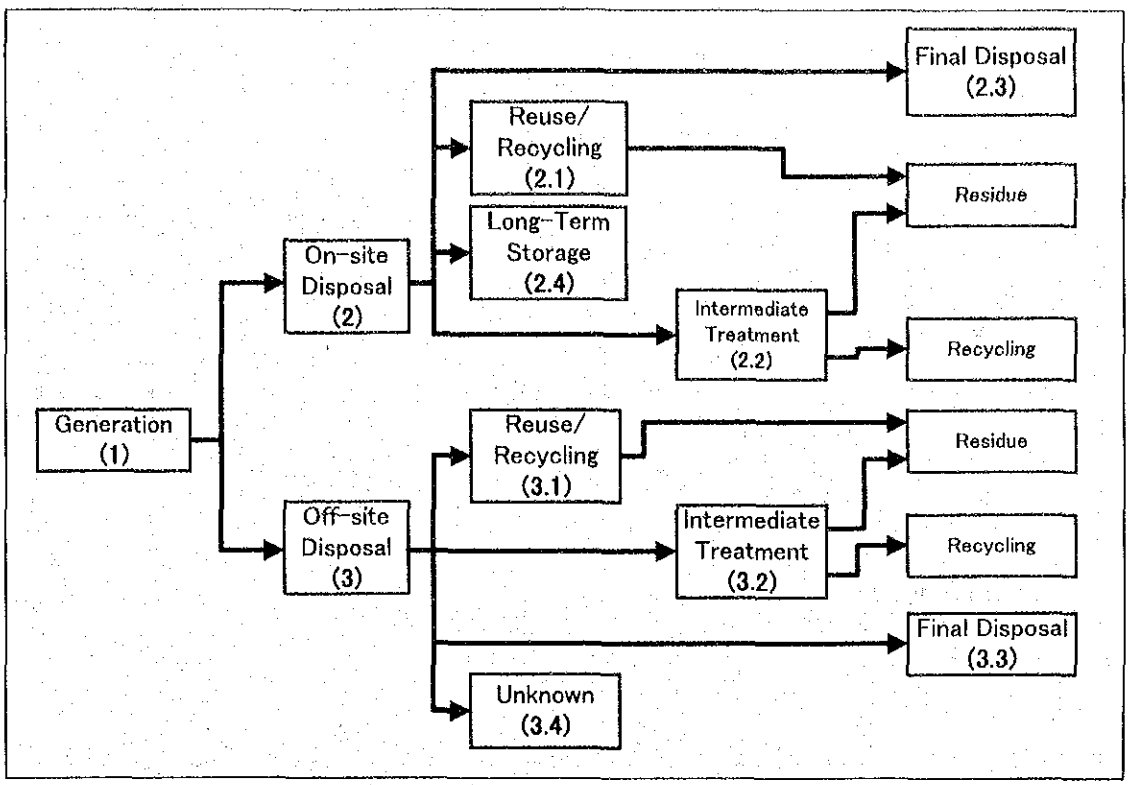
[ ] 1. Organic solvent type dried by air
[ ] 2. Organic solvent type dried by baking
[ ] 3. Water thinnable type dried by air
[ ] 4. Water thinnable type dried by baking
[ ] 5. Non solvent type (Powder coating)
[ ] 6. Non solvent type (Road-marking paints)
[ ] 7. Thinner
[ ] 8. Others (i.e. Paint-brush etc) (Please specify : .....)

Q.2 What are the paints manufactured at your factory used for?
(Plural answers are allowed)

[ ] 1. Buildings (i.e. for post-coating on construction site)
[ ] 2. Building Materials (i.e. for pre-coating in factory)
[ ] 3. Steel Structures
[ ] 4. Marine Usage
[ ] 5. Motor Vehicles (for new vehicles)
[ ] 6. Motor Vehicles (for repainting of used vehicles)
[ ] 7. Electrical Appliances
[ ] 8. Industrial Machinery
[ ] 9. Metallic Products
[ ]10. Wooden Products
[ ]11. DIY (Do it yourself) Usage (Home use)
[ ]12. Road Markings
[ ]13. Others
(Please specify :
.....)

4. Industrial Waste (IW) Management

Following figure shows typical IW flow of paint manufacturing factory. Please complete Q.3 – Q.11 referring to the figure.



IW flow of paint manufacturing factory

4.1 Waste Generation

Q.3 Waste Generation Amount [Please refer "(1)" on above flow]

No.	Waste	Generated amount (ton or m3/year)	Reason for generation
1	Waste paints		
2	Waste solvents		
3	Sludge		
4	Waste plastics		
5	Waste acid		
6	Waste alkaline		
7	Ash		
8	Waste metals		
9	Dust		
10	Glass		
11	Waste paper		
12	Waste wood		
13	Cotton wastes		
14	Others		

4.2 On-site disposal (Treatment, Reuse/Recycling, Long-term Storage and Final disposal)

Q.4 On-site Disposal Amount [Please refer "(2)" on above flow]

No.	Waste	On-site disposal amount (ton or m3/year)
1	Waste paints	
2	Waste solvents	
3	Sludge	
4	Waste plastics	
5	Waste acid	
6	Waste alkaline	
7	Ash	
8	Waste metals	

9	Dust	
10	Glass	
11	Waste paper	
12	Waste wood	
13	Cotton wastes	
14	Others	

Q.5 On-site Reuse/Recycling Amount [Please refer "(2.1)" on above flow]

No.	Waste	On-site Reuse/Recycling Amount (ton or m3/year)
1	Waste paints	
2	Waste solvents	
3	Sludge	
4	Waste plastics	
5	Waste acid	
6	Waste alkaline	
7	Ash	
8	Waste metals	
9	Dust	
10	Glass	
11	Waste paper	
12	Waste wood	
13	Cotton wastes	
14	Others	

Q.6 On-site Intermediate Treatment Amount [Please refer "(2.2)" on above flow]

No.	Waste	On-site Intermediate Treatment Amount (ton or m3/year)
1	Waste paints	
2	Waste solvents	
3	Sludge	
4	Waste plastics	
5	Waste acid	
6	Waste alkaline	
7	Ash	
8	Waste metals	
9	Dust	
10	Glass	
11	Waste paper	
12	Waste wood	
13	Cotton wastes	
14	Others	

Q.7 On-site Final Disposal Amount [Please refer "(2.3)" on above flow]

No.	Waste	On-site Intermediate Treatment Amount (ton or m3/year)
1	Waste paints	
2	Waste solvents	
3	Sludge	
4	Waste plastics	
5	Waste acid	
6	Waste alkaline	
7	Ash	
8	Waste metals	
9	Dust	
10	Glass	
11	Waste paper	
12	Waste wood	
13	Cotton wastes	
14	Others	

Q.8 Long-term Storage [Please refer "(2.4)" on above flow]

No.	Waste	Long-term Storage Amount (ton or m3/year)	Reason for storage
1	Waste paints		
2	Waste solvents		
3	Sludge		
4	Waste plastics		
5	Waste acid		
6	Waste alkaline		
7	Ash		
8	Waste metals		
9	Dust		
10	Glass		
11	Waste paper		
12	Waste wood		
13	Cotton wastes		
14	Others		

4.3 Collection

Q.9 Who collects wastes generated in your factory? (Tick each applicable column. Plural answers are allowed)

No.	Wastes	Category of collector				
		a.	b.	c.	d.	e.
1	Waste paints					
2	Waste solvents					
3	Sludge					
4	Waste plastics					
5	Waste acid					
6	Waste alkaline					
7	Ash					
8	Waste metals					
9	Dust					
10	Glass					
11	Waste paper					
12	Waste wood					
13	Cotton wastes					
14	Others					

Category of collector

a. Local Administration

b. Private Company [GENCO, Technochem, Recycle Engineering, Sita Thai (Waste collector for Siam Cement), BYL Environmental Services (Waste collector for City Siam Cement)]

c. Private Company (Other than those in category "b".)

d. Waste buyer

e. Others

4.4 Off-site Disposal (Treatment, Reuse/Recycling and Final Disposal)

Q.10 Off-site Disposal Amount [Please refer "(3)" on above flow]

No.	Waste	Off-site Disposal Amount (ton or m3/year)
1	Waste paints	
2	Waste solvents	
3	Sludge	
4	Waste plastics	
5	Waste acid	
6	Waste alkaline	
7	Ash	
8	Waste metals	
9	Dust	
10	Glass	
11	Waste paper	
12	Waste wood	
13	Cotton wastes	
14	Others	

Q.11 Reuse/Recycling, Treatment and Final disposal amount [Please refer "(3.1)"-"(3.4)" on above flow]

Category of condition : A: Sell B: Pay C: Free

Category of Agents

a. Local Administration
b. Private Company [GENCO, Technochem, Recycle Engineering, Sita Thai (Waste collector for Siam Cement), BYL Environmental Services (Waste collector for City Siam Cement)]
c. Private Company (Other than those in category b.)
d. Waste buyer
e. Others

Category of Disposal
1. Reuse/Recycling 2. Intermediate Treatment 3. Final Disposal 4. Unknown

No.	Waste	Category of condition	Amount of *discharge* (ton or m3/year)	Agent/Cost or price		*Category of disposal* by agents (if known)
				Category of Agent	Cost or price (Baht/ton or m3)	
Example	Waste paints	B	2 ton	b	10,000Baht/ton	2.
1	Waste paints					
2	Waste solvents					
3	Sludge					
4	Waste plastics					
5	Waste acid					
6	Waste alkaline					
7	Ash					
8	Waste metals					
9	Dust					
10	Glass					
11	Construction Wastes					
12	Waste paper, Waste wood					
13	Cotton wastes					
14	Others					

Q.12 How do you manage the waste for reduction and reuse/recycling in your factory? (Plural answers are allowed)

12-1 Minimization Methods for Waste Paint

1. Reuse/recycling
   - [ ] a. Being reworked into marketable products
   - [ ] b. Thermal recycling as fuel
   - [ ] c. Waste segregation
   - [ ] d. Others (please specify:.....)
   - [ ] e. No reuse/recycling for minimization
2. Production control
   - [ ] a. Proper planning and inventory control
   - [ ] b. Standardization of raw material/formulation
   - [ ] c. Improvement of color matching
   - [ ] d. Proper size of production run
   - [ ] e. Use of Computerized Color Matching system
   - [ ] f. Others (please specify:.....)
   - [ ] g. No production control for minimization
3. Quality control
   - [ ] a. Reduction of stock-samples
   - [ ] b. Reduction of off-specification products
   - [ ] c. Others (please specify:.....)
   - [ ] d. No quality control for minimization
4. Stock control
   - [ ] a. Reduction of obsolete products
   - [ ] b. Taking inventory
   - [ ] c. Others (please specify:.....)
   - [ ] d. No stock control for minimization
5. Others
   - [ ] a. Use for other purpose (i.e. paint for drums)
   - [ ] b. Others (please specify:.....)

12-2 Minimization Methods for Waste Solvent

1. Reuse/recycling
   - [ ] a. Reuse for cleanup solvent
   - [ ] b. Classification of cleanup solvent
   - [ ] c. Others (please specify:.....)
   - [ ] d. No reuse/recycling for minimization
2. Production control
   - [ ] a. Scraping products well from tanks
   - [ ] b. Production sequence from light to dark color
   - [ ] c. Production sequence for similar color
   - [ ] d. Cleaning by formulated solvent
   - [ ] e. Shortened pipelines
   - [ ] f. Covering of let-down tanks

[ ] g. Others (please specify:.....)
[ ] h. No production control for minimization
3. Quality control (please specify:.....)
4. Others (please specify:.....)

12-3 Minimization Methods for Waste Metals
1. Selling (Please specify : .....)
2. Reuse/recycling (Please specify : .....)
3. Change of Containers (Size/Materials) (Please specify : .....)
4. Others (Please specify : .....)

12-4 Minimization Methods for Other Wastes (Sludge, Waste plastics, Waste acids /alkali etc)

Wastes	Minimization Methods

(Rows may be added if necessary)

4.5 Future Management of IW

Q.13 Are there any future plans to **reduce and recycle** IW in your factory?

[ ] 1. No, basically we will apply the present management.
[ ] 2. Yes, we intend to improve the present waste reduction and recycling system. (Pleases specify the intentions):.....
.....
[ ] 3. Yes, we have a specific plan to improve waste reduction and recycling system in our factory. (Pleases specify the plan):.....
.....

Q.14 Are there any future plans to improve the **treatment and final disposal** system of IW in your factory?

[ ] 1. No, basically we will apply the present management.

[ ] 2. Yes, we intend to improve present the treatment and disposal system of our company. (Pleases specify the plan):.....
.....

[ ] 3. Yes, we have a specific plan to improve the treatment and disposal system in our factory.
(Pleases specify the plan):.....
.....

Q.15 How will a possible future rise in off-site disposal cost of IW affect your factory?

[ ] 1. The present costs of waste disposal are not significant and an increase in disposal costs will have little impact on our business.

[ ] 2. The present costs of waste disposal are significant and a substantial rise in disposal costs will affect the price of our products.

[ ] 3. The present costs of waste disposal are very significant and a substantial rise in disposal costs will threaten our business.

[ ] 4. No matter how expensive the disposal cost is, an improved waste management is necessary to have an environmentally friendly image of products.

[ ] 5. Others (Please specify : .....)

5. Financial Matters

Q.16 What percentage of the production cost is for IW management (IWM)?

[ ] 1. .....% (..... baht / year)

[ ] 2. I don't know.

6. Evaluation of the Present IW system

Q.17 Which of the following phrases describes best the present status of IWM in your factory?

[ ] 1.There is no problem with the present IWM.

[ ] 2. There are some problems with present IWM.
(Pleases specify the problems):.....
.....
.....
.....

Q.18 What do you think are the problems of the present IWM in your factory?
(Plural answers are allowed)

[ ] 1. We do not know the difference between hazardous and non-hazardous waste.

[ ] 2. We do not segregate hazardous from non-hazardous waste.

[ ] 3. There is no or only limited services available for industrial waste treatment.

[ ] 4. The cost of industrial waste treatment is high.

[ ] 5. The reuse and recycling of industrial waste is no-existent or limited.
[ ] 6. Others (Please specify : .....)

Q.19 What measures and actions do you think need to be taken to solve the above problems? (Plural answers are allowed)
[ ] 1. The formulation and enforcement of relevant laws and regulations.
[ ] 2. The guidance on proper IWM to the factories (generators).
[ ] 3. The introduction of financial and economic incentives to promote proper IWM.
[ ] 4. The preparation of the guidelines for proper IWM.
[ ] 5. Development of the waste reuse and recycling market.
[ ] 6. Development of intermediate treatment facilities for industrial waste.
[ ] 7. Development of final disposal facilities for industrial waste.
[ ] 8. Others (Please specify : .....)

Q.20 Are you familiar with the ISO 14001 environmental management systems?
[ ] 1. Yes. We've already installed it.
[ ] 2. Yes. We have a plan to install it.
[ ] 3. Yes. However, we have no plan to install it.
[ ] 4. No. We are not familiar with it.

----- Thank you very much for your cooperation!! -----

Annex 12.2 Waste Flow of 11 Paint factories Surveyed

12.2.1 All type of waste

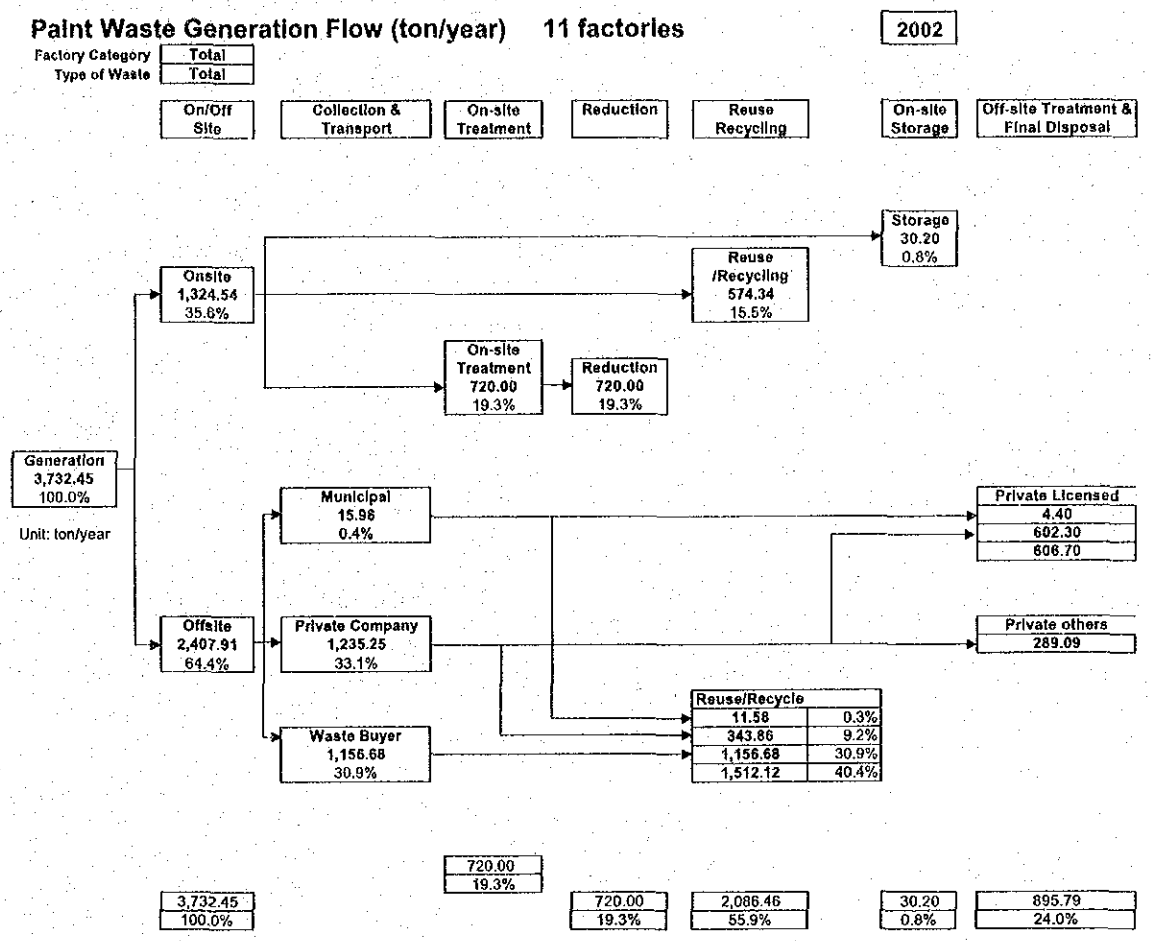


Figure 12-1: Waste Flow of 11 Paint factories surveyed (all type)

12.2.2 By type of waste

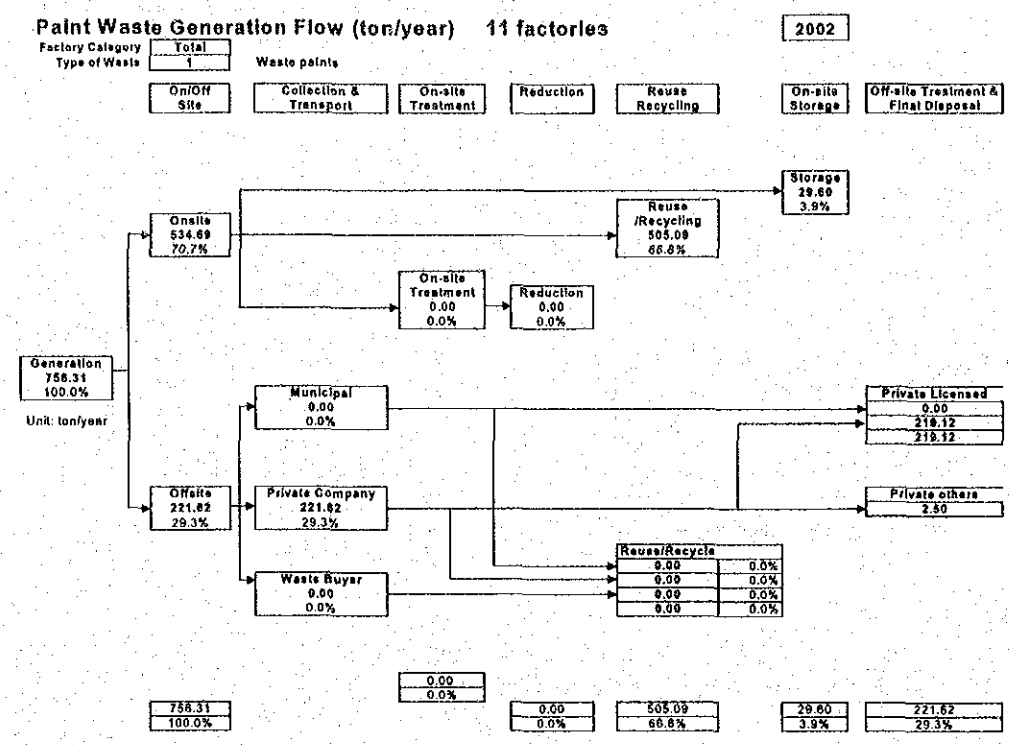


Figure 12-2: Waste Flow of 11 Paint factories surveyed (waste paint)

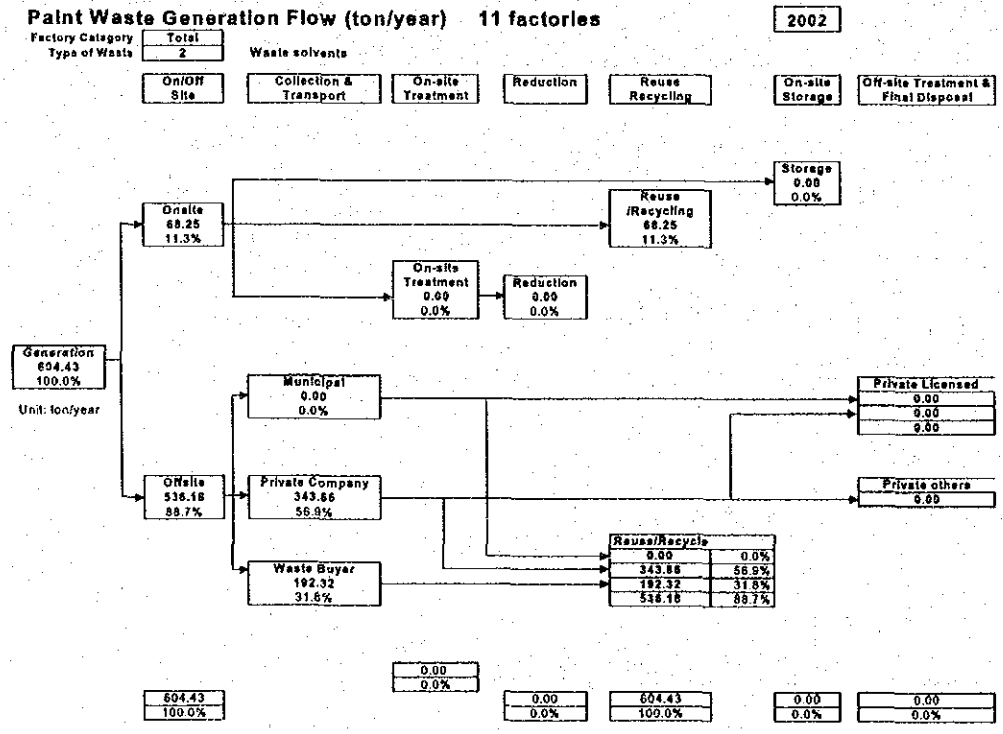


Figure 12-3: Waste Flow of 11 Paint factories surveyed (waste solvent)

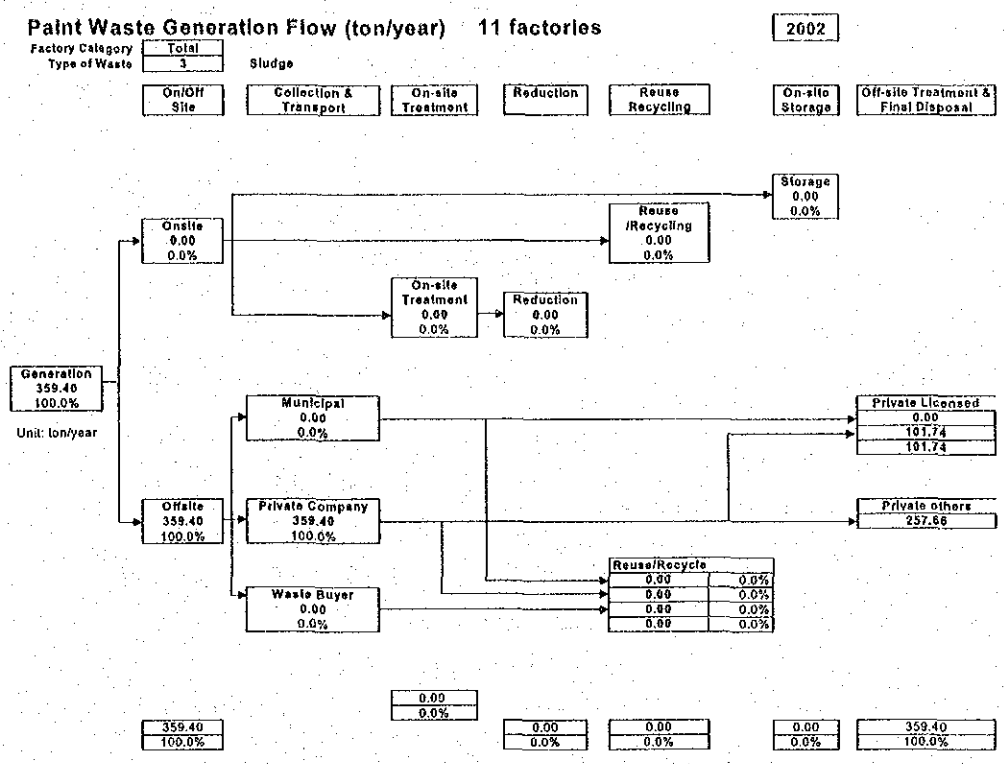


Figure 12-4: Waste Flow of 11 Paint factories surveyed (sludge)

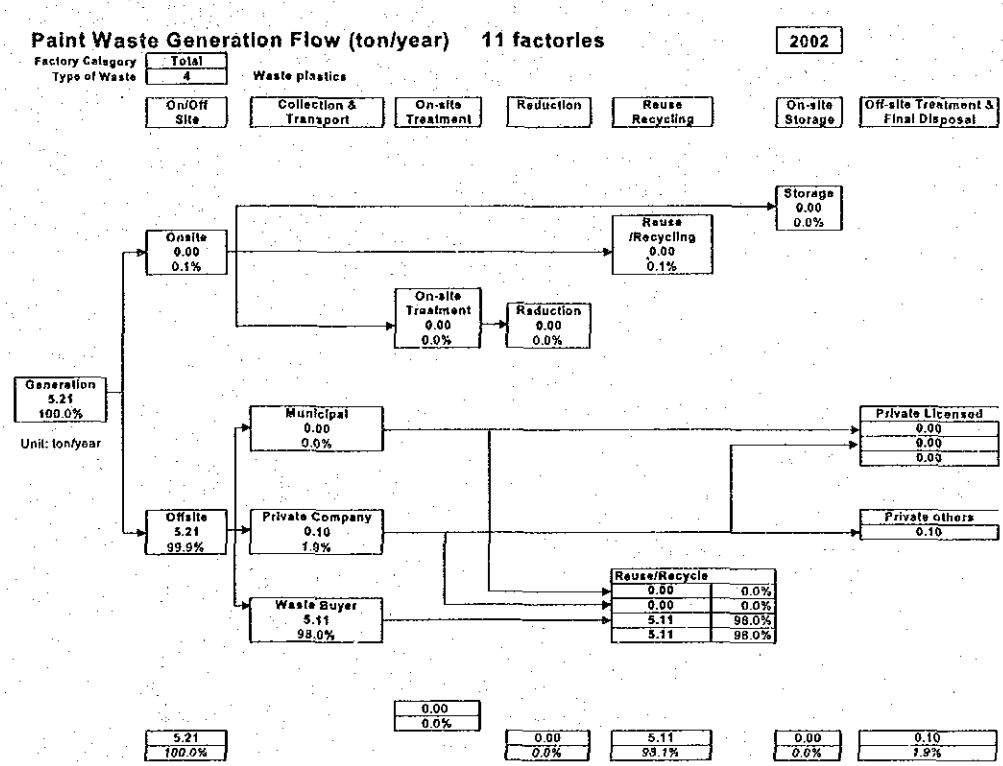


Figure 12-5: Waste Flow of 11 Paint factories surveyed (waste plastics)

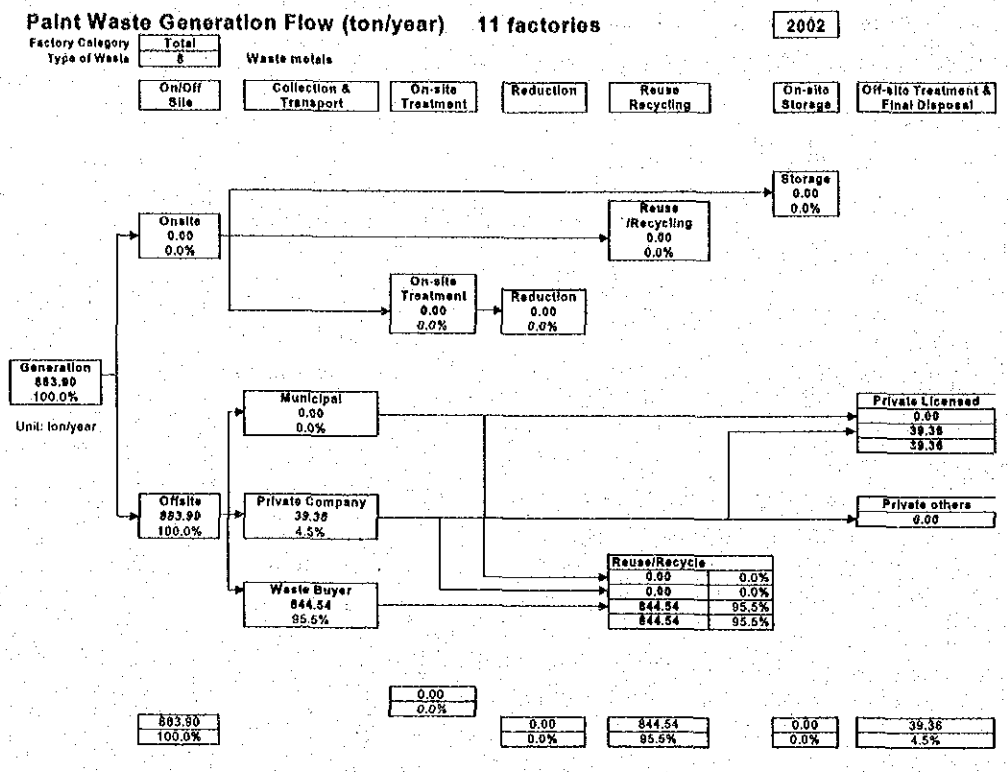


Figure 12-6: Waste Flow of 11 Paint factories surveyed (waste metals)

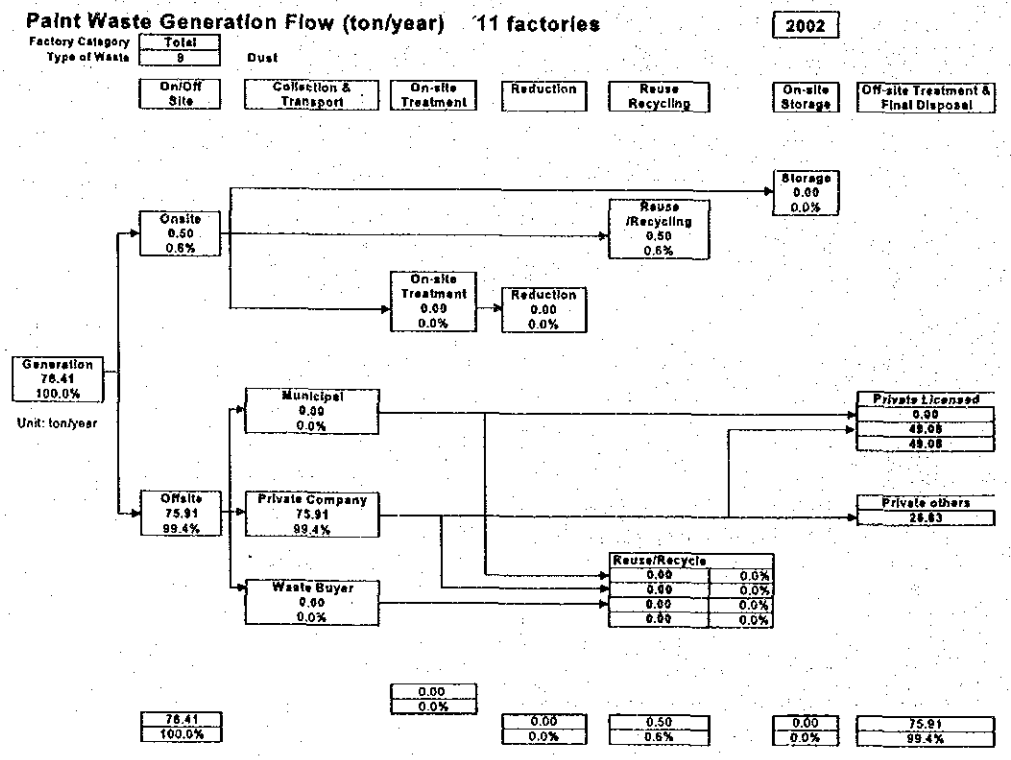


Figure 12-7: Waste Flow of 11 Paint factories surveyed (dust)

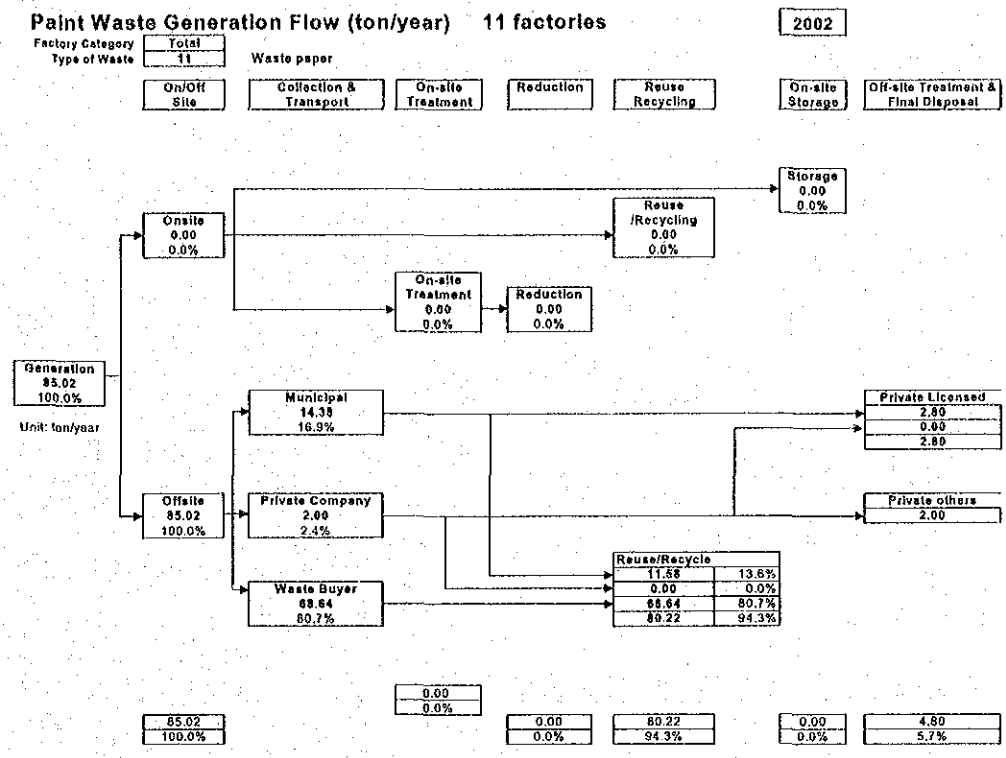


Figure 12-8: Waste Flow of 11 Paint factories surveyed (waste paper)

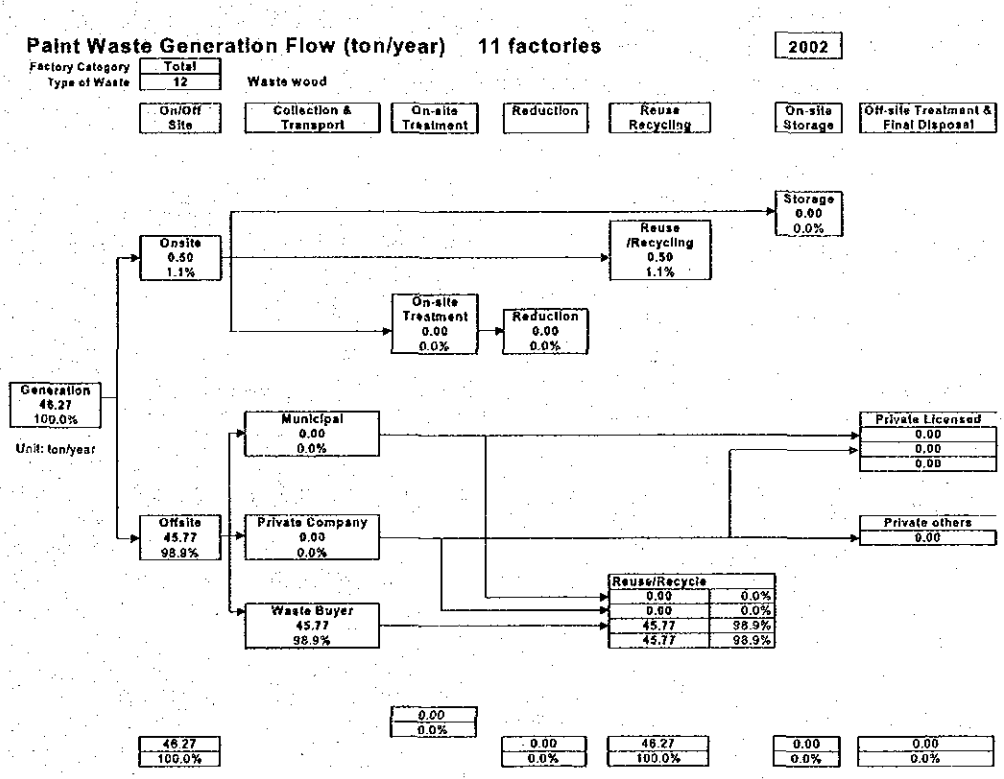


Figure 12-9: Waste Flow of 11 Paint factories surveyed (waste wood)

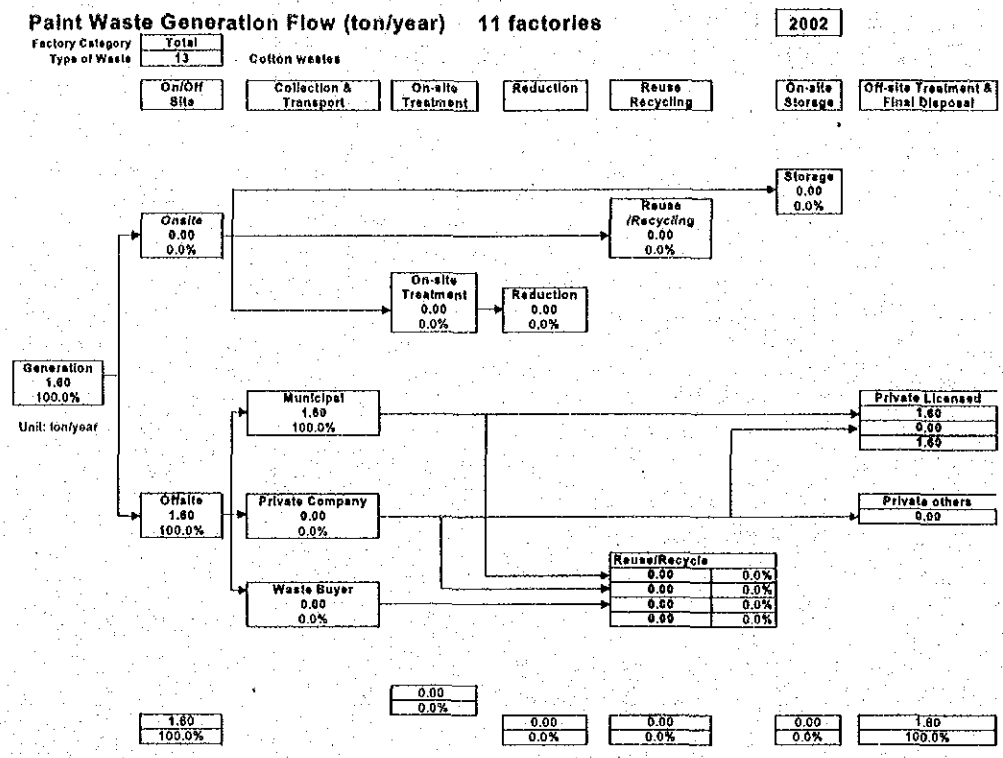


Figure 12-10: Waste Flow of 11 Paint factories surveyed (cotton waste)

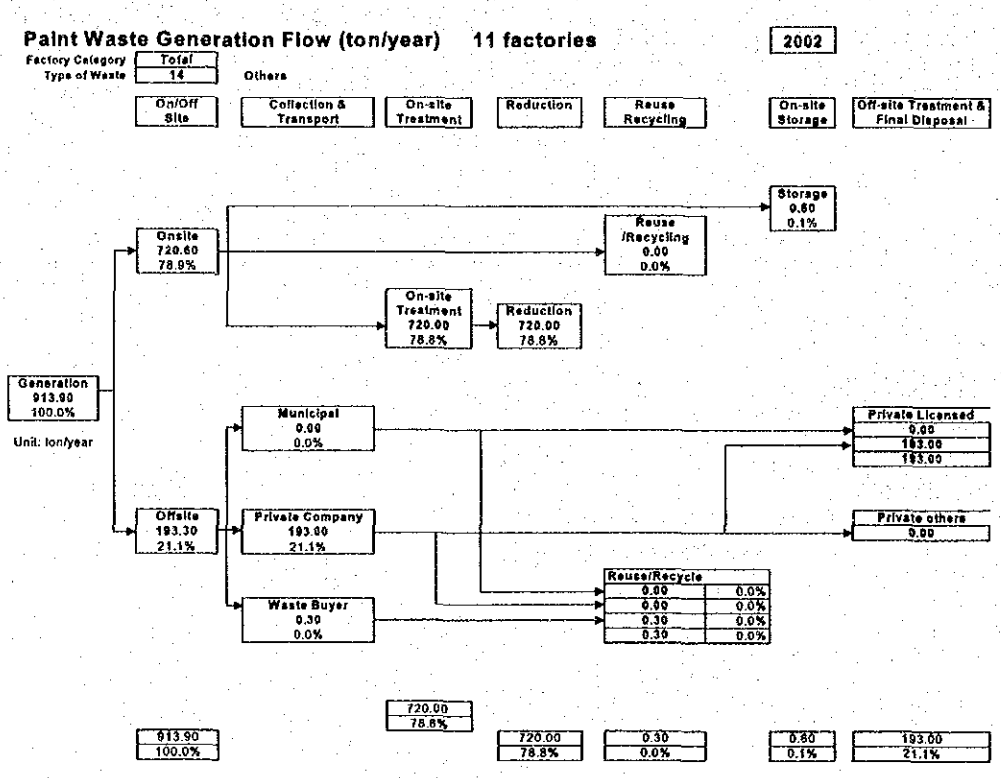


Figure 12-11: Waste Flow of 11 Paint factories surveyed (others)

Annex 12.3 Waste Flow of Paint Factories in the Study Area

12.3.1 All type of waste

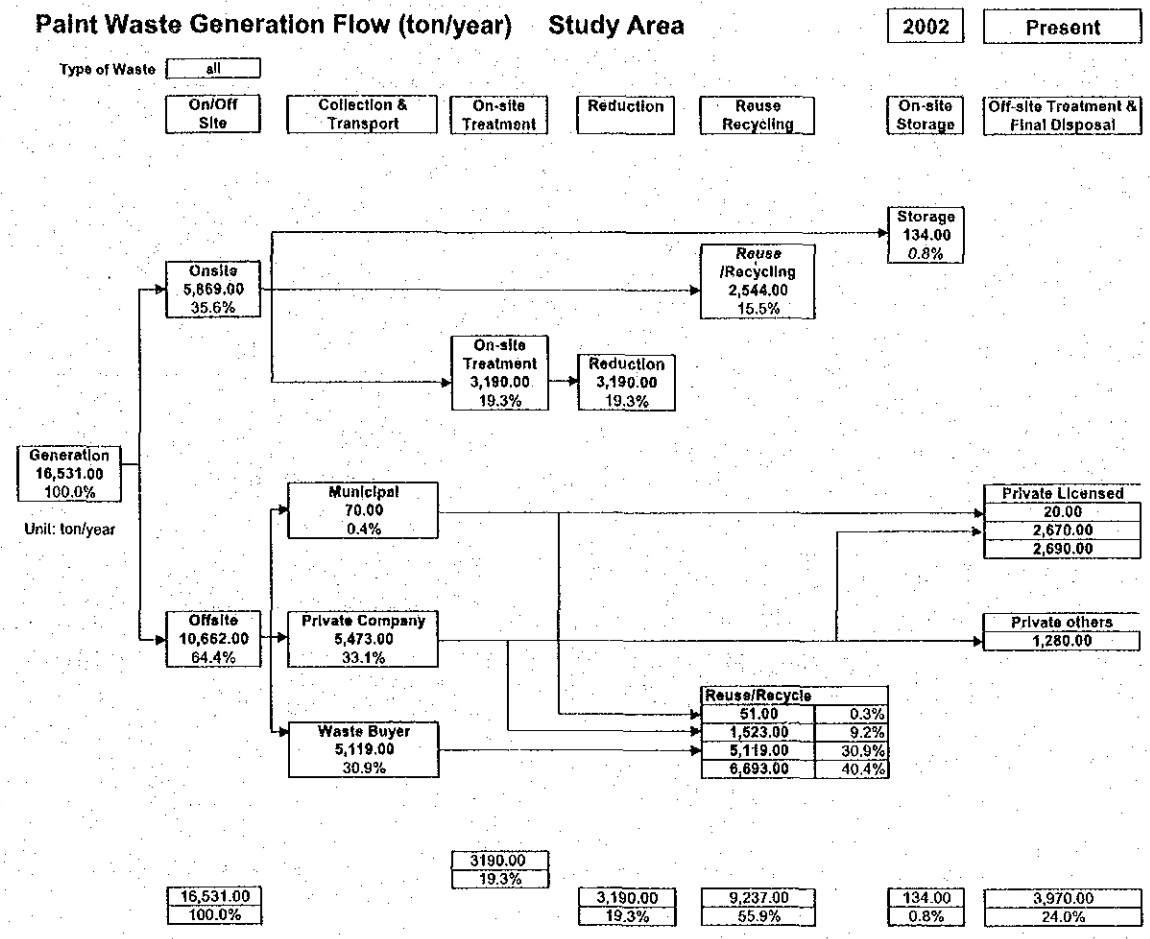


Figure 12-12: Waste Flow of Paint Industry in the Study Area (all type)

12.3.2 By type of waste

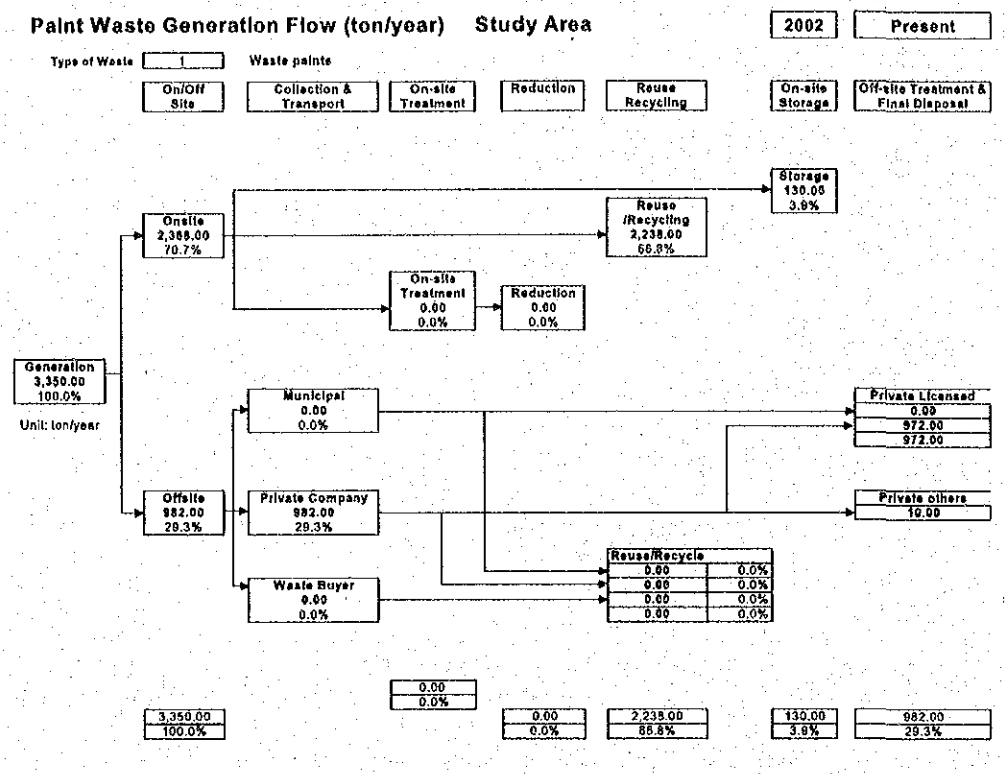


Figure 12-13: Waste Flow of Paint Industry in the Study Area (waste paint)

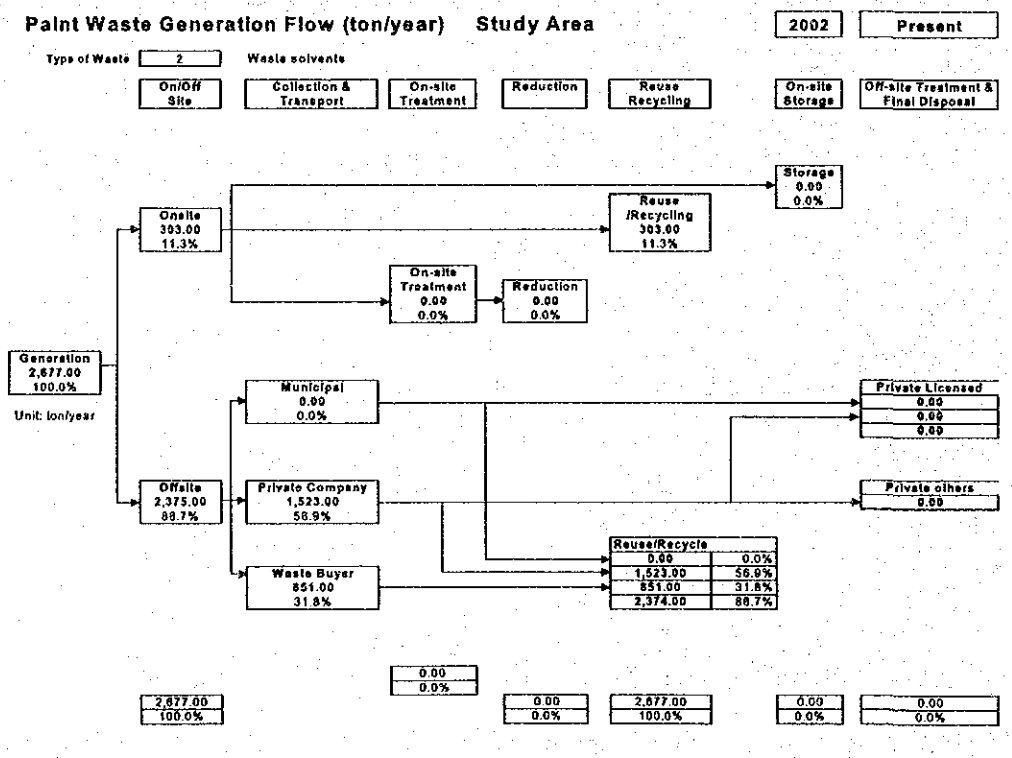


Figure 12-14: Waste Flow of Paint Industry in the Study Area (waste solvent)

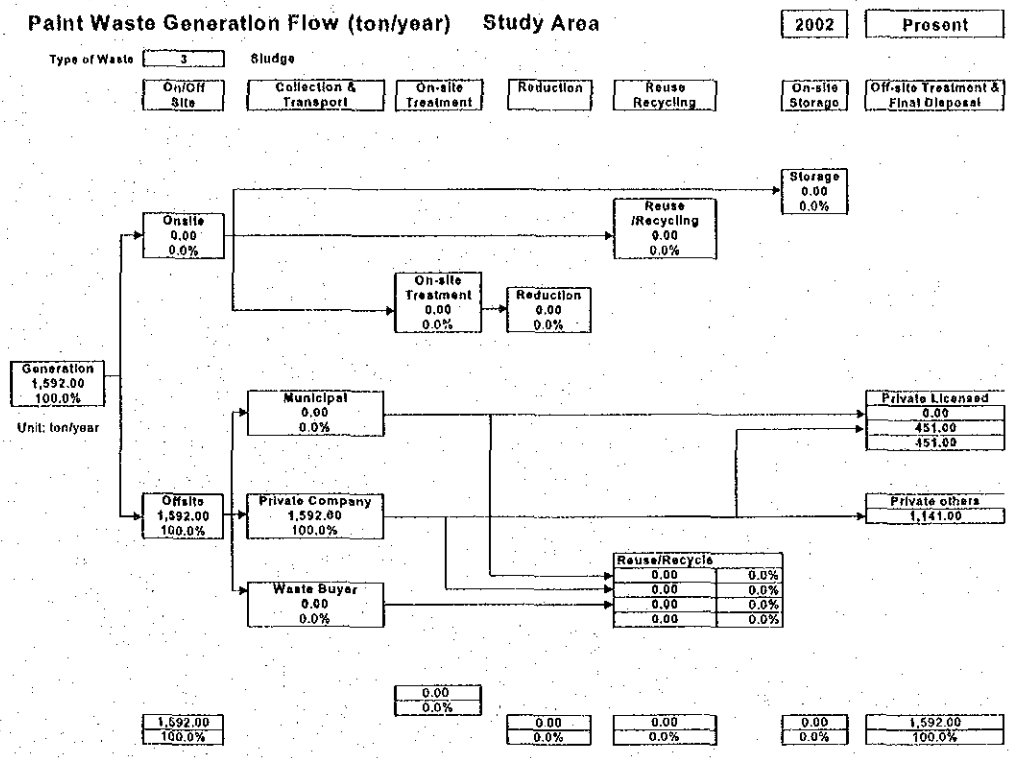


Figure 12-15: Waste Flow of Paint Industry in the Study Area (Sludge)

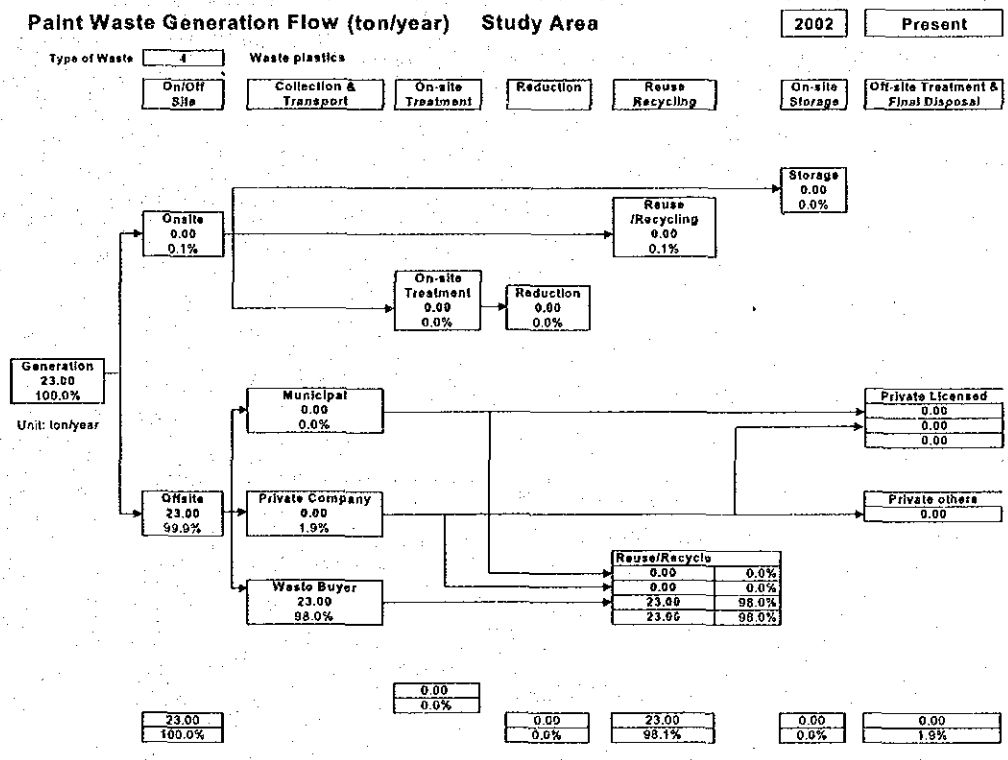


Figure 12-16: Waste Flow of Paint Industry in the Study Area (waste plastics)

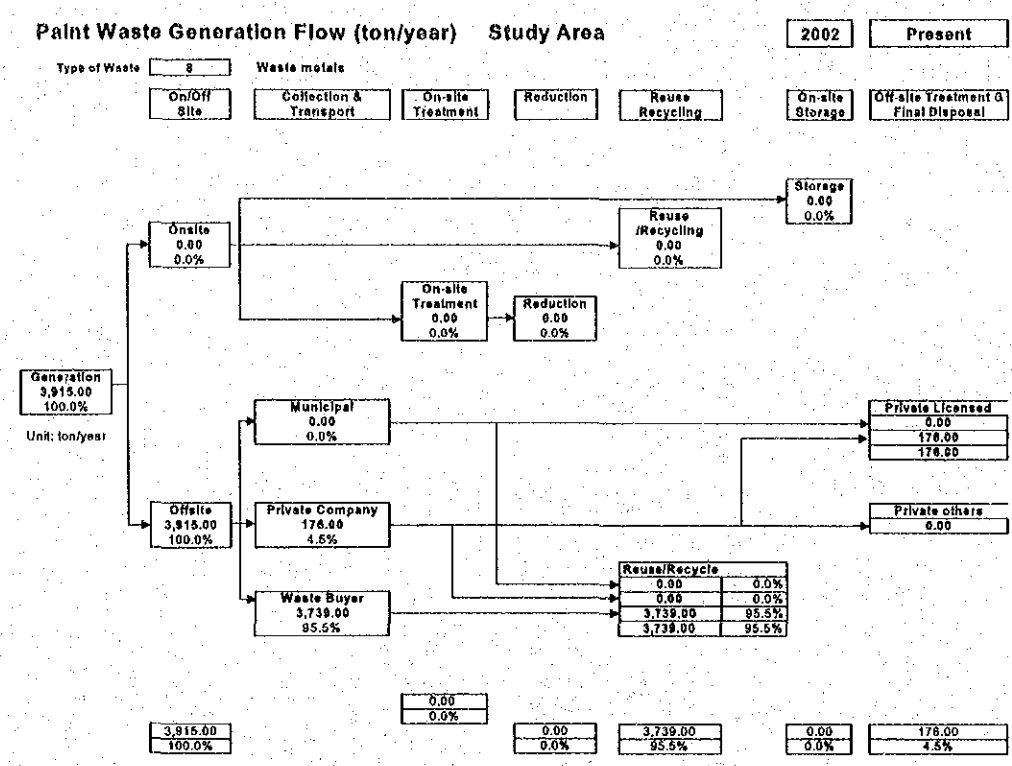


Figure 12-17: Waste Flow of Paint Industry in the Study Area (waste metals)

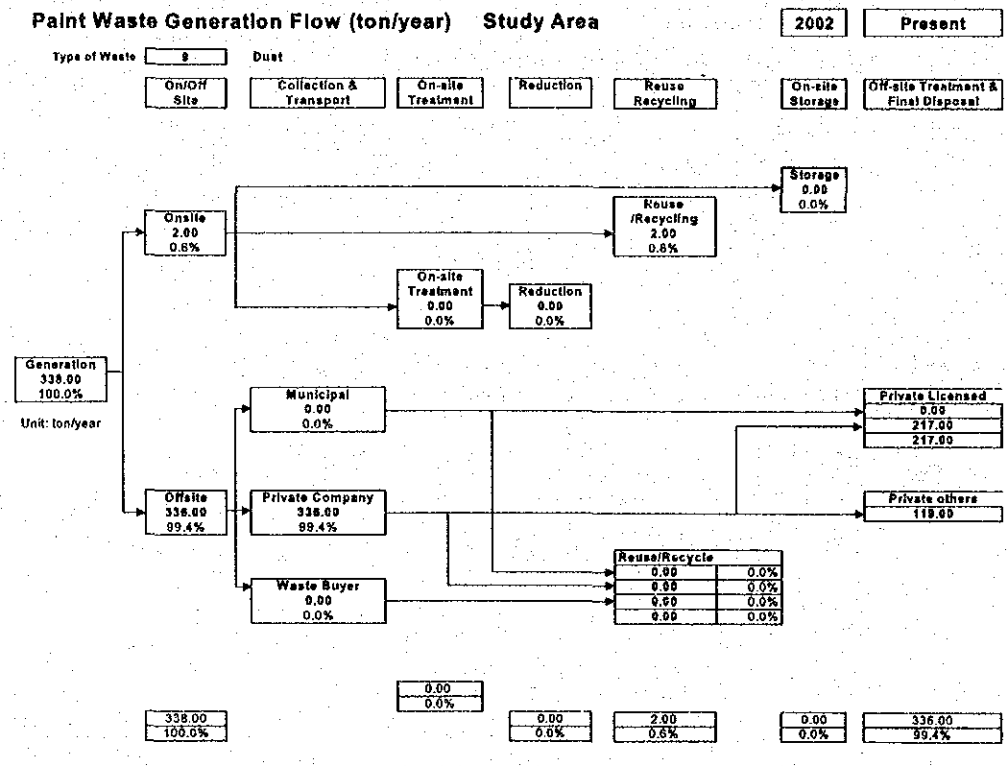


Figure 12-18: Waste Flow of Paint Industry in the Study Area (dust)

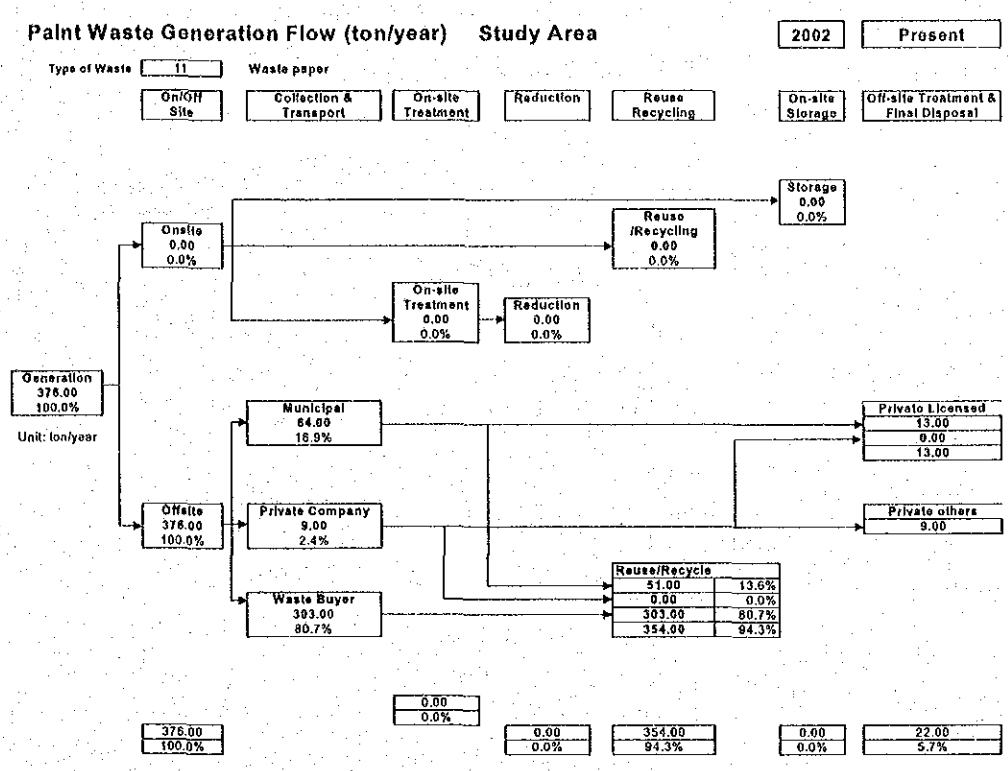


Figure 12-19: Waste Flow of Paint Industry in the Study Area (waste paper)

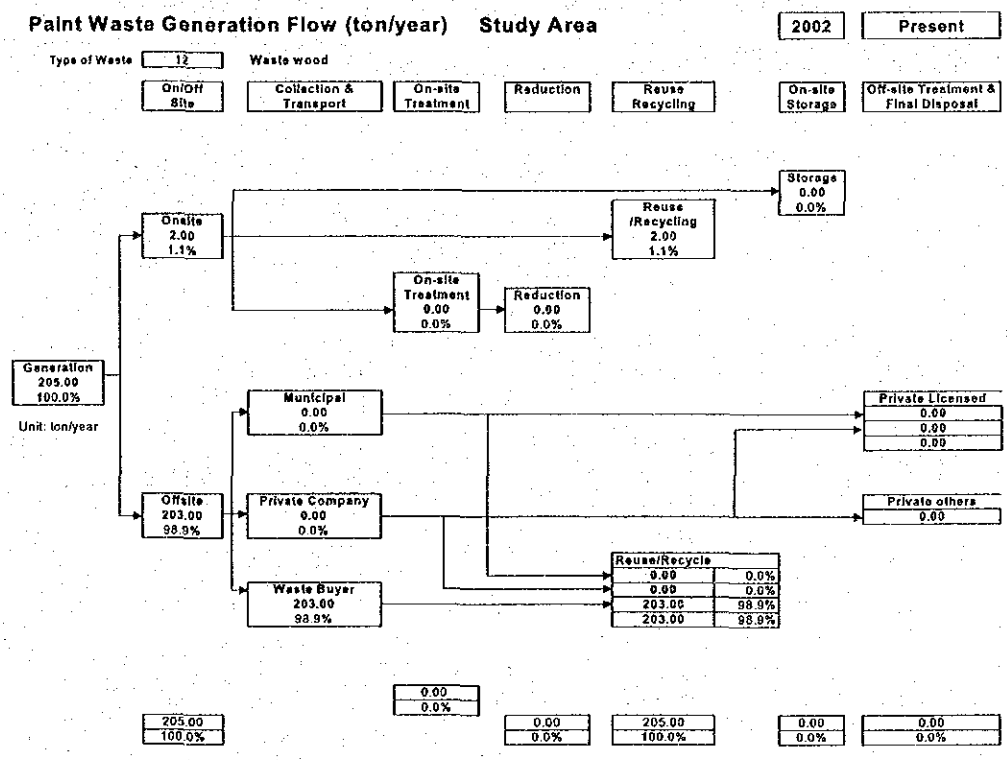


Figure 12-20: Waste Flow of Paint Industry in the Study Area (waste wood)

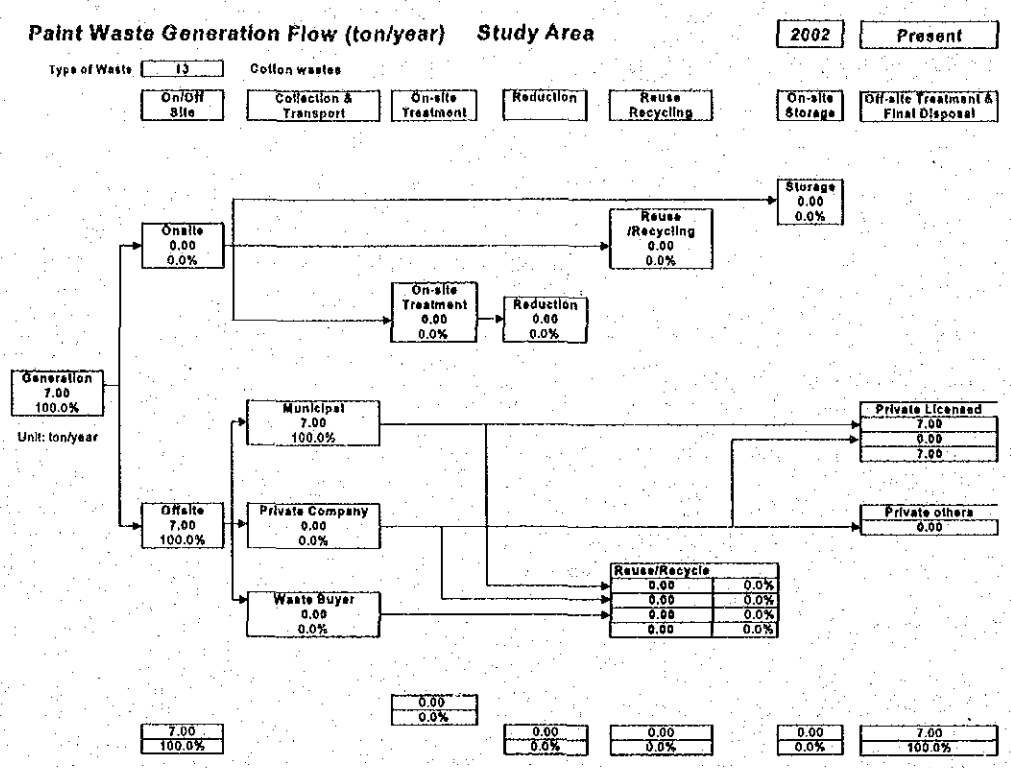


Figure 12-21: Waste Flow of Paint Industry in the Study Area (cotton waste)

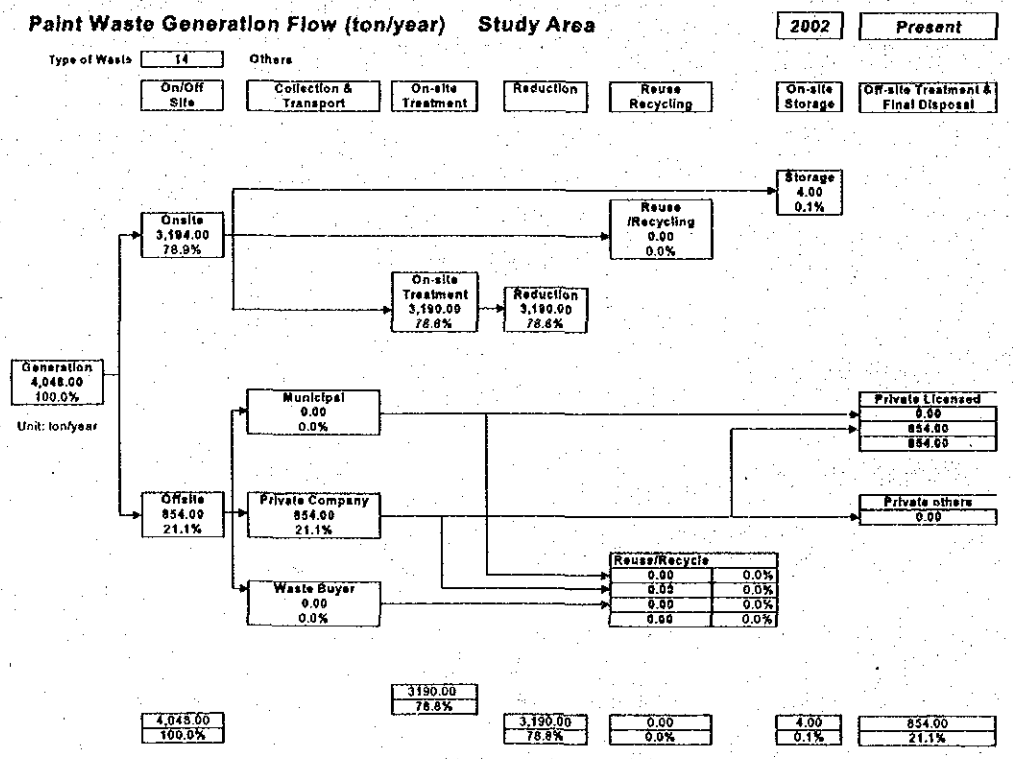


Figure 12-22: Waste Flow of Paint Industry in the Study Area (others)