

Task 1: Freight Supply and Demand Analysis

Action 4; Development of Greener Supply Chains

Report by SEStran

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1. INTRODUCTION

1.1 Introduction

This report forms the first Task of Action 4 of the WEASTflows Project.

The objective of this Freight Supply and Demand Analysis is to provide a global analysis on freight demand and supply at a NWE level and on each project partners region.

The initial methodology agreed with the Partners was to utilise a freight simulation model to replicate the origin and destination of multi-modal freight movements across the whole of the NWE area and beyond. This proved to be seriously complicated and after the initial draft work, it was agreed at a working group meeting with WEASTflows partners that the necessary accuracy was not being achieved. It was therefore decided that the freight flow analysis should be undertaken based on Eurostat freight data and relevant National data.

SEStran also undertook to prepare a separate a discussion paper on freight logistics capacities since this was one of the key areas that complicated the attempt to model freight supply and demand.

To provide a reliable and transparent source of information for the analysis of freight volumes, data has been extracted from the Eurostat database for four transport modes, namely:

- Road;
- Rail;
- Inland Waterways; and
- Maritime.

Where possible, National Statistics were used for road freight volumes in conjunction with Eurostat to ensure the accuracy of the dataset. The freight volumes have been extracted and presented separately for the four modes.

The purpose of this report is to describe the derivation of the datasets and the key findings, supported by a series of tables for road, rail, inland waterways and maritime modes indicating freight volumes to/from the zones within the WEASTflows area based on the latest information available from the Eurostat database.

The Report is divided into 7 sections and includes 4 Appendices. The remainder of this Section explains the zoning system that has been used for the analysis and provides some background to the data sources used. Sections 2-5 set out key summaries of the data analysis, setting out freight movements in terms of tonnes moved and tonne-kilometres moved for each transport mode in turn, while Section 6 provides a summary of the combined totals for all modes. Section 7 summarises some key findings in



terms of major freight movement to, from and within the WEASTflows area. Appendix A explains in more detail the methodology that has been used to develop the full zone to zone data matrices for each mode. These are included as Appendix D of the report. Appendix B provides summaries of freight movements in terms of tonne-km between WEASTflows countries, and between each WEASTflows country and non-WEASTflows zones. Appendix C extracts summaries of the freight movements relevant to the locations of some WEASTflows partners.

1.2 WEASTflows Zoning System

The zoning system has been developed to facilitate an analysis of freight volumes within, to and from the WEASTflows area.

Firstly, the zones within the United Kingdom and Ireland have been ordered to Scotland, England, Wales, Northern Ireland and Republic of Ireland. This sequence more facilitates analysis of data at the Great Britain, United Kingdom and island of Ireland level.

Secondly, the zones which are located out with the WEASTflows area in continental Europe have been ordered in a generally clockwise direction.

Thirdly, the two separated areas of Germany which are outside the WEASTflows zone area have been allocated to separate zones to facilitate analysis of freight volumes both at a national level and within the transport corridors.

An overall zoning system is shown in **Table 1.2** and **Figure 1.2** and a full country-by-country breakdown following it.



TABLE 1.2 WEASTFLOWS ZONING SYSTEM			
Zones Nos.	No. of Zones	Key Countries (EU)	Key Countries (non-EU)
1-7	7	Scotland	
8-18	11	England	
19-20	2	Wales	
21-22	2	Northern Ireland	
23-29	7	Republic of Ireland	
30-33	4	Netherlands	
34-36	3	Belgium	
37	1	Luxembourg	
38-48	11	Germany	
49-61	13	France	
62	1	Parts of Netherlands outside the WEASTflows area	
63	1	Parts of Germany (North) outside the WEASTflows area	
64	1	Parts of Germany (South) outside the WEASTflows area	
65	1	Parts of France outside the WEASTflows area	
66	1	Denmark, Finland and Sweden	Norway and Iceland
67	1	Estonia, Latvia, Lithuania and Poland	
68	1		Belarus, Moldova and Ukraine
69	1	Austria, Czech Republic, Hungary and Slovakia	
70	1	Bulgaria, Croatia, Cyprus, Greece, Romania and Slovenia	Albania, Bosnia & Herzegovina, Macedonia, Montenegro and Serbia
71	1	Italy and Malta	Switzerland
72	1	Portugal and Spain	
73	1		Azerbaijan, Armenia, Georgia and Russia
74	1		Non Middle-East Asia plus Australasia
75	1		Middle-East countries from Turkey and Iran southwards and Africa
76	1		North and South America and associated island groups



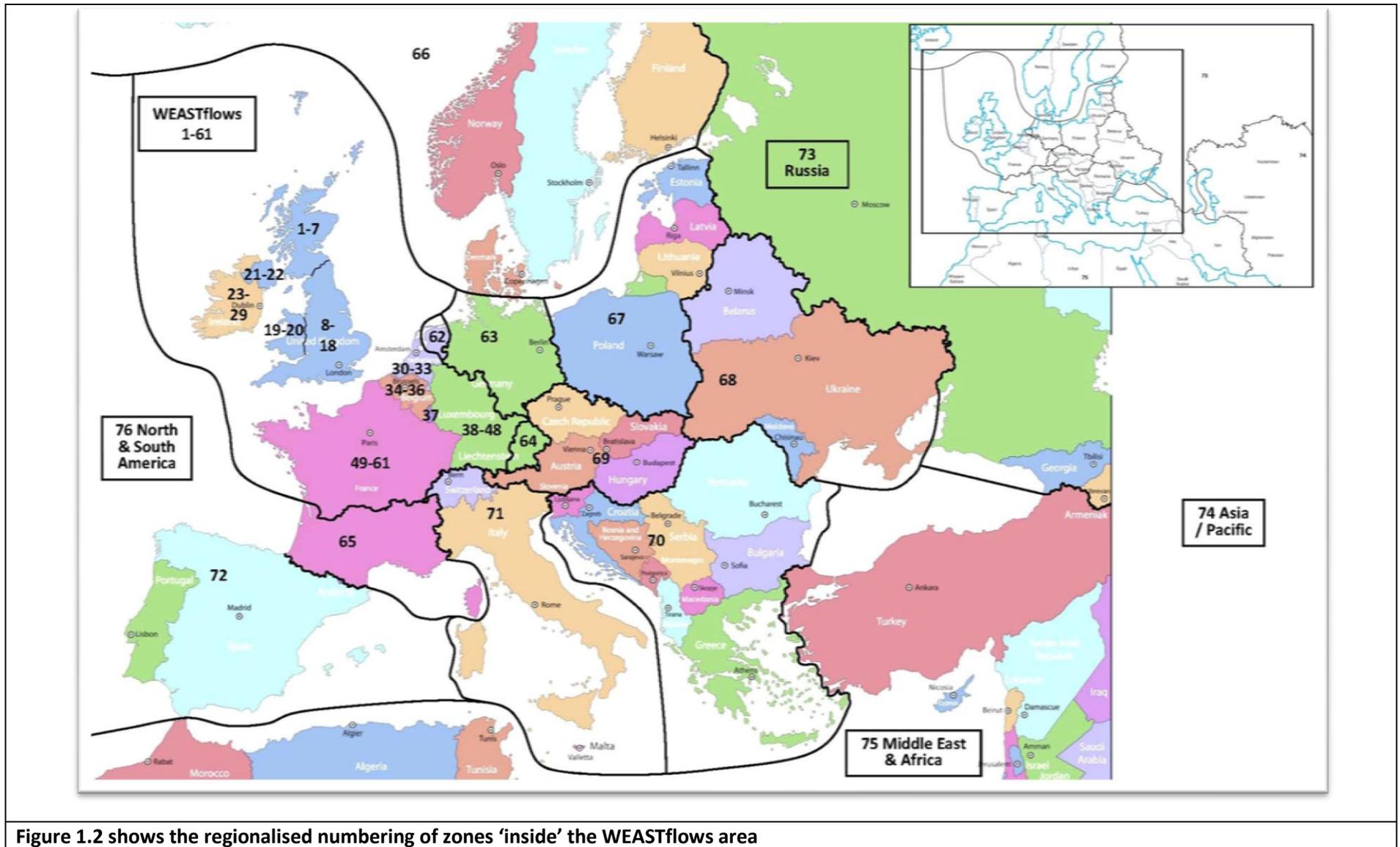


Figure 1.2 shows the regionalised numbering of zones 'inside' the WEASTflows area

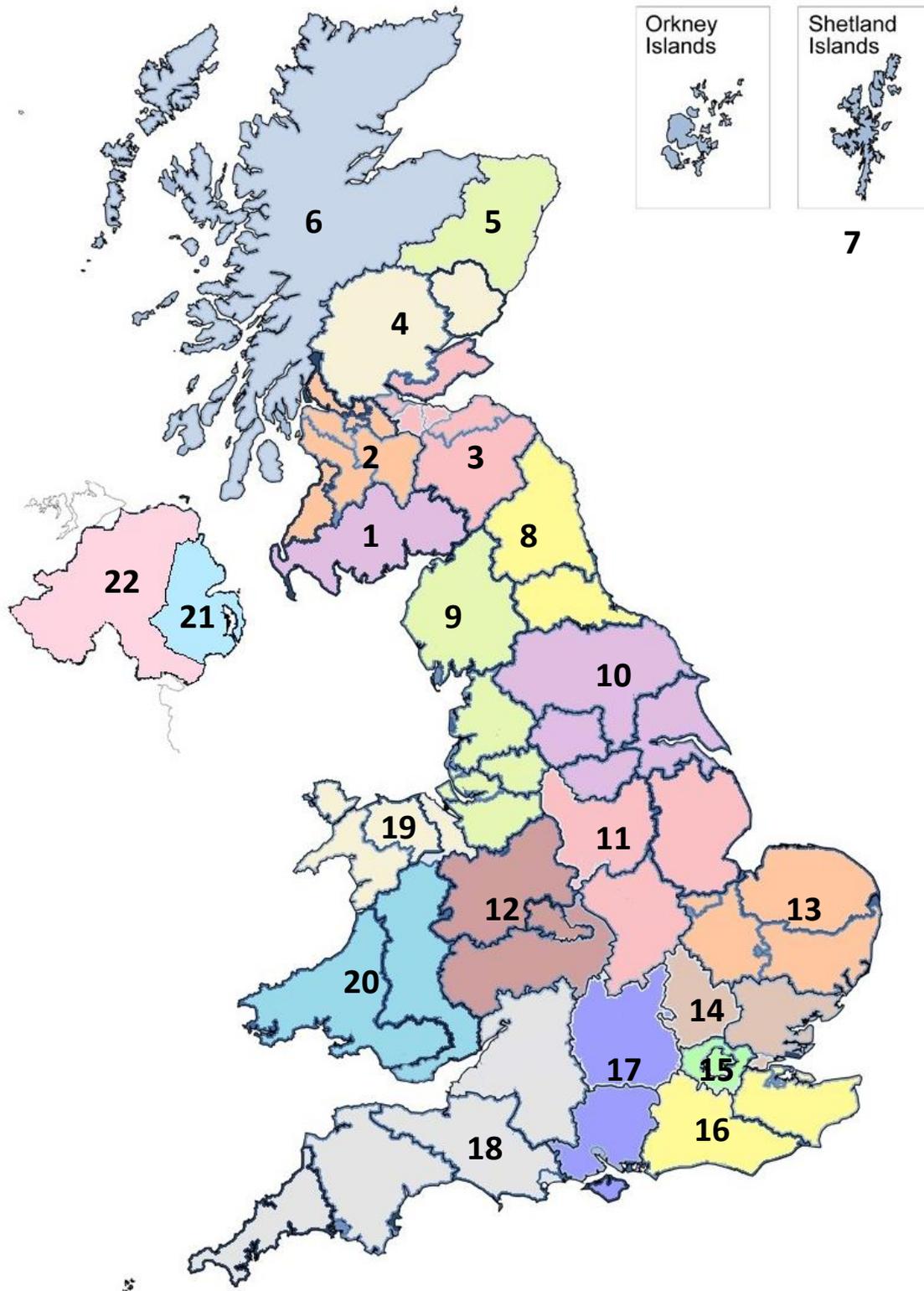


Figure 1.21 shows a zonal map of the UK

Zone Number	Location	NUTS-Zones	WEASTflows Partner
Scotland			
1	Dumfries	UKM32	
2	Glasgow	UKM31, 33, 34, 35, 36, 37, 38	
3	Edinburgh	UKM22, 23, 24, 25, 26, 28	SEStran
4	Perth	UKM21, 27	
5	Aberdeen	UKM50	
6	Inverness	UKM61, 62, 63, 64, 65	
7	Shetland	UKM66	
England			
8	Newcastle	UKC	
9	Liverpool	UKD	LOOM
10	Leeds	UKE	
11	Nottingham	UKF	
12	Birmingham	UKG	
13	Cambridge	UKH1	
14	Colchester	UKH2 + UKH3	
15	London	UKI	IfS
16	Brighton	UKJ2 + UKJ4	Intermodality
17	Southampton	UKJ1 + UKJ3	Portsmouth Port
18	Bristol	UKK	
Wales			
19	Wrexham	UKL11, 12, 13, 23	
20	Cardiff	UKL14, 15, 16, 17, 18, 21, 22, 24	
Northern Ireland			
21	Belfast	UKN01, 02, 03	
22	Londonderry	UKN04, 05	

Table 1.21 shows the NUTS code and WEASTflows partner for each zone in the UK

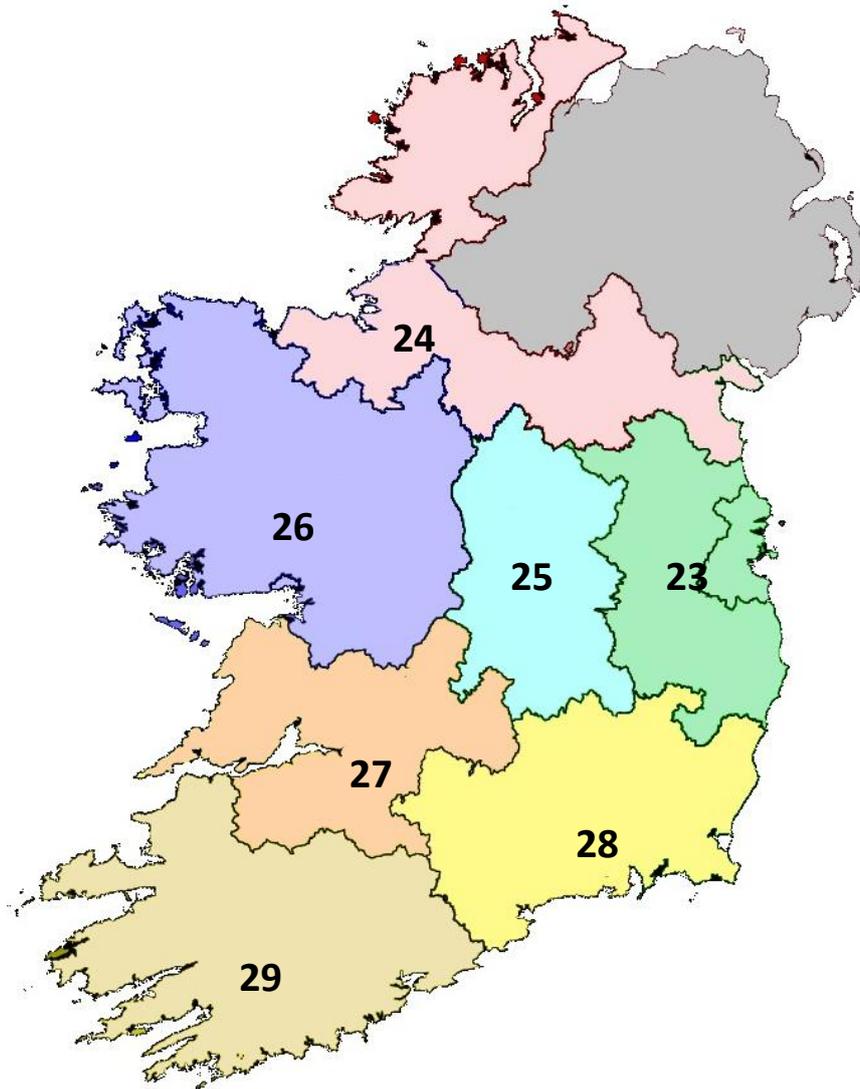


Figure 1.22 shows a zonal map of the Republic of Ireland

Zone Number	Location	NUTS-Zones	WEASTflows Partner
Republic of Ireland			
23	Dublin	IEO21 + IEO22	IEA
24	Donegal	IEO11	
25	Athlone	IEO12	
26	Galway	IEO13	
27	Limerick	IEO23	MWRA
28	Waterford	IEO24	
29	Cork	IEO25	

Table 1.22 shows the NUTS code and WEASTflows partner for each zone in the ROI

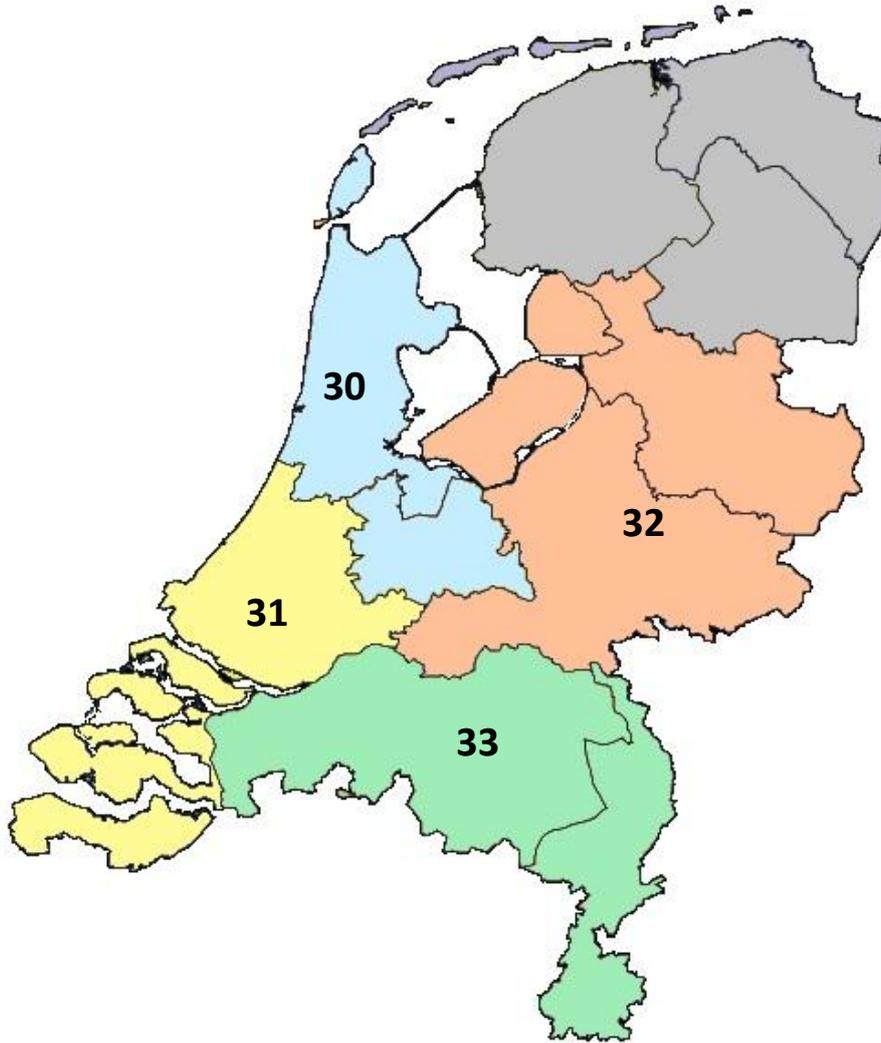


Figure 1.23 shows a zonal map of the Netherlands

Zone Number	Location	NUTS-Zones	WEASTflows Partner
Netherlands			
30	Amsterdam	NL31 + NL32	
31	Rotterdam	NL33 + NL34	Mobycon
32	Enschede	NL21 + NL22 + NL23	
33	Eindhoven	NL41 + NL42	BOM, InforIT, CQM, BBZOB

Table 1.23 shows the NUTS code and WEASTflows partner for each zone in the Netherlands

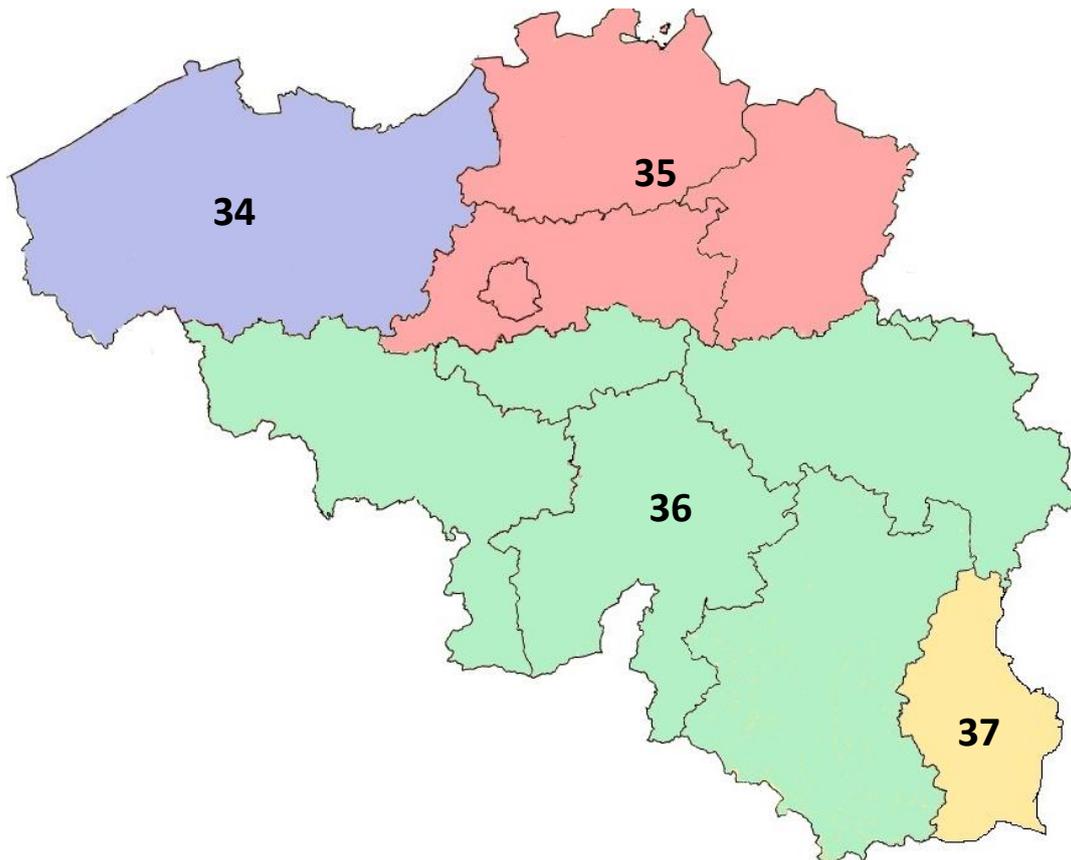


Figure 1.24 shows a zonal map of Belgium and Luxembourg

Zone Number	Location	NUTS-Zones	WEASTflows Partner
Belgium			
34	Gent	BE23 + BE25	
35	Brussels	BE10 + BE21 + BE22 + BE24	
36	Liege	BE31 + BE32 + BE33 + BE34 + BE35	
Luxembourg			
37	Luxembourg	LU00	TUDOR

Table 1.24 shows the NUTS code and WEASTflows partner for each zone in Belgium and Luxembourg.

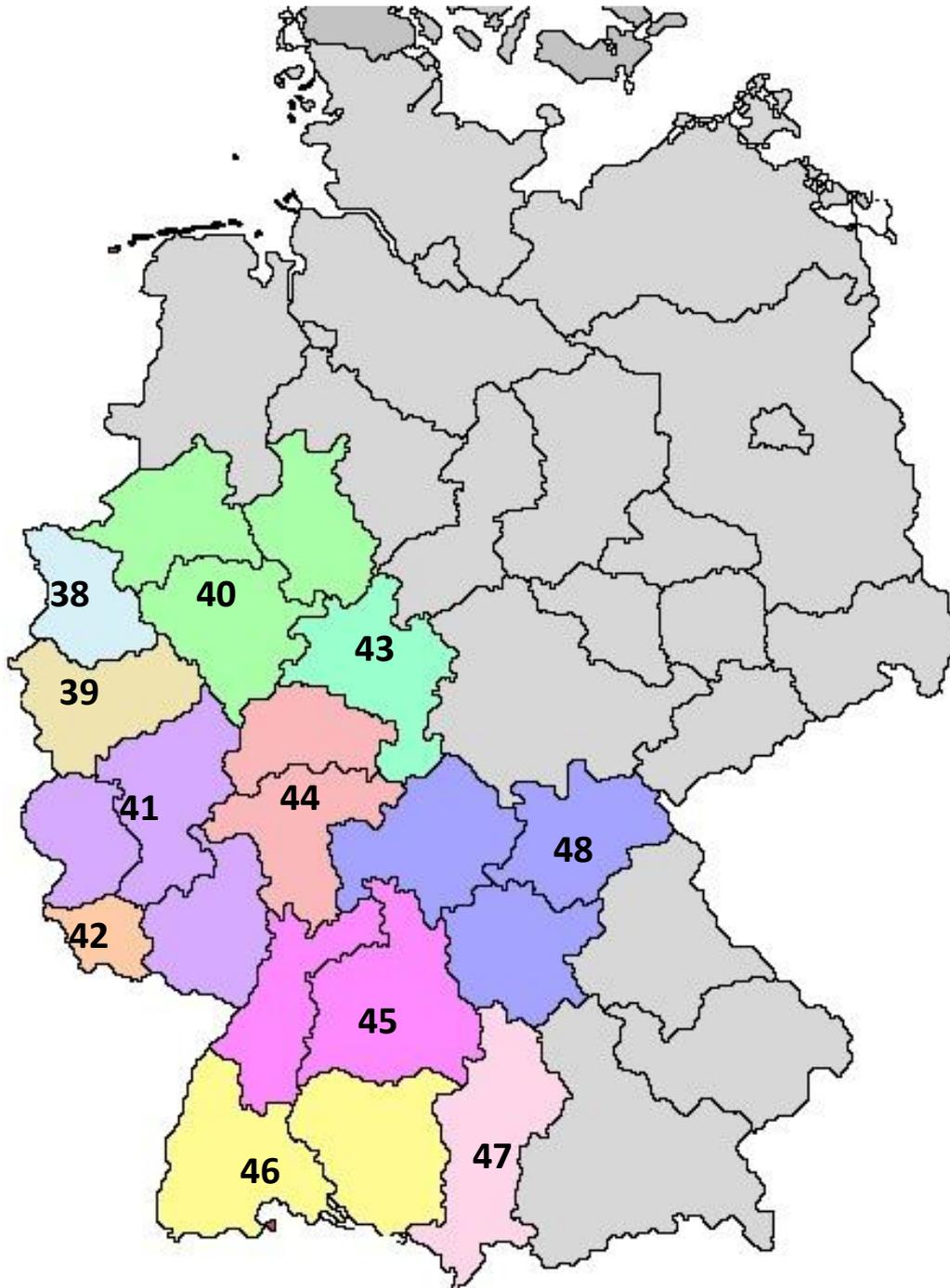


Figure 1.25 shows a zonal map of Germany

Zone Number	Location	NUTS-Zones	WEASTflows Partner
Germany			
38	Dusseldorf	DEA1	Uni-Due
39	Koln	DEA2	
40	Dortmund	DEA3 + DEA4 + DEA5	
41	Koblenz	DEB (NUTS-1)	
42	Saarbrucken	DEC (NUTS-1)	
43	Kassel	DE73	
44	Frankfurt	DE71 + DE72	
45	Karlsruhe	DE11 + DE12	VRRN
46	Freiburg	DE13 + DE14	
47	Nuremburg	DE24 + DE25 + DE26	
48	Augsburg	DE27	

Table 1.25 shows the NUTS code and WEASTflows partner for each zone in Germany

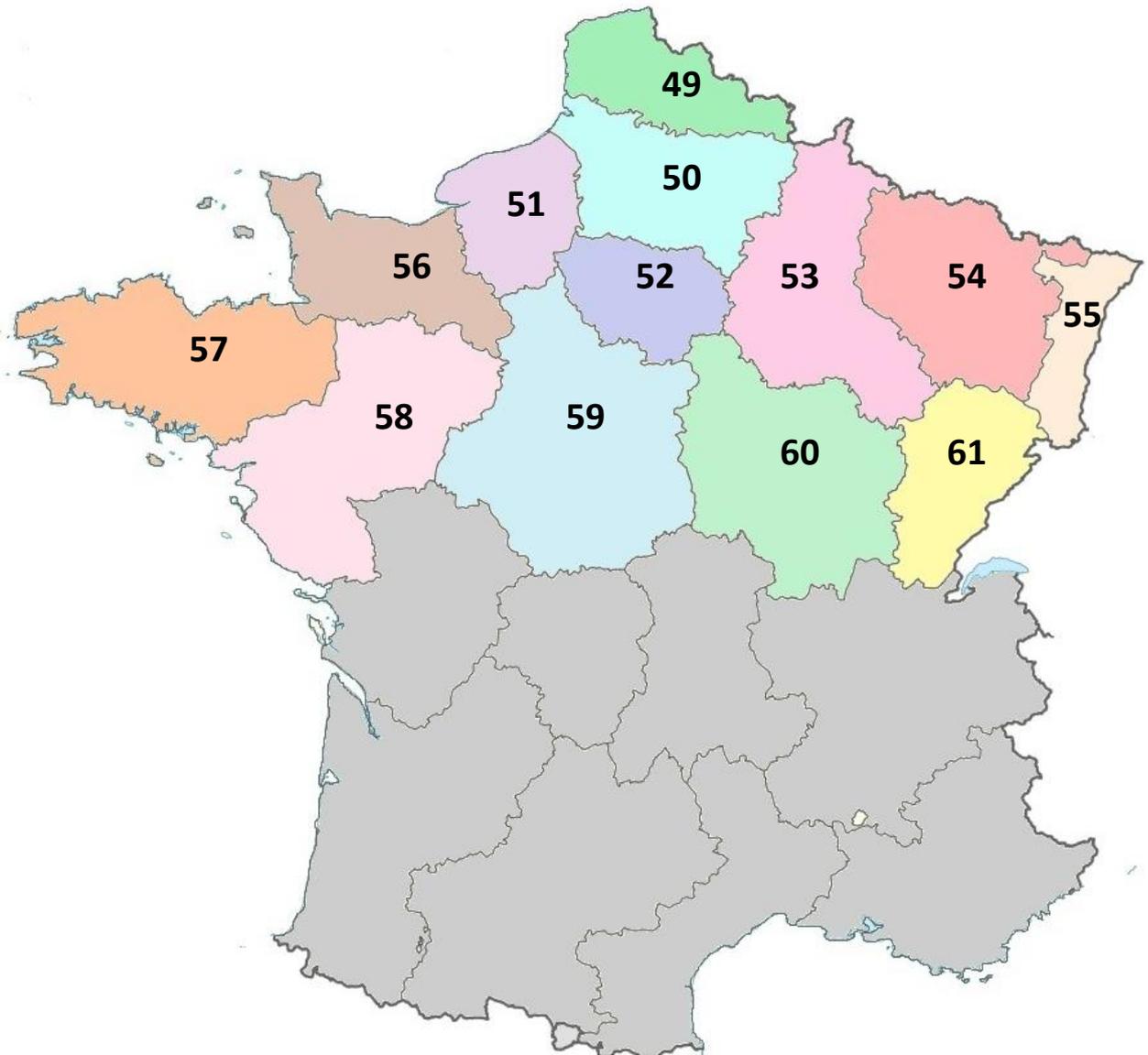


Figure 1.26 shows a zonal map of France

Zone Number	Location	NUTS-Zones	WEASTflows Partner
France			
49	Calais	FR30	TTPNF, USTL-LAGIS
50	Amiens	FR22	
51	Le Havre	FR23	AURH, CRITT, CTS, LSN, IDIT
52	Paris	FR10	
53	Reims	FR21	
54	Metz	FR41	
55	Strasbourg	FR42	
56	Caen	FR25	
57	Rennes	FR52	
58	Le Mans	FR51	
59	Tours	FR24	
60	Dijon	FR26	
61	Besancon	FR43	

Table 1.26 shows the NUTS code and WEASTflows partner for each zone in France



1.3 Eurostat Database

The Eurostat database is founded through a Common Questionnaire (Eurostat/UNECE/ITF) and is a requirement under the Council Directive 78/546/EEC, as amended by Council Directive 89/462/EEC of 18 July 1989. Information within the Eurostat database is held in different formats and for different geographical areas. The latter are based on The Nomenclature of Territorial Units for Statistics (NUTS), a three tier hierarchical classification for which the NUTS Regulation lays down the following minimum and maximum thresholds for population sizes:

- NUTS-1 is based on an average population size of between 3-7 million
- NUTS-2 is based on an average population size of between 0.8-3 million
- NUTS-3 is based on an average population size of between 0.15-0.8 million

The road freight information is held at NUTS-3. Some 1395 NUTS-3 zones were identified within the Eurostat road freight database. The volume of freight loaded in each of these zones and transported to 29 countries was extracted from the database. The information has been processed to create a dataset of road freight movements between 76 WEASTflows zones.

1.4 Eurostat limitations

The Eurostat database is a vast and extensive collection of various types of data, collected over many years. There are multiple levels of detail and it can be difficult to extract the required statistics. The road freight origin and destination data was excellent for entire countries; however the data lacked clarity for movements between countries and individual regions of other countries. In addition, there was a difficulty to identify where vehicles were registered and certain statistics between countries and regions were classified. The assumption was made that Eurostat took into account all registered vehicles for all domestic and international flows. In addition, certain countries discounted lorries which were over a certain age and only count lorries above 3.5 tonnes. Therefore, the grand total road freight for each country was extracted and the international and regionalised freight distribution was estimated using National Statistics where possible.

1.5 Rail, Inland Waterway and Maritime Freight Statistics

The rail freight information is generally held at origin NUTS-2 to destination NUTS-2 level. Some 300 NUTS-2 zones were identified within the Eurostat rail freight database, of which 101 zones are within the WEASTflows area. The volume of freight transported between these zones was extracted from the database. This information has been processed to create a dataset of freight movements between the 76 WEASTflows zones.

The maritime freight information is generally held at origin Port to destination Port level. Some 146 ports were identified in the Eurostat maritime freight database within the WEASTflows countries. The volume of freight loaded at each of these ports and transport to some 214 different countries was



extracted from the database. This information has been processed to create a dataset of freight movements between the 76 WEASTflows zones.

The inland waterway freight information is generally held at origin NUTS-2 to destination NUTS-2 level. Some 300 NUTS-2 zones were identified within the Eurostat inland waterway freight database, of which 101 zones are within the WEASTflows area. The volume of freight transported between these zones is extracted from the database. This information has been processed to create a dataset of freight movements between the 76 WEASTflows zones.

Within the Eurostat database, the extracted raw data for rail and inland waterways freight does not always provide information at the WEASTflows zone level. The Gross Domestic Product (GDP) data obtained from the Eurostat database was therefore used to aggregate or disaggregate the raw freight data as required to match the selected WEASTflows zones.

Based on the approach set out above, the data extracted from the Eurostat database and from National Statistics were processed to create the following datasets which are summarised in the following Sections 2 to 6:

- A tabulated dataset of Eurostat and National road freight volumes based on the 76 WEASTflows zones.
- A tabulated dataset of Eurostat rail freight volumes based on the 76 WEASTflows zones.
- A tabulated dataset of Eurostat maritime freight volumes based on the 76 WEASTflows zones.
- A tabulated dataset of Eurostat inland waterway freight volumes based on the 76 WEASTflows zones.
- Tabulations of the total freight volumes obtained by summation of the four above datasets.

The methodology used to obtain the 76 x 76 zone tabulations are explained in more detail in Appendix A.

In Section 7 of this report, the datasets above were combined with a zone to zone distance matrix supplied by WEASTflows partner AURH to produce freight volumes weighted by distance, with the aim of providing a more realistic assessment of the relative impact of specific corridor movements, discussed in that Section.

1.6 Using the Data

The matrices and datasets produced in this report must be handled and used with care. Certain freight movements will be multi-modal using multiple forms of transport. However, it may not be apparent from Eurostat and National Statistics how such movements are categorized. Furthermore, a journey from region to region has the potential to be split into a number of segments, possibly using different modes of transport and therefore accurate end-to-end freight volumes may not be identifiable.



For example, road freight movements from location to location that solely used a single heavy goods vehicle (HGV) are classified as a simple road freight journey. Further, if an HGV was to board another form of transport (e.g. piggy-back on a train or roll-on/roll-off [ro-ro] ferry), and assuming the HGV continues to the destination by road after boarding the other form of transport, the whole journey would be classed as a road freight movement. Edinburgh to Paris would be an example of this, where the HGV will have to board a train or a ro-ro ferry to cross the English Channel or North Sea and then disembark and continue via road. It appears that such a journey would not be included when looking at maritime freight movements; ferry traffic is therefore likely to be substantially underestimated in the maritime tables.

Similarly, rail freight movements are identified simply as a rail journey between two zones, while Maritime and Inland Waterway freight movements were classified based upon freight movement only from Port-to-Port. Transport by another mode, for example by road, to the railhead or port is likely to be included in the statistics as a separate road freight movement.

In practice, very many freight movements will be multi-modal, with linked road, inland waterway and/or maritime elements. In this case, it is likely that some or all of the elements of the multi-modal journey will be identified in the statistics as shorter, single mode movements. For example, a container loaded in a factory in the UK might be transported by road to a railhead, by train to a port, by ship across the Channel, trans-shipped to a barge for inland waterway transport to an inland port, and finally transported by road to its final destination. The statistics will identify all of these elements as individual movements by the relevant modes. It is impossible from the data available to identify how the various elements fit together.

Note also that the results in the subsequent tables refer to 'Great Britain' (GB) and 'Ireland'. 'Great Britain' refers to the aggregation of Scotland, England and Wales. Unless otherwise stated, 'Ireland' refers to the whole island of Ireland, including both Northern Ireland (NI) and the Republic of Ireland (ROI).



2. ROAD FREIGHT

2.1 Introduction

Road freight volumes were extracted from the Eurostat database for the year 2010. The UK data for 2010 was extracted from the Scottish Transport Statistics (STS) 2012, the Department for Transport (DfT) and a joint venture for Ireland published by the Northern Ireland Transport Statistics (DRDNI) 2012-2013. This data was combined to create a dataset for road freight volumes. The Northern Ireland Transport Statistics 2012-13 provided accurate data for the Republic of Ireland also. In addition, the French National Statistics for all regions inside France, including the zones outside of WEASTflows were provided.

The Eurostat road database contains road freight volume by origin / destination at the country level at one end and at the NUTS-3 level at the other end of the journey. Where possible, datasets from National Statistics sources were used for each country and cross-referenced with Eurostat to improve the accuracy of internal road freight movements. A detailed methodology is explained in Appendix A.

The 76 by 76 WEASTflows zone dataset was then condensed to a 12 by 12 WEASTflows country dataset to provide an overview of freight volumes. The parts of Netherlands, France and Germany which were outside the WEASTflows zones were allocated to the zones covering the rest of Europe.

2.2 Key Results

The data extracted from the Eurostat database and from National Statistics indicates a total of 13,527 million tonnes of freight were transported by road in 2010, of which typically consisted of 70% local freight movement within each NUTS-3 zone. Examination of the remaining freight movements with the local flows removed indicates the following:

- Within Great Britain, there was a total of 598 million tonnes (95 billion t-km) of freight moved by road;
- Within Ireland, there was a total of 50 million tonnes (7 billion t-km) of freight;
- Between combined GB and Ireland, and continental WEASTflows area, there was 23 million tonnes (14 billion t-km) of freight;
- Within the continental WEASTflows area, there was a total of 958 million tonnes (184 billion t-km) of freight
 - Within WEASTflows Netherlands 92 million tonnes (10 billion t-km),
 - Within Belgium 71 million tonnes (7 billion t-km),
 - Within WEASTflows Germany 336 million tonnes (53 billion t-km) and,
 - Within WEASTflows France 256 million tonnes (51 billion t-km);
 - Between WEASTflows countries 203 million tonnes (63 billion t-km);



- From the continental WEASTflows area to the rest of Europe, there was a total of 377 million tonnes (211 billion t-km) of freight; and
- From the rest of Europe to the continental WEASTflows area, there was a total of 355 million tonnes (196 billion t-km) of freight.

The distribution of road freight volumes is shown in **Table 2.1** and **Table 2.2** below.



ROAD FREIGHT VOLUMES (000's tonnes) BY COUNTRY
2010 UK / 2011 Remainder

ORIGIN	Zone No.	Country	DESTINATION													Total	Percentage
			Scotland	England	Wales	NI	Ireland	Netherlands	Belgium	Luxembourg	Germany	France	Europe	Rest			
			1 - 7	8 - 18	19 - 20	21 - 22	23 - 29	30 - 33	34 - 36	37	38 - 48	49 - 61	62 - 72	73 - 76			
	1 - 7	Scotland	37,501	11,627	647	98	170	122	264	0	93	261	523	0	51,306	1.9%	
	8 - 18	England	17,280	475,293	26,958	377	1,711	1,165	2,628	59	921	2,553	5,194	0	534,138	19.6%	
	19 - 20	Wales	413	23,400	5,000	23	97	66	149	0	53	147	297	0	29,646	1.1%	
	21 - 22	Northern Ireland	180	393	24	4,649	6,739	0	0	0	0	0	8	0	11,994	0.4%	
	23 - 29	Ireland	117	1,121	67	4,183	34,467	65	0	0	19	91	158	0	40,288	1.5%	
	30 - 33	Netherlands	422	4,109	246	5	156	91,724	23,427	507	19,043	12,879	56,626	304	209,447	7.7%	
	34 - 36	Belgium	180	1,750	102	0	0	21,205	70,916	4,983	11,797	22,192	35,490	0	168,614	6.2%	
	37	Luxembourg	8	95	6	0	0	590	2,111	0	2,033	2,271	3,596	0	10,710	0.4%	
	38 - 48	Germany	283	2,767	168	0	27	23,294	13,128	3,498	336,003	10,238	192,906	554	582,866	21.3%	
	49 - 61	France	369	3,564	211	0	60	3,478	16,896	1,605	8,225	256,449	88,517	19	379,393	13.9%	
	62 - 72	Europe (OutsideWf)	1,085	10,492	630	15	121	51,110	29,223	4,095	186,257	84,888	332,820	8,656	709,391	26.0%	
	73 - 76	Rest of World	0	0	0	0	0	0	0	0	138	0	2,787	0	2,925	0.1%	
		Total	57,838	534,610	34,058	9,350	43,548	192,819	158,742	14,747	564,581	391,969	718,922	9,533	2,730,718	100.0%	
		Percentage	2.1%	19.6%	1.2%	0.3%	1.6%	7.1%	5.8%	0.5%	20.7%	14.4%	26.3%	0.3%	100.0%		

ROAD FREIGHT VOLUMES (000's tonnes) BY KEY ORIGINS / DESTINATIONS
2010 UK / 2011 Remainder

ORIGIN	Zone No.	Country	DESTINATION					Total
			1 - 20	21 - 29	30 - 61	62 - 71	73 - 76	
			GB	Ireland	Europe In Wf	Europe Out Wf	Rest of World	
	1 - 20	Great Britain	598,119	2,476	8,480	6,014	0	615,089
	21 - 29	Ireland	1,902	50,038	175	166	0	52,281
	30 - 61	Europe (Wf)	14,279	248	958,493	377,134	877	1,351,031
	62 - 71	Europe (Outside Wf)	12,206	136	355,573	332,820	8,656	709,391
	73 - 76	Rest of World	0	0	138	2,787	0	2,925
		Total	626,506	52,898	1,322,858	718,922	9,533	2,730,718
			Freight volumes within WEASTflows area				1,634,210	

ROAD FREIGHT VOLUMES (000's tonnes) BY KEY AREA
2010 UK / 2011 Remainder

1 - 20	Great Britain	598,119	21.9%
21 - 29	Ireland	50,038	1.8%
30 - 61	Europe (Wf)	958,493	35.1%
62 - 71	Europe (Outside Wf)	332,820	12.2%
73 - 76	Rest of World	0	0.0%
	Remainder	791,248	29.0%
	Total	2,730,718	100.0%

Table 2.1 shows the total road freight volumes (000's tonnes) in the WEASTflows region

ROAD FREIGHT VOLUMES (MILLION T-Km) BY COUNTRY
2010 UK / 2011 Remainder

ORIGIN	Zone No.	Country	DESTINATION													Total	Percentage
			Scotland	England	Wales	NI	Ireland	Netherlands	Belgium	Luxembourg	Germany	France	Europe	Rest			
			1 - 7	8 - 18	19 - 20	21 - 22	23 - 29	30 - 33	34 - 36	37	38 - 48	49 - 61	62 - 72	73 - 76			
	1 - 7	Scotland	4,406	3,300	278	24	74	92	215	0	96	241	761	0	9,486	0.9%	
	8 - 18	England	4,971	71,762	5,370	156	797	537	1,214	40	682	1,437	6,053	0	93,020	9.2%	
	19 - 20	Wales	177	4,687	564	7	29	40	88	0	46	89	373	0	6,099	0.6%	
	21 - 22	Northern Ireland	43	162	7	281	1,082	0	0	0	0	12	0	1,587	0.2%		
	23 - 29	Ireland	50	516	20	647	5,202	57	0	0	22	80	213	0	6,807	0.7%	
	30 - 33	Netherlands	323	1,894	149	4	138	10,231	3,018	122	6,256	5,808	29,389	662	57,995	5.8%	
	34 - 36	Belgium	146	815	60	0	0	2,768	7,331	826	3,800	8,031	25,113	0	48,890	4.8%	
	37	Luxembourg	8	61	4	0	0	142	359	0	470	817	2,070	0	3,931	0.4%	
	38 - 48	Germany	306	2,090	153	0	32	7,573	4,238	803	52,608	5,475	99,597	1,371	174,244	17.3%	
	49 - 61	France	360	2,012	135	0	52	1,572	6,128	578	4,408	50,819	54,959	48	121,072	12.0%	
	62 - 72	Europe (Outside Wf)	1,572	12,079	788	23	156	23,727	20,436	2,147	95,199	54,949	251,544	15,121	477,740	47.4%	
	73 - 76	Rest of World	0	0	0	0	0	0	0	0	654	0	6,650	0	7,304	0.7%	
		Total	12,363	99,377	7,528	1,143	7,561	46,739	43,027	4,516	164,241	127,745	476,734	17,202	1,008,177	100.0%	
		Percentage	1.2%	9.9%	0.7%	0.1%	0.7%	4.6%	4.3%	0.4%	16.3%	12.7%	47.3%	1.7%	100.0%		

ROAD FREIGHT VOLUMES (MILLION T-Km) BY KEY ORIGINS / DESTINATIONS
2010 UK / 2011 Remainder

ORIGIN	Zone No.	Country	DESTINATION					Total
			1 - 20	21 - 29	30 - 61	62 - 71	73 - 76	
			GB	Ireland	Europe In Wf	Europe Out Wf	Rest of World	
	1 - 20	Great Britain	95,514	1,087	4,817	7,187	0	108,605
	21 - 29	Ireland	798	7,212	159	225	0	8,394
	30 - 61	Europe (Wf)	8,517	226	184,181	211,128	2,081	406,133
	62 - 71	Europe (Outside Wf)	14,439	179	196,458	251,544	15,121	477,740
	73 - 76	Rest of World	0	0	654	6,650	0	7,304
		Total	119,268	8,704	386,269	476,734	17,202	1,008,177
			Freight volumes within WEASTflows area					302,511

ROAD FREIGHT VOLUMES (MILLION T-Km) BY KEY AREA
2010 UK / 2011 Remainder

1 - 20	Great Britain	95,514	9.5%
21 - 29	Ireland	7,212	0.7%
30 - 61	Europe (Wf)	184,181	18.3%
62 - 71	Europe (Outside Wf)	251,544	25.0%
73 - 76	Rest of World	0	0.0%
	Remainder	469,726	46.6%
	Total	1,008,177	100.0%

Table 2.2 shows the total road freight volumes (MILLION T-Km) in the WEASTflows region

3. RAIL FREIGHT

3.1 Introduction

Rail freight volumes were extracted from the Eurostat database for the year 2010 as origin and destination data presented at NUTS-2 level in tonnes. The rail freight data was subsequently converted into thousands of tonnes for consistency with the data presented for the other modes.

To define rail freight volumes within the 76 WEASTflows zones, the NUTS-2 level freight data was aggregated or disaggregated as required depending on the relative sizes of the zones. Where the NUTS-2 data had to be disaggregated to WEASTflows zones, the freight volumes were distributed in accordance with the relevant GDP values.

Since rail freight tonnage data for the Republic of Ireland was very limited in the Eurostat database, the values used for the WEASTflows dataset were based on the information obtained from the Irish Government's Central Statistical Office.

Eurostat notes that there were no rail freight services in Northern Ireland as these ceased in 2003.

The 76 by 76 WEASTflows zone dataset was then condensed to a 12 by 12 WEASTflows country dataset to provide an overview of freight volumes. The parts of the Netherlands, France and Germany which were outside the WEASTflows zones were allocated to the zones covering the rest of Europe.

3.2 Key Results

The data extracted from the Eurostat database indicates that a total of 1,085 million tonnes of freight was transported by rail in 2010. The local freight movements were removed and examination of this remaining freight indicates the following:

- Within Great Britain, there was a total of 51 million tonnes (9 billion t-km) of freight;
- Within Ireland, there was a total of 0.6 million tonnes (97 million t-km) of freight;
- Within the continental WEASTflows area, there was a total of 95 million tonnes (20 billion t-km) of freight;
 - Within WEASTflows Netherlands 3 million tonnes (0.3 billion t-km);
 - Within WEASTflows Germany 36 million tonnes (5 billion t-km)
 - Within WEASTflows France 27 million tonnes (7 billion t-km) and;
 - Between WEASTflows countries 29 million tonnes (8 billion t-km)
- From the continental WEASTflows area to the rest of Europe, there was a total of 66 million tonnes (37 billion t-km) of freight; and
- From the rest of Europe to the continental WEASTflows area, there was a total of 62 million tonnes (33 billion t-km) of freight.



It should be noted that significant volumes of freight in the Eurostat database either originate from or were destined to unspecified regions. These freight volumes represent approximately 6.5% of total rail freight volumes, or approximately 70 million tonnes for the year 2010.

The distribution of rail freight volumes is shown in **Table 3.1** and **Table 3.2** below.



RAIL FREIGHT VOLUMES (000's tonnes) BY COUNTRY
2010

ORIGIN	Zone No.	Country	DESTINATION													Total	Percentage
			Scotland	England	Wales	NI	Ireland	Netherlands	Belgium	Luxembourg	Germany	France	Europe	Rest			
			1 - 7	8 - 18	19 - 20	21 - 22	23 - 29	30 - 33	34 - 36	37	38 - 48	49 - 61	62 - 72	73 - 76			
	1 - 7	Scotland	3,014	2,270	8	0	0	0	0	0	0	0	0	0	0	5,292	1.0%
	8 - 18	England	2,689	36,292	1,943	0	0	0	0	0	0	280	48	0	41,252	7.9%	
	19 - 20	Wales	4	1,917	2,665	0	0	0	0	0	0	131	1	0	4,718	0.9%	
	21 - 22	Northern Ireland	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	
	23 - 29	Ireland	0	0	0	0	568	0	0	0	0	0	0	0	568	0.1%	
	30 - 33	Netherlands	0	0	0	0	0	2,572	552	8	12,964	265	6,424	0	22,785	4.4%	
	34 - 36	Belgium	0	0	0	0	0	603	0	0	3,304	1,308	5,818	24	11,057	2.1%	
	37	Luxembourg	0	0	0	0	0	0	0	0	231	61	594	0	886	0.2%	
	38 - 48	Germany	0	0	0	0	0	2,686	1,218	732	35,818	953	42,776	136	84,319	16.2%	
	49 - 61	France	0	0	0	0	0	145	2,607	296	1,032	26,919	10,204	41,202	7.9%		
	62 - 72	Europe (OutsideWf)	0	274	11	0	0	4,422	4,092	543	43,232	9,822	148,682	4,063	215,142	41.4%	
	73 - 76	Rest of World	0	0	0	0	0	0	20	0	0	0	93,020	0	93,041	17.9%	
		Total	5,708	40,753	4,627	0	568	10,428	8,490	1,578	96,582	39,740	307,566	4,223	520,263	100.0%	
		Percentage	1.1%	7.8%	0.9%	0.0%	0.1%	2.0%	1.6%	0.3%	18.6%	7.6%	59.1%	0.8%	100.0%		

RAIL FREIGHT VOLUMES (000's tonnes) BY KEY ORIGINS / DESTINATIONS
2010

ORIGIN	Zone No.	Country	DESTINATION					Total
			1 - 20	21 - 29	30 - 61	62 - 71	73 - 76	
			GB	Ireland	Europe In Wf	Europe Out Wf	Rest of World	
	1 - 20	Great Britain	50,802	0	411	49	0	51,262
	21 - 29	Ireland	0	568	0	0	0	568
	30 - 61	Europe (Wf)	0	0	94,275	65,815	160	160,250
	62 - 71	Europe (Outside Wf)	286	0	62,111	148,682	4,063	215,142
	73 - 76	Rest of World	0	0	21	93,020	0	93,041
		Total	51,088	568	156,818	307,566	4,223	520,263
		Freight volumes within WEASTflows area						146,056

RAIL FREIGHT VOLUMES (000's tonnes) BY KEY AREA
2010

1 - 20	Great Britain	50,802	9.8%
21 - 29	Ireland	568	0.1%
30 - 61	Europe (Wf)	94,275	18.1%
62 - 71	Europe (Outside Wf)	148,682	28.6%
73 - 76	Rest of World	0	0.0%
	Remainder	225,936	43.4%
	Total	520,263	100.0%

Table 3.1 shows the total road freight volumes (000's tonnes) in the WEASTflows region

RAIL FREIGHT VOLUMES (MILLION T-Km) BY COUNTRY
2010

ORIGIN	Zone No.	Country	DESTINATION													Total	Percentage
			Scotland 1 - 7	England 8 - 18	Wales 19 - 20	NI 21 - 22	Ireland 23 - 29	Netherlands 30 - 33	Belgium 34 - 36	Luxembourg 37	Germany 38 - 48	France 49 - 61	Europe 62 - 72	Rest 73 - 76			
	1 - 7	Scotland	322	629	2	0	0	0	0	0	0	0	0	0	954	0.3%	
	8 - 18	England	696	6,299	404	0	0	0	0	0	217	61	0	7,677	2.3%		
	19 - 20	Wales	1	409	300	0	0	0	0	0	63	1	0	775	0.2%		
	21 - 22	Northern Ireland	0	0	0	0	0	0	0	0	0	0	0	0	0.0%		
	23 - 29	Ireland	0	0	0	0	97	0	0	0	0	0	0	97	0.0%		
	30 - 33	Netherlands	0	0	0	0	0	280	70	2	3,966	80	4,753	9,152	2.8%		
	34 - 36	Belgium	0	0	0	0	0	77	0	0	812	377	4,561	5,959	1.8%		
	37	Luxembourg	0	0	0	0	0	0	0	0	46	14	453	514	0.2%		
	38 - 48	Germany	0	0	0	0	0	670	260	147	5,359	308	22,161	29,568	8.9%		
	49 - 61	France	0	0	0	0	0	53	591	72	371	6,635	5,418	13,138	4.0%		
	62 - 72	Europe (Outside Wf)	0	294	12	0	0	2,947	3,366	349	21,134	5,118	97,528	13,175	143,923	43.3%	
	73 - 76	Rest of World	0	0	0	0	0	0	114	0	1	0	120,201	0	120,316	36.2%	
	Total		1,020	7,631	719	0	97	4,028	4,401	570	31,689	12,812	255,136	13,970	332,073	100.0%	
	Percentage		0.3%	2.3%	0.2%	0.0%	0.0%	1.2%	1.3%	0.2%	9.5%	3.9%	76.8%	4.2%	100.0%		

RAIL FREIGHT VOLUMES (MILLION T-Km) BY KEY ORIGINS / DESTINATIONS
2010

ORIGIN	Zone No.	Country	DESTINATION					Total
			1 - 20 GB	21 - 29 Ireland	30 - 61 Europe in Wf	62 - 71 Europe Out Wf	73 - 76 Rest of World	
	1 - 20	Great Britain	9,064	0	280	62	0	9,406
	21 - 29	Ireland	0	97	0	0	0	97
	30 - 61	Europe (Wf)	0	0	20,191	37,346	795	58,331
	62 - 71	Europe (Outside Wf)	306	0	32,914	97,528	13,175	143,923
	73 - 76	Rest of World	0	0	115	120,201	0	120,316
	Total		9,370	97	53,500	255,136	13,970	332,073
	Freight volumes within WEASTflows area							29,632

RAIL FREIGHT VOLUMES (MILLION T-Km) BY KEY AREA
2010

1 - 20	Great Britain	9,064	2.7%
21 - 29	Ireland	97	0.0%
30 - 61	Europe (Wf)	20,191	6.1%
62 - 71	Europe (Outside Wf)	97,528	29.4%
73 - 76	Rest of World	0	0.0%
	Remainder	205,194	61.8%
	Total	332,073	100.0%

Table 3.2 shows the total road freight volumes (MILLION T-Km) in the WEASTflows region

4. INLAND WATERWAYS FREIGHT

4.1 Introduction

Inland waterway freight volumes were extracted from the Eurostat database for the year 2012 as origin and destination data presented at NUTS-2 level in thousands of tonnes.

To define inland waterway freight volumes within the 76 WEASTflows zones, the NUTS-2 level freight data was aggregated or disaggregated as required depending on the relative sizes of the zones. Where the NUTS-2 data had to be disaggregated to WEASTflows zones, the freight volumes were distributed in accordance with the relevant GDP values.

The 76 by 76 WEASTflows zone dataset was then condensed to a 12 by 12 WEASTflows country dataset to provide an overview of freight volumes. The parts of the Netherlands, France and Germany which were outside the WEASTflows zones were allocated to the zones covering the rest of Europe.

4.2 Key Results

The data extracted from the Eurostat database indicates that a total of 451 million tonnes of freight was transported by inland waterway in 2012. The local freight movements were removed and examination of this remaining freight indicates the following:

- Within Great Britain, there was no recorded freight tonnage;
- Within Ireland, there was no recorded freight tonnage;
- Within the continental WEASTflows area, there was a total of 91 million tonnes (53 billion t-km) of freight,
 - Within the Netherlands 60 million tonnes (6 billion t-km) of freight,
 - Within Belgium 7 million tonnes (0.7 billion t-km) of freight,
 - Within WEASTflows Germany 12 million tonnes (2 billion t-km) of freight
 - Within WEASTflows France 12 million tonnes (1.7 billion t-km) of freight and,
 - Between WEASTflows countries 211 million tonnes (42 billion t-km) of freight;
- From the continental WEASTflows area to the rest of Europe, there was a total of 26 million tonnes (12 billion t-km) of freight; and
- From the rest of Europe to the continental WEASTflows area, there was a total of 17 million tonnes (7 billion t-km) of freight.

It should be noted that significant volumes of inland waterway freight in the Eurostat database either originate from or were destined to unspecified regions. These freight volumes represent approximately 6.0% of total inland waterway freight volumes, or approximately 27 million tonnes for the year 2012.

The distribution of inland waterway freight volumes is shown in **Table 4.1** and **Table 4.2** below.



INLAND WATERWAY FREIGHT VOLUMES (000's tonnes) BY COUNTRY

2012

ORIGIN	Zone No.	Country	DESTINATION											Total	Percentage			
			Scotland	England	Wales	NI	Ireland	Netherlands	Belgium	Luxembourg	Germany	France	Europe			Rest		
			1 - 7	8 - 18	19 - 20	21 - 22	23 - 29	30 - 33	34 - 36	37	38 - 48	49 - 61	62 - 72			73 - 76		
	1 - 7	Scotland	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
	8 - 18	England	0	0	0	0	0	0	0	0	133	0	0	0	0	133	0.0%	
	19 - 20	Wales	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	
	21 - 22	Northern Ireland	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	
	23 - 29	Ireland	0	0	0	0	0	0	0	0	6	0	0	0	6	0.0%		
	30 - 33	Netherlands	0	0	0	0	0	0	60,324	41,874	280	68,267	5,397	15,009	191,150	53.5%		
	34 - 36	Belgium	0	0	0	0	0	0	30,355	6,972	179	11,977	3,582	3,195	56,260	15.7%		
	37	Luxembourg	0	0	0	0	2	0	114	65	0	3	3	22	210	0.1%		
	38 - 48	Germany	5	425	1	0	0	0	23,011	12,228	93	11,859	1,538	6,284	55,444	15.5%		
	49 - 61	France	0	0	0	0	0	0	5,178	3,543	10	3,490	12,060	1,672	25,953	7.3%		
	62 - 72	Europe (Outside Wf)	0	1	0	0	0	0	9,594	3,036	1	3,799	907	10,947	28,311	7.9%		
	73 - 76	Rest of World	0	0	0	0	0	0	0	0	0	30	0	33	63	0.0%		
		Total	5	426	1	0	2	0	128,575	67,718	562	99,563	23,487	37,162	27	357,529	100.0%	
		Percentage	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	36.0%	18.9%	0.2%	27.8%	6.6%	10.4%	0.0%	100.0%		

INLAND WATERWAY FREIGHT VOLUMES (000's tonnes) BY KEY ORIGINS / DESTINATIONS

2012

ORIGIN	Zone No.	Country	DESTINATION					Total
			1 - 20	21 - 29	30 - 61	62 - 71	73 - 76	
			GB	Ireland	Europe In Wf	Europe Out Wf	Rest of World	
	1 - 20	Great Britain	0	0	133	0	0	133
	21 - 29	Ireland	0	0	6	0	0	6
	30 - 61	Europe (Wf)	431	2	302,400	26,183	0	329,016
	62 - 71	Europe (Outside Wf)	1	0	17,336	10,947	27	28,311
	73 - 76	Rest of World	0	0	30	33	0	63
		Total	432	2	319,905	37,162	27	357,529

Freight volumes within WEASTflows area 302,972

INLAND WATERWAY FREIGHT VOLUMES (000's tonnes) BY KEY AREA

2012

1 - 20	Great Britain	0	0.0%
21 - 29	Ireland	0	0.0%
30 - 61	Europe (Wf)	302,400	84.6%
62 - 71	Europe (Outside Wf)	10,947	3.1%
73 - 76	Rest of World	0	0.0%
	Remainder	44,182	12.4%
	Total	357,529	100.0%

Table 4.1 shows the total inland waterway freight volumes (000's tonnes) in the WEASTflows region

INLAND WATERWAY FREIGHT VOLUMES (MILLION T-Km) BY COUNTRY

2012

ORIGIN	Zone No.	Country	DESTINATION													Total	Percentage		
			Scotland	England	Wales	NI	Ireland	Netherlands	Belgium	Luxembourg	Germany	France	Europe	Rest					
			1 - 7	8 - 18	19 - 20	21 - 22	23 - 29	30 - 33	34 - 36	37	38 - 48	49 - 61	62 - 72	73 - 76					
	1 - 7	Scotland	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
	8 - 18	England	0	0	0	0	0	0	0	0	79	0	0	0	0	0	0	79	0.1%
	19 - 20	Wales	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
	21 - 22	Northern Ireland	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
	23 - 29	Ireland	0	0	0	0	0	0	0	0	6	0	0	0	0	0	6	0.0%	
	30 - 33	Netherlands	0	0	0	0	0	0	6,140	3,800	68	16,605	1,888	7,024	0	0	35,525	43.3%	
	34 - 36	Belgium	0	0	0	0	0	0	3,146	745	27	2,938	862	1,889	0	0	9,608	11.7%	
	37	Luxembourg	0	0	0	0	1	0	25	11	0	1	1	12	0	0	51	0.1%	
	38 - 48	Germany	4	241	1	0	0	0	5,804	2,716	19	2,146	357	2,727	0	0	14,015	17.1%	
	49 - 61	France	0	0	0	0	0	0	1,863	945	2	803	1,725	695	0	0	6,034	7.4%	
	62 - 72	Europe (Outside Wf)	0	1	0	0	0	0	3,473	1,756	1	1,851	403	9,090	42	0	16,615	20.3%	
	73 - 76	Rest of World	0	0	0	0	0	0	0	0	0	63	0	42	0	0	105	0.1%	
		Total	4	242	1	0	1	20,450	9,974	118	24,490	5,236	21,480	42	0	82,038	100.0%		
		Percentage	0.0%	0.3%	0.0%	0.0%	0.0%	24.9%	12.2%	0.1%	29.9%	6.4%	26.2%	0.1%	0.0%	100.0%			

INLAND WATERWAY FREIGHT VOLUMES (MILLION T-Km) BY KEY ORIGINS / DESTINATIONS

2012

ORIGIN	Zone No.	Country	DESTINATION					Total
			1 - 20	21 - 29	30 - 61	62 - 71	73 - 76	
			GB	Ireland	Europe In Wf	Europe Out Wf	Rest of World	
	1 - 20	Great Britain	0	0	79	0	0	79
	21 - 29	Ireland	0	0	6	0	0	6
	30 - 61	Europe (Wf)	246	1	52,638	12,348	0	65,233
	62 - 71	Europe (Outside Wf)	1	0	7,483	9,090	42	16,615
	73 - 76	Rest of World	0	0	63	42	0	105
		Total	247	1	60,268	21,480	42	82,038
Freight volumes within WEASTflows area							52,970	

INLAND WATERWAY FREIGHT VOLUMES (MILLION T-Km) BY KEY AREA

2012

1 - 20	Great Britain	0	0.0%
21 - 29	Ireland	0	0.0%
30 - 61	Europe (Wf)	52,638	64.2%
62 - 71	Europe (Outside Wf)	9,090	11.1%
73 - 76	Rest of World	0	0.0%
	Remainder	20,310	24.8%
	Total	82,038	100.0%

Table 4.2 shows the total inland waterway freight volumes (MILLION T-Km) in the WEASTflows region

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5. MARITIME FREIGHT

5.1 Introduction

Maritime freight volumes were extracted from the Eurostat database for the year of 2011 as total cargo in thousands of tonnes and were presented as a series of inwards and outwards volumes. The data was presented as a series of port to country freight volumes.

The data extracted for countries in the WEASTflows area, from zones 1 to 61 inclusive, in addition to the peripheral zones 62, 63, 64, and 65, were processed as freight volumes for the outwards direction of travel. However for zones 66 to 76, which were not specifically extracted at country level, the data was processed using the inwards freight volumes and reversed from the zones above.

All ports were assigned to the WEASTflows zone in which they were located. Where relevant, multiple ports were grouped into a single WEASTflows zone. The destination countries were also assigned to the appropriate WEASTflows zone. Where it was necessary to split the destination tonnage into the respective WEASTflows zone within the countries, volume proportions were assigned based on the inwards volumes to that country at port level.

The 76 by 76 WEASTflows zone dataset was then condensed to a 12 by 12 WEASTflows country dataset to provide an overview of freight volumes. However, it should be noted that for ports such as Martinique and Reunion which were reported in the Eurostat database as part of France, were classed under zones 75 and 76 representing the zone where they were actually loaded.

5.2 Key Results

The data extracted from the Eurostat database indicates that a total of 1,527 million tonnes of maritime freight was transported in 2011. The local freight movements were removed and examination of this remaining freight indicates the following:

Coastal Shipping

- Within Great Britain, there was a total of 38 million tonnes (15 billion t-km) of freight;
- Within Ireland, there was a total of 1.4 million tonnes (0.2 billion t-km) of freight;
- Within the continental WEASTflows area, there was a total of 16 million tonnes (4 billion t-km) of freight;

Channel Shipping

- Channel Shipping between GB and Ireland, there was a total of 26 million tonnes (10 billion t-km) of freight (2-way);



- English Channel shipping between combined GB and Ireland, and France, the Netherlands and Belgium, there was a total of 100 million tonnes (47 billion t-km) of freight (2-way).

The distribution of freight volumes is shown in **Table 5.1** and **Table 5.2** below.



MARITIME FREIGHT VOLUMES (000's tonnes) BY COUNTRY

2011

ORIGIN	Zone No.	Country	DESTINATION													Total	Percentage
			Scotland	England	Wales	NI	Ireland	Netherlands	Belgium	Luxembourg	Germany	France	Europe	Rest			
			1 - 7	8 - 18	19 - 20	21 - 22	23 - 29	30 - 33	34 - 36	37	38 - 48	49 - 61	62 - 72	73 - 76			
	1 - 7	Scotland	1,125	13,651	2,512	896	52	10,872	2,714	0	22	1,342	13,444	4901	51,531	3.4%	
	8 - 18	England	1,350	12,533	2,566	915	5,859	14,380	7,831	0	12	8,827	21,846	28523	104,642	6.9%	
	19 - 20	Wales	347	3,581	20	235	4,922	2,263	596	0	0	470	2,486	4442	19,362	1.3%	
	21 - 22	Northern Ireland	505	5,220	961	101	41	390	222	0	0	70	463	37	8,010	0.5%	
	23 - 29	Ireland	490	5,062	932	332	939	2,555	1020	0	1	524	2,121	730	14,706	1.0%	
	30 - 33	Netherlands	763	7,880	1,450	517	888	159	150	0	7	482	15,006	72,598	99,900	6.6%	
	34 - 36	Belgium	933	9,630	1,772	632	1330	2,662	17	0	8	1,741	16,267	67060	102,052	6.7%	
	37	Luxembourg	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	
	38 - 48	Germany	26	269	49	18	1	23	0	0	0	13	127	0	526	0.0%	
	49 - 61	France	1,437	14,842	2,731	974	601	5,471	2,533	0	2	2,537	8,112	24,296	63,537	4.2%	
	62 - 72	Europe (OutsideWf)	3,775	43,004	5,908	1,688	4,487	68,325	25,124	0	91	19,608	120,006	76,892	368,908	24.3%	
	73 - 76	Rest of World	7858	83994	22322	1837	6791	261913	81393	0	29	69248	150,666	0	686,051	45.2%	
		Total	18,609	199,667	41,224	8,145	25,911	369,012	121,600	0	172	104,862	350,544	279,479	1,519,224	100.0%	
		Percentage	1.2%	13.1%	2.7%	0.5%	1.7%	24.3%	8.0%	0.0%	0.0%	6.9%	23.1%	18.4%	100.0%		

MARITIME FREIGHT VOLUMES (000's tonnes) BY KEY ORIGINS / DESTINATIONS

2011

ORIGIN	Zone No.	Country	DESTINATION					Total
			1 - 20	21 - 29	30 - 61	62 - 71	73 - 76	
			GB	Ireland	Europe In Wf	Europe Out Wf	Rest of World	
	1 - 20	Great Britain	37,686	12,879	49,328	37,776	37,866	175,535
	21 - 29	Ireland	13,170	1,413	4,782	2,584	767	22,716
	30 - 61	Europe (Wf)	41,782	4,961	15,805	39,512	163,954	266,014
	62 - 71	Europe (Outside Wf)	52,687	6,175	113,148	120,006	76,892	368,908
	73 - 76	Rest of World	114,174	8,628	412,583	150,666	0	686,051
		Total	259,500	34,056	595,646	350,544	279,479	1,519,224
		Freight volumes within WEASTflows area						181,806

MARITIME FREIGHT VOLUMES (000's tonnes) BY KEY AREA

2011

1 - 20	Great Britain	37,686	2.5%
21 - 29	Ireland	1,413	0.1%
30 - 61	Europe (Wf)	15,805	1.0%
62 - 71	Europe (Outside Wf)	120,006	7.9%
73 - 76	Rest of World	0	0.0%
	Remainder	1,344,314	88.5%
	Total	1,519,224	100.0%

Table 5.1 shows the total maritime freight volumes (000's tonnes) in the WEASTflows region

MARITIME FREIGHT VOLUMES (MILLION T-Km) BY COUNTRY

2011

ORIGIN	DESTINATION														Total	Percentage
	Zone No.	Country	Scotland 1 - 7	England 8 - 18	Wales 19 - 20	NI 21 - 22	Ireland 23 - 29	Netherlands 30 - 33	Belgium 34 - 36	Luxembourg 37	Germany 38 - 48	France 49 - 61	Europe 62 - 72	Rest 73 - 76		
	1 - 7	Scotland	310	7,559	1,496	342	25	8,619	1,940	0	20	1,140	16,734	25823		
8 - 18	England	363	3,381	784	285	2,351	5,829	3,271	0	7	2,980	24,267	184755	228,273	13.6%	
19 - 20	Wales	163	935	2	78	1,411	1,211	305	0	0	223	3,482	23095	30,904	1.8%	
21 - 22	Northern Ireland	126	2,206	313	6	9	293	167	0	0	55	681	146	4,001	0.2%	
23 - 29	Ireland	213	2,289	246	66	149	2,053	804	0	1	387	3,069	3887	13,164	0.8%	
30 - 33	Netherlands	557	2,985	767	392	717	11	9	0	1	155	17,298	465,241	488,134	29.0%	
34 - 36	Belgium	719	3,871	965	499	1133	236	2	0	1	586	17,813	385684	411,509	24.5%	
37	Luxembourg	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	
38 - 48	Germany	23	149	35	16	1	4	0	0	0	6	147	0	382	0.0%	
49 - 61	France	1,129	5,612	1,304	741	428	1,772	647	0	1	703	7,362	142,123	161,823	9.6%	
62 - 72	Europe (OutsideWf)	4,717	54,376	8,495	2,465	6,675	80,279	30,595	0	101	26,557	114,812	451,473	780,544	46.4%	
73 - 76	Rest of World	35538	466424	124399	9240	35372	1387912	450581	0	61	358489	792,984	0	3,660,998	217.6%	
	Total	43,857	549,787	138,808	14,131	48,271	1,488,220	488,321	0	193	391,281	998,649	1,682,226	5,843,742	347.4%	
	Percentage	2.6%	32.7%	8.3%	0.8%	2.9%	88.5%	29.0%	0.0%	0.0%	23.3%	59.4%	100.0%	347.4%		

MARITIME FREIGHT VOLUMES (MILLION T-Km) BY KEY ORIGINS / DESTINATIONS

2011

ORIGIN	DESTINATION							
	Zone No.	Country	1 - 20	21 - 29	30 - 61	62 - 71	73 - 76	Total
			GB	Ireland	Europe In Wf	Europe Out Wf	Rest of World	
1 - 20	Great Britain	14,994	4,492	25,545	44,483	233,673	323,187	
21 - 29	Ireland	5,393	231	3,759	3,750	4,032	17,165	
30 - 61	Europe (Wf)	18,117	3,928	4,134	42,621	993,047	1,061,848	
62 - 71	Europe (Outside Wf)	67,588	9,140	137,532	114,812	451,473	780,544	
73 - 76	Rest of World	626,360	44,611	2,197,043	792,984	0	3,660,998	
	Total	732,452	62,402	2,368,013	998,649	1,682,226	5,843,742	
		Freight volumes within WEASTflows area						80,593

MARITIME FREIGHT VOLUMES (MILLION T-Km) BY KEY AREA

2011

1 - 20	Great Britain	14,994	0.3%
21 - 29	Ireland	231	0.0%
30 - 61	Europe (Wf)	4,134	0.1%
62 - 71	Europe (Outside Wf)	114,812	2.0%
73 - 76	Rest of World	0	0.0%
	Remainder	5,709,571	97.7%
	Total	5,843,742	100.0%

Table 5.2 shows the total maritime freight volumes (MILLION T-Km) in the WEASTflows region

6. TOTAL FREIGHT (All Modes)

6.1 Introduction

The total freight volumes for each mode for both the Eurostat database and for the WEASTflows dataset have been produced below to indicate the relative importance of each mode.

6.2 Key Findings

The total distribution of freight volume in tonnes and tonne-kilometers, within and outside of the WEASTflows area, is shown in **Table 6.4** and **Table 6.5** below.

Table 6.1 shows the total freight volumes extracted from the Eurostat and National Statistics databases for the internal WEASTflows area including internal flows within the country but not including local flows, and the proportion of freight using each mode for all or a significant part of its journey.

The Eurostat and National Statistics indicate that the freight volumes totaled 16,571 million tonnes, including the local flows or 5,386 million tonnes without local flows. This value is for the relevant year the data for each mode was extracted. **Table 6.2** shows how this total is split by mode over the zones within WEASTflows (Zones 1-61).

TABLE 6.1 TOTAL FREIGHT VOLUMES FOR INTERNAL WEASTFLOWS				
Mode	Total (million tonnes)	Tonnage Split	Total (billion t-km)	T-Km Split
Road	1,634	72.1%	303	64.9%
Rail	146	6.5%	30	6.4%
Inland Waterway	303	13.4%	53	11.4%
Maritime	182	8.0%	81	17.3%
Total	2,265	100.0%	467	100.0%

Table 6.2 shows the total freight volumes extracted from the Eurostat and National Statistics databases for WEASTflows to/from the rest of Europe.

TABLE 6.2 TOTAL FREIGHT VOLUMES, FOR THE WEASTFLOWS AREA TO/FROM EUROPE*				
Mode	Total (million tonnes)	Tonnage Split	Total (billion t-km)	T-Km Split
Road	751	63.9%	430	52.1%
Rail	128	10.9%	71	8.6%
Inland Waterway	44	3.7%	20	2.4%
Maritime	252	21.5%	305	36.9%
Total	1,175	100.0%	826	100.0%

*Europe outside WEASTflows - excluding Turkey and Russia, including Ukraine and Belarus

Table 6.3 shows the total freight volumes extracted from the Eurostat database for WEASTflows to/from the Rest of the World.



TABLE 6.3 TOTAL FREIGHT VOLUMES, AND MODAL SPLIT FOR THE WEASTFLOWS TO/FROM REST OF THE WORLD

Mode	Total (million tonnes)	Tonnage Split	Total (billion t-km)	T-Km Split
Road	1	0.14%	2.7	0.07%
Rail	0.2	0.03%	0.9	0.02%
Inland Waterway	0.03	<0.01%	0.06	<0.01%
Maritime	738	99.84%	4,089	99.91%
Total	739.2	100%	4,093	100.0%

The data extracted from the Eurostat and National Statistics database indicates that a total of 4,179 million tonnes (5,386 billion t-km) of freight was moved by all modes in one year to, from and within the WEASTflows area. The freight movement, based on the relevant year the data for each mode was extracted and the key details are as follows:

- Within Great Britain, there was a total of 686 million tonnes (120 billion t-km) of freight moved across all modes;
- Within Ireland, there was a total of 52 million tonnes (7.5 billion t-km) of freight;
- Between combined GB and Ireland, and continental WEASTflows area, there was 125 million tonnes (66 billion t-km) of freight;
- Within the continental WEASTflows area, there was a total of 1,372 million tonnes (261 billion t-km) of freight
 - Within WEASTflows Netherlands 155 million tonnes (17 billion t-km),
 - Within Belgium 78 million tonnes (8 billion t-km),
 - Within WEASTflows Germany 384 million tonnes (60 billion t-km) and,
 - Within WEASTflows France 298 million tonnes (60 billion t-km);
 - Between WEASTflows countries 457 million tonnes (116 billion t-km);
- From the continental WEASTflows area to the rest of Europe, there was a total of 509 million tonnes (303 billion t-km) of freight; and
- From the rest of Europe to the continental WEASTflows area, there was a total of 548 million tonnes (374 billion t-km) of freight.

Following **Table 6.1**, it is clear that the road network is dominant for freight movements inside the WEASTflows area when measured in tonnage; however over larger distances the other modes (particularly maritime) have a greater modal share. The share of freight by road is over 72% (65% in t-km), rail 6.5% (6.4% in t-km), inland waterway over 13% (11.4% in t-km) and maritime 8% (17.3% in t-km), based on the available data from National Statistics and the Eurostat database.

Analysis of tonne-kilometres for each mode highlights the most significant impacts of freight movements. The following section provides an analysis of tonne-km for each mode and examines the effect on specific corridors.



ALL FREIGHT VOLUMES (000's tonnes) BY COUNTRY

Road 2010 UK / 2011 Remainder, Rail 2010, Inland Waterway 2012 and Maritime 2011

		DESTINATION													Total	Percentage
ORIGIN	Zone No.	Country	1 - 7	8 - 18	19 - 20	21 - 22	23 - 29	30 - 33	34 - 36	37	38 - 48	49 - 61	62 - 72	73 - 76		
				Scotland	England	Wales	NI	Ireland	Netherlands	Belgium	Luxembourg	Germany	France	Europe	Rest	
	1 - 7	Scotland	41,640	27,548	3,167	994	222	10,993	2,978	0	115	1,603	13,968	4,901	108,129	2.1%
	8 - 18	England	21,319	524,118	31,468	1,292	7,570	15,544	10,459	59	1,065	11,661	27,088	28,523	680,165	13.3%
	19 - 20	Wales	764	28,898	7,685	258	5,019	2,329	745	0	53	748	2,784	4,442	53,725	1.0%
	21 - 22	Northern Ireland	686	5,613	985	4,750	6,780	390	222	0	0	70	471	37	20,004	0.4%
	23 - 29	Ireland	607	6,183	999	4,515	35,974	2,620	1,020	0	26	615	2,279	730	55,568	1.1%
	30 - 33	Netherlands	1,185	11,989	1,696	522	1,044	154,779	66,002	795	100,280	19,024	93,064	72,902	523,282	10.2%
	34 - 36	Belgium	1,112	11,380	1,874	632	1,330	54,825	77,905	5,162	27,086	28,823	60,770	67,084	337,983	6.6%
	37	Luxembourg	8	95	6	0	2	704	2,176	0	2,267	2,336	4,212	0	11,806	0.2%
	38 - 48	Germany	314	3,460	218	18	28	49,013	26,574	4,323	383,681	12,742	242,093	690	723,155	14.1%
	49 - 61	France	1,806	18,406	2,942	974	661	14,272	25,579	1,911	12,749	297,965	108,505	24,315	510,085	9.9%
	62 - 72	Europe (Outside Wf)	4,860	53,771	6,549	1,703	4,608	133,451	61,475	4,639	233,378	115,224	612,455	89,638	1,321,752	25.8%
	73 - 76	Rest of World	7,858	83,994	22,322	1,837	6,791	261,913	81,413	0	197	69,248	246,506	0	782,080	15.3%
		Total	82,160	775,456	79,910	17,495	70,029	700,835	356,549	16,888	760,898	560,058	1,414,194	293,262	5,127,733	100.0%
		Percentage	1.6%	15.1%	1.6%	0.3%	1.4%	13.7%	7.0%	0.3%	14.8%	10.9%	27.6%	5.7%	100.0%	

ALL FREIGHT VOLUMES (000's tonnes) BY KEY ORIGINS / DESTINATIONS

Road 2010 UK / 2011 Remainder, Rail 2010, Inland Waterway 2012 and Maritime 2011

		DESTINATION						Total
ORIGIN	Zone No.	Country	1 - 20	21 - 29	30 - 61	62 - 71	73 - 76	
				GB	Ireland	In Wf	Europe Out Wf	Rest of World
	1 - 20	Great Britain	686,607	15,355	58,352	43,839	37,866	842,019
	21 - 29	Ireland	15,072	52,019	4,963	2,750	767	75,572
	30 - 61	Europe (Wf)	56,492	5,211	1,370,973	508,644	164,991	2,106,311
	62 - 71	Europe (Outside Wf)	65,180	6,311	548,168	612,455	89,638	1,321,752
	73 - 76	Rest of World	114,174	8,628	412,772	246,506	0	782,080
		Total	937,526	87,524	2,395,227	1,414,194	293,262	

ALL FREIGHT VOLUMES (000's tonnes) BY COUNTRY

Road 2010 UK / 2011 Remainder, Rail 2010, Inland Waterway 2012 and Maritime 2011

1 - 20	Great Britain	686,607	13.4%
21 - 29	Ireland	52,019	1.0%
30 - 61	Europe (Wf)	1,370,973	26.7%
62 - 71	Europe (Outside Wf)	612,455	11.9%
73 - 76	Rest of World	0	0.0%
	Remainder	2,405,679	46.9%
	Total	5,127,733	100.0%

Table 6.4 shows the total freight volumes across all modes (000's tonnes) in the WEASTflows region

ALL FREIGHT VOLUMES (MILLION T-Km) BY COUNTRY
 Road 2010 UK / 2011 Remainder, Rail 2010, Inland Waterway 2012 and Maritime 2011

		DESTINATION													Total	Percentage
ORIGIN	Zone No.	Country	1 - 7 Scotland	8 - 18 England	19 - 20 Wales	21 - 22 NI	23 - 29 Ireland	30 - 33 Netherlands	34 - 36 Belgium	37 Luxembourg	38 - 48 Germany	49 - 61 France	62 - 72 Europe	73 - 76 Rest		
		1 - 7	Scotland	5,039	11,489	1,776	366	99	8,711	2,155	0	116	1,381	17,495	25,823	74,450
	8 - 18	England	6,030	81,442	6,558	441	3,148	6,365	4,485	40	768	4,634	30,382	184,755	329,048	2.0%
	19 - 20	Wales	341	6,031	866	85	1,440	1,251	393	0	46	375	3,855	23,095	37,779	0.2%
	21 - 22	Northern Ireland	169	2,367	321	287	1,091	293	167	0	0	55	693	146	5,588	0.0%
	23 - 29	Ireland	263	2,805	266	713	5,448	2,111	804	0	28	467	3,282	3,887	20,073	0.1%
	30 - 33	Netherlands	880	4,879	917	397	855	16,663	6,897	192	26,828	7,932	58,464	465,903	590,805	3.6%
	34 - 36	Belgium	865	4,687	1,026	499	1,133	6,227	8,078	853	7,551	9,856	49,376	385,815	475,967	2.9%
	37	Luxembourg	8	61	4	0	1	167	370	0	517	832	2,536	0	4,497	0.0%
	38 - 48	Germany	333	2,480	189	16	33	14,051	7,214	970	60,113	6,145	124,632	2,034	218,209	1.3%
	49 - 61	France	1,490	7,625	1,439	741	480	5,260	8,310	651	5,583	59,882	68,434	142,172	302,067	1.8%
	62 - 72	Europe (Outside Wf)	6,289	66,750	9,295	2,488	6,831	110,425	56,153	2,497	118,285	87,027	472,973	479,811	1,418,823	8.6%
	73 - 76	Rest of World	35,538	466,424	124,399	9,240	35,372	1,387,912	450,696	0	778	358,489	919,877	0	3,788,723	22.8%
		Total	57,244	657,038	147,055	15,273	55,930	1,559,436	545,723	5,204	220,613	537,074	1,751,999	1,713,440	7,266,030	43.8%
		Percentage	0.3%	4.0%	0.9%	0.1%	0.3%	9.4%	3.3%	0.0%	1.3%	3.2%	10.6%	10.3%	43.8%	

ALL FREIGHT VOLUMES (MILLION T-Km) BY KEY ORIGINS / DESTINATIONS
 Road 2010 UK / 2011 Remainder, Rail 2010, Inland Waterway 2012 and Maritime 2011

		DESTINATION						
ORIGIN	Zone No.	Country	1 - 20 GB	21 - 29 Ireland	30 - 61 Europe In Wf	62 - 71 Europe Out Wf	73 - 76 Rest of World	Total
		1 - 20	Great Britain	119,572	5,579	30,721	51,732	233,673
	21 - 29	Ireland	6,192	7,539	3,924	3,975	4,032	25,662
	30 - 61	Europe (Wf)	26,880	4,155	261,144	303,443	995,923	1,591,545
	62 - 71	Europe (Outside Wf)	82,334	9,319	374,386	472,973	479,811	1,418,823
	73 - 76	Rest of World	626,360	44,611	2,197,875	919,877	0	3,788,723
		Total	861,337	71,203	2,868,050	1,751,999	1,713,440	

ALL FREIGHT VOLUMES (MILLION T-Km) BY COUNTRY
 Road 2010 UK / 2011 Remainder, Rail 2010, Inland Waterway 2012 and Maritime 2011

1 - 20	Great Britain	119,572	1.6%
21 - 29	Ireland	7,539	0.1%
30 - 61	Europe (Wf)	261,144	3.6%
62 - 71	Europe (Outside Wf)	472,973	6.5%
73 - 76	Rest of World	0	0.0%
	Remainder	6,404,802	88.1%
	Total	7,266,030	100.0%

Table 6.5 shows the total freight volumes across all modes (MILLION T-Km) in the WEASTflows region

7. Analysis of Freight Movements

7.1 WEASTflows and the Rest of the World

Initially, movements were examined at the country level, with the WEASTflows countries divided between areas within and out-with WEASTflows. The largest WEASTflows-related international movements of freight, whether considered in terms of tonnes or of tonne-km moved were between WEASTflows countries and the Rest of the World (RoW). As indicated earlier, this is almost entirely represented by maritime freight. The largest movements by a considerable margin were to and from the Netherlands, with Great Britain, Belgium and France the next largest in order of magnitude. In all cases except for Belgium there was a substantial bias towards inward movement. These patterns for maritime movements may well be dominated by the substantial tonnages of oil and oil derivative products shipped by sea. This trade forms over 30% of all worldwide tonnage shipped. (http://unctad.org/en/docs/rmt2011_en.pdf)

The data appears to show that freight movement between WEASTflows Germany and RoW is small in scale. This is misleading, and is the consequence of the segmentation of multi-modal/multi-segment movements into their individual components in the statistics, as discussed earlier. Internal WEASTflows movements between Germany and the Netherlands are the largest inter-country freight movement within WF – and are considerably weighted towards movements from the Netherlands to Germany as would be expected with freight such as oil and gas arriving in the Netherlands and then being re-exported to Germany either before or after processing.

Onward movement from the Netherlands to WF Germany is predominantly by Inland Waterway (62% in terms of tonne-km) and Road accounts for 23% and Rail for 15%. From WF Germany to the Netherlands, however, Road movement accounts for over 50% (of a smaller total tonne-km).

7.2 WEASTflows and the rest of Europe

Looking at freight traffic between WEASTflows and other parts of Europe, the largest movements or in terms of total tonne-km to and from WEASTflows countries in order of scale were between:

- Germany (WF: zones 38-48) and Germany (N: zone 63)
- Netherlands (WF:30-33) and Scandinavia (66)
- France (WF: 49-61) and France (S: 65)
- Great Britain (WF 1-19) and Scandinavia (66)
- Germany (WF: 38-48) and Central Europe (69)
- France (WF: 49-61) and Spain/Portugal (72)



These totals are by all modes of transport. Out of the total freight movements between WEASTflows and the rest of Europe, the proportion of tonne-km by each mode were: Road 52%, Rail 9%, Inland Waterway 2% and Maritime 37%.

For Road freight the largest movements are between:

- Germany (WF: zones 38-48) and Germany (N: zone 63) – 81% Road
- France (WF: 49-61) and France (S: 65) – 81% Road
- Germany (WF: 38-48) and Central Europe (69) – 79% Road
- France (WF: 49-61) and Spain/Portugal (72) – 83% Road
- Germany (WF: 38-48) and Poland & Baltic states (67) – 95% Road

All these are reasonably balanced directionally. The largest Rail freight movements occur to and from WF Germany (38-48), the largest being with:

- Germany (N: zone 63) – 17% Rail;
- Switzerland and Italy (71) – 37% Rail
- Central Europe (69) – 17% Rail

The next largest rail movement is within France, between WF France and the rest of the country where 14% of tonne-km are by rail. The highest proportion of rail tonne-km between pairs of countries, although out of a slightly smaller total, is between Belgium (34-36) and Switzerland/Italy (71) with 46% of tonne-km by rail.

Inland Waterways provide a small proportion of freight tonne-km between WEASTflows and the rest of Europe. The largest flows are to and from the Netherlands, with traffic to and from Switzerland/Italy (71) being the largest, and carrying 33% of total tonne-km between these two zones. This is presumed to be mainly Rhine traffic to Basel. A similar proportion of freight (31%) is carried by Rail between these areas, and 19% by Road. Interestingly, 17% of freight movement between the Netherlands and Italy/(Switzerland) is Maritime.

As would be expected, the largest volumes of Maritime freight movement affecting WEASTflows are with the more maritime nations, particularly Great Britain and Scandinavia. About 84% of tonne-km between Great Britain (1-20) and Europe outside WF is Maritime, with the remaining 16% almost entirely road-based. The largest is between Great Britain and Scandinavia (66), with lesser flows to Germany (N: 63), Poland and the Baltic's (67) and Spain and Portugal (72).

The largest Maritime flow between WEASTflows and the Rest of Europe is between the Netherlands and Scandinavia.



7.3 Detailed distribution within WEASTflows

Within WEASTflows, it has already been highlighted that the largest movements are short distance, within the defined zones and within each country (or the WEASTflows part of each country). Even when journey length is taken into account, these journeys still predominate, and are still primarily road based (between 80% and 95% Road). The only exception is the Netherlands, where 37% of internal country movements are by Inland Waterway. Great Britain is the only country with significant national coastal shipping: 12.5% of tonne-km within Great Britain is classed as Maritime.

Looking at inter-country movements within the WEASTflows area, the largest movement is between Germany and the Netherlands. Over half (55%) of this is by Inland Waterway, with 11% by Rail. However, 34% remains Road based.

The second largest movement of tonne-km is between Great Britain and the Netherlands. This is primarily Maritime (87%), with the remaining 13% Road based.

Major freight movements that are mainly Road based are between France and Germany (84%) and between France and Belgium (78%).

The data provide a more detailed breakdown of movements within the WEASTflows area. For the UK, major movements appear to be between zones containing both major ports with significant population and centres of economic activity. For example, there are substantial movements between zones in the Midlands and North-West of England; and between London and neighbouring zones containing ports. A proportion of this traffic will be linked to onward movements to continental Europe – direct international road freight traffic identified in the data is relatively small. As discussed earlier, it is not possible to draw conclusions from the data about linked segments of end-to-end journeys.

In France, major movements are again linked with port zones, with Paris, and most of all with movements between French WEASTflows zones and the rest of France. In the latter case, the biggest movements involve freight between zones 58-61 on the WEASTflows boundary and the rest of France, with further significant movements between the Channel (zone 49) and between Paris and the rest of France.

For Germany, the major road freight movements are between the WEASTflows Germany zones and the Northern part of the rest of Germany. Zones 40 (Dortmund) and 45 (Karlsruhe) have the largest movements. Although all WEASTflows Germany zones have major flows to the rest of Germany, Zone 40 also has the largest international freight movements, to Central Europe (zone 69), Italy/ Switzerland (71), and Poland and the Baltic's (67) in order of significance.

Ireland has relatively small road freight levels by comparison with other WEASTflows countries. Most significant flows are between zone 23 (Dublin) and zone 24 (Donegal), and between Dublin and south



and S.E. Ireland (zones 28 and 29). The bulk of freight traffic between Ireland and Great Britain is classified as maritime (84%) with the remainder Road based.

7.4 Unbalanced flows

The comments above relate to two-way movements. There are also a number of cases where freight volume in one direction between two zones is very different from the volume in the opposite direction. This suggests that there could be substantial empty return flows, providing the potential to improve efficiency by finding opportunities for return loads. However, individual cases would need to be examined in considerably more detail to establish the nature of the particular movements and whether the statistics correctly reflect the direction of movement. Road, rail and inland waterway modes could all provide opportunities of this kind. Maritime freight may however be carried on ships travelling between a number of ports, making it more difficult to assess the potential for efficiencies.

In the case of road freight, notable imbalance in flows exists on the following corridors, with the higher tonnage in the direction indicated:

- Benelux to France outside WEASTflows;
- Paris zone to France outside WEASTflows;
- To a lesser extent from Germany (within and out-with WEASTflows) to Benelux.

For both rail and inland waterway modes, the most conspicuous imbalance is the substantial freight movement from the Netherlands to Germany. This exceeds the volume in the opposite direction by a factor of 3 for inland waterways and a factor 4 for rail movement.

- Maritime movements also show some significant imbalances. These include:
- Scotland to England and Wales (exceeds the opposite direction by a factor of 10);
- Northern Ireland to England;
- UK to the Netherlands;
- The rest of the world to each WEASTflows country (except Germany within WEASTflows).

These patterns for maritime movements may well be dominated by the substantial tonnages of oil and oil products shipped by sea as discussed earlier.

7.5 Potential for transfer to sustainable modes

Freight movement is clearly very varied and diverse in nature, depending in particular on the commodities transported and the distances covered. The potential for increasing the use of sustainable modes will depend very much on the specific characteristics of particular movements.

The initial report gave an indication or sample of the commodities transported by road. This sampling data however was only a very small proportion of the total road freight (<0.1%) and was based upon



data for a limited number of countries, specifically Germany, France and the Netherlands. This data was only provided as an overview, as the type and volume of commodity would heavily vary from country to country. Also, certain commodities, for instance, oil or gas may use pipelines, which were not explored in this study. The weakness of the commodity analysis in the freight data is particularly relevant when it comes to considering the potential for transfer to more sustainable modes.

However, a clear conclusion that can safely be drawn from the data is that the bulk of road freight movement is relatively short distance in nature, even when tonne-km is considered. The focus on increasing the use of more sustainable modes therefore needs to concentrate on movements within individual countries, or movements between neighbouring zones in adjacent countries. The analysis in the Section has given some indications of potentially significant Road-based movements that could merit further study



APPENDIX A

Overall validity of data

There were clear difficulties obtaining and extracting data from the Eurostat database. For the road data, the data was either presented in too high a detail (NUTS-3 level) or with a lack of detail for this study (for example, certain movements were classified). Also, only samples of the commodities were available on the Eurostat database since this form is optional for completion. When compared to the National Statistics of certain countries, the Eurostat database varied also for reasons unknown. In this case, the National Statistics were regarded as correct, whilst the Eurostat dataset gave an indication of the level of magnitude for the volume of road freight.

The results set out within this report must therefore be treated with considerable caution. It is clear from the analysis carried out that Eurostat data does not reflect actual end-to-end freight movements in a consistent or comprehensive way. National Statistics can usefully supplement Eurostat but are not necessarily consistent in coverage or approach between countries.

For example, from the Tables 7.1-7.3 it can be noted that Germany to UK total freight volumes seems suspiciously low, compared to France, Netherlands and Belgium, and this is even more marked when looking at the maritime freight tables. A likely reason is that the freight being sent from the UK to or from Germany is recorded as maritime freight between the UK and a relevant port in Belgium or the Netherlands (Antwerp, Rotterdam, etc). The remainder of the journey from the port to or from its end point in Germany is recorded separately as a road, rail or inland waterway journey between the Netherlands or Belgium and Germany. The two parts of the end-to-end journey cannot be linked from the data.

Freight distribution

Sections 1.3 to 1.5 above describe the scope and the limitations of the Eurostat data set in defining zone to zone freight movements by the various modes at the regional or sub-regional level. The following paragraphs describe in more detail the method by which distribution of freight movements was derived using national statistics where these were available.

UK Statistics

The UK was divided into 12 separate zones according to the NUTS-2 zones. This created the problem that the zones from NUTS did not fully correspond with the UK WEASTflows zones. This was overcome by using GDP figures to split the relevant zones. The zones that were split were 13, 14, 16, 17, 18 and 19, and it was assumed that the internal road freight flow within each zone would be 90%, based upon the internal movement from similarly sized English zones. The remaining 10% was assigned to the off-diagonals.

UK to the rest of Europe was provided in terms of percentages to the respective countries by the DfT statistics. 88% of all international trade was split between France (32%), Belgium (20%), Germany and



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the Republic of Ireland (both 13%) and the Netherlands (10%). The remaining 12% was distributed to the remaining countries.

NI and ROI Statistics

The entire dataset for Ireland was provided in the joint venture, Northern Ireland Transport Statistics 2012-13. The dataset was divided into road freight volume based upon vehicle registration. The assumption was made that all vehicles registered in GB, NI and ROI would distribute all the internal road freight in Ireland. Furthermore, the above document provided an accurate account of road freight movement by NI and ROI registered vehicles to the rest of Europe, however not by region.

France Statistics

National Statistics were obtained via the office of AURH for all NUTS-2 zones in France; however southern France zones were condensed into one to form Zone 65 (France, Outside WEASTflows). The assumption was made that the grand totals that from the initial report were correct since the totals were extracted from Eurostat. Using the figures from the French National Statistics and the original grand totals, percentages were established for internal, significant border regions and the rest of the country. The percentages calculated were used later on for countries that did not supply National Statistics. The road freight data was distributed using the French National Statistics.

Estimation of Countries

A country in which the distribution was not supplied for individual regions was estimated using the internal, significant bordering regions and rest of country percentages calculated from French and UK data. In addition to the French zone percentages, certain zone percentages in England were calculated (split zones as well as London were excluded). Combining these two countries allowed for a graphical representation of the internal, bordering and rest of country against the total area of the zone to be compared. Although the graphical representation was not completely conclusive, for the purpose of this analysis and estimation, it was deemed sufficient. This would allow for the domestic percentages for Belgium, Netherlands and Germany to be estimated based on the area of each region.

Matrix Balancing

The matrix balancing technique, Furness or Bi-proportional Matrix Balancing, was applied to country-to-country data in which no regionalised figures were supplied. This allowed for the correct totals to be applied to the country-to-country data and then distributed correctly between regions. This would allow for the correction of the underestimation in the initial report for domestic road freight flows and would provide a truer representation of international road freight movements between countries.

Netherlands Statistics

Prior to applying the percentages calculated for the French zones to the Netherlands, research was conducted to ensure that Eurostat took into account the large ports of Amsterdam and Rotterdam. Both of the ports would have a significant influence on the regions and it was confirmed that the



Eurostat figures did incorporate the effects of the two major ports. It was therefore valid to apply the same distribution technique as described in the 'Estimation of Countries' section.

The international percentage from Netherlands to the rest of Europe was calculated using the statistics supplied by Eurostat. The majority of road freight movement from Netherlands to Europe was split between Germany (45.75%), Belgium (32.62%) and France (11.34%), with the remaining percentage split between the UK and the other European countries.

Belgium Statistics

Belgium was classified as a 'bordering' country in which a high percentage of road freight was distributed to neighbouring zones. The impact from the Port of Antwerp was estimated to have been included in the Eurostat figures and would not affect the distribution to the same extent as the Port of Rotterdam. Using the graphs plotted in the subsequent pages, the internal, bordering and 'rest of country' percentages were calculated for the domestic flow.

The international distribution from regions in Belgium to other European regions was subject to Matrix Balancing. The grand totals were used from the initial report and Eurostat and were then subject to the Matrix Balancing technique to ensure the international distribution was correct.

Outside WEASTflows

Zones 62-65 were calculated using the statistics supplied by each country (Netherlands, France and Germany). Zones 66-76 were estimated using the Eurostat figures provided. The assumption was made that the initial report distribution for zones 66-76 was correct and that the domestic internal totals may need adjusting.

Figures 9.1-9.3 represent the relationships between the internal, border and international percentages and the area of the region for road freight. These graphs were estimated using the data obtained for certain UK and French zones from National Statistics. The graphs were then applied to countries in which the regionalised zonal to zonal road freight data was not provided. This was deemed an appropriate estimation for regions lacking the required data.



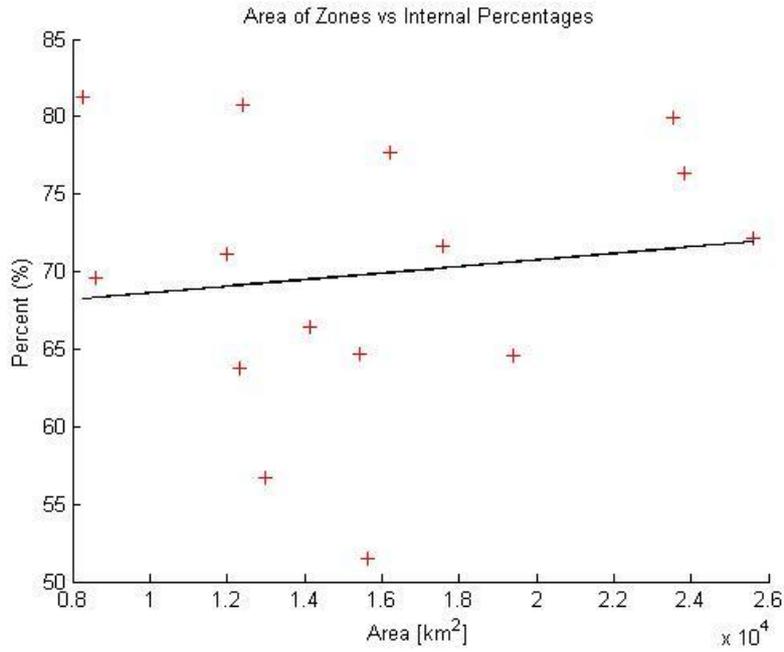


Figure 9.1 shows the relationship between the area of the zone and the internal movement for road freight

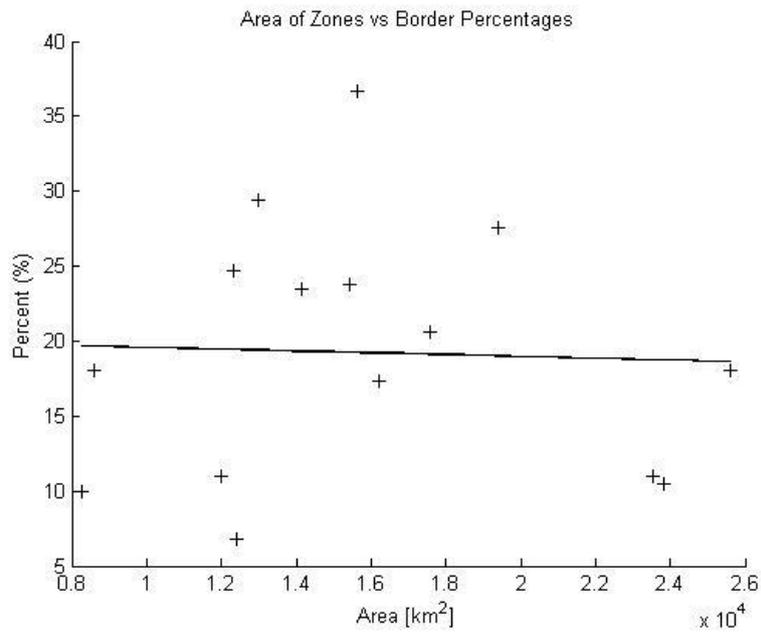


Figure 9.2 shows the relationship between the area of the zone and the bordering movement for road freight.

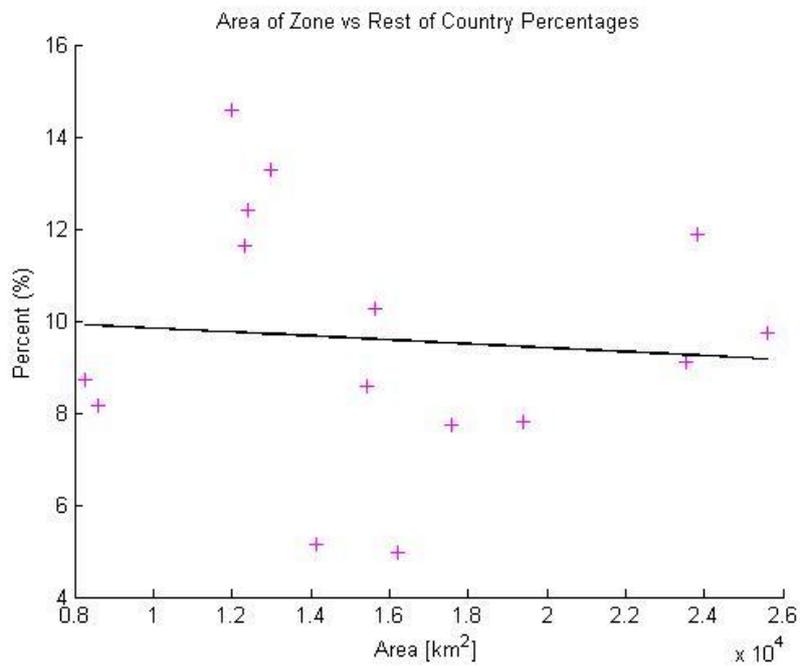


Figure 9.3 shows the relationship between the area of the zone and the 'Rest of Country' movement for road freight

APPENDIX B

Road (in t-km)

WEASTflows									
Zone No.	Country	1-19	21-29	30-33	34-36	37	38-48	49-61	
		GB	IRE	NETH	BELG	LUX	GER	FRA	
1-19	GB	95514	1087	668	1517	40	824	1766	
21-29	IRE	798	7212	57	0	0	22	80	
30-33	NETH	2366	142	10231	3018	122	6256	5808	
34-36	BELG	1022	0	2768	7331	826	3800	8031	
37	LUX	73	0	142	359	0	470	817	
38-48	GER	2549	32	7573	4238	803	52608	5475	
49-61	FRA	2507	52	1572	6128	578	4408	50819	

Road Modal Split (in t-km)

WEASTflows									
Zone No.	Country	1-19	21-29	30-33	34-36	37	38-48	49-61	
		GB	IRE	NETH	BELG	LUX	GER	FRA	
1-19	GB	79.9%	19.5%	4.1%	21.6%	100.0%	88.6%	27.6%	
21-29	IRE	12.9%	95.7%	2.4%	0.0%	0.0%	77.0%	15.3%	
30-33	NETH	35.4%	11.3%	61.4%	43.8%	63.5%	23.3%	73.2%	
34-36	BELG	15.5%	0.0%	44.4%	90.8%	96.8%	50.3%	81.5%	
37	LUX	100.0%	0.0%	85.1%	97.0%	0.0%	90.8%	98.2%	
38-48	GER	84.9%	64.5%	53.9%	58.7%	82.8%	87.5%	89.1%	
49-61	FRA	23.8%	4.3%	29.9%	73.7%	88.7%	79.0%	84.9%	

Rail (in t-km)

WEASTflows									
Zone No.	Country	1-19	21-29	30-33	34-36	37	38-48	49-61	
		GB	IRE	NETH	BELG	LUX	GER	FRA	
1-19	GB	9064	0	0	0	0	0	280	
21-29	IRE	0	97	0	0	0	0	0	
30-33	NETH	0	0	280	70	2	3966	80	
34-36	BELG	0	0	77	0	0	812	377	
37	LUX	0	0	0	0	0	46	14	
38-48	GER	0	0	670	260	147	5359	308	
49-61	FRA	0	0	53	591	72	371	6635	

Rail Modal Split (in t-km)

WEASTflows									
Zone No.	Country	1-19	21-29	30-33	34-36	37	38-48	49-61	
		GB	IRE	NETH	BELG	LUX	GER	FRA	
1-19	GB	7.6%	0.0%	0.0%	0.0%	0.0%	0.0%	4.4%	
21-29	IRE	0.0%	1.3%	0.0%	0.0%	0.0%	0.0%	0.0%	
30-33	NETH	0.0%	0.0%	1.7%	1.0%	1.0%	14.8%	1.0%	
34-36	BELG	0.0%	0.0%	1.2%	0.0%	0.0%	10.8%	3.8%	
37	LUX	0.0%	0.0%	0.0%	0.0%	0.0%	9.0%	1.7%	
38-48	GER	0.0%	0.0%	4.8%	3.6%	15.2%	8.9%	5.0%	
49-61	FRA	0.0%	0.0%	1.0%	7.1%	11.0%	6.6%	11.1%	

Inland Waterways (in t-km)

WEASTflows									
Zone No.	Country	1-19	21-29	30-33	34-36	37	38-48	49-61	
		GB	IRE	NETH	BELG	LUX	GER	FRA	
1-19	GB	0	0	0	0	0	79	0	
21-29	IRE	0	0	0	0	0	6	0	
30-33	NETH	0	0	6140	3800	68	16605	1888	
34-36	BELG	0	0	3146	745	27	2938	862	
37	LUX	0	1	25	11	0	1	1	
38-48	GER	246	0	5804	2716	19	2146	357	
49-61	FRA	0	0	1863	945	2	803	1725	

Inland Waterways Modal Split (in t-km)

WEASTflows									
Zone No.	Country	1-19	21-29	30-33	34-36	37	38-48	49-61	
		GB	IRE	NETH	BELG	LUX	GER	FRA	
1-19	GB	0.0%	0.0%	0.0%	0.0%	0.0%	8.5%	0.0%	
21-29	IRE	0.0%	0.0%	0.0%	0.0%	0.0%	20.4%	0.0%	
30-33	NETH	0.0%	0.0%	36.8%	55.1%	35.5%	61.9%	23.8%	
34-36	BELG	0.0%	0.0%	50.5%	9.2%	3.2%	38.9%	8.7%	
37	LUX	0.0%	100.0%	14.9%	3.0%	0.0%	0.2%	0.1%	
38-48	GER	8.2%	0.0%	41.3%	37.7%	2.0%	3.6%	5.8%	
49-61	FRA	0.0%	0.0%	35.4%	11.4%	0.3%	14.4%	2.9%	

Maritime (in t-km)

WEASTflows									
Zone No.	Country	1-19	21-29	30-33	34-36	37	38-48	49-61	
		GB	IRE	NETH	BELG	LUX	GER	FRA	
1-19	GB	14994	4492	15659	5516	0	27	4343	
21-29	IRE	5393	231	2346	971	0	1	441	
30-33	NETH	4309	1109	11	9	0	1	155	
34-36	BELG	5556	1632	236	2	0	1	586	
37	LUX	0	0	0	0	0	0	0	
38-48	GER	207	17	4	0	0	0	6	
49-61	FRA	8046	1169	1772	647	0	1	703	

Maritime Modal Split (in t-km)

WEASTflows									
Zone No.	Country	1-19	21-29	30-33	34-36	37	38-48	49-61	
		GB	IRE	NETH	BELG	LUX	GER	FRA	
1-19	GB	12.5%	80.5%	95.9%	78.4%	0.0%	2.9%	68.0%	
21-29	IRE	87.1%	3.1%	97.6%	100.0%	0.0%	2.6%	84.7%	
30-33	NETH	64.6%	88.7%	0.1%	0.1%	0.0%	0.0%	2.0%	
34-36	BELG	84.5%	100.0%	3.8%	0.0%	0.0%	0.0%	5.9%	
37	LUX	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
38-48	GER	6.9%	35.5%	0.0%	0.0%	0.0%	0.0%	0.1%	
49-61	FRA	76.2%	95.7%	33.7%	7.8%	0.0%	0.0%	1.2%	

Total (in t-km)

WEASTflows									
Zone No.	Country	1-19	21-29	30-33	34-36	37	38-48	49-61	
		GB	IRE	NETH	BELG	LUX	GER	FRA	
1-19	GB	119572	5579	16327	7034	40	930	6390	
21-29	IRE	6192	7539	2404	971	0	28	521	
30-33	NETH	6675	1251	16663	6897	192	26828	7932	
34-36	BELG	6577	1632	6227	8078	853	7551	9856	
37	LUX	73	1	167	370	0	517	832	
38-48	GER	3001	49	14051	7214	970	60113	6145	
49-61	FRA	10553	1221	5260	8310	651	5583	59882	

Total Check

WEASTflows									
Zone No.	Country	1-19	21-29	30-33	34-36	37	38-48	49-61	
		GB	IRE	NETH	BELG	LUX	GER	FRA	
1-19	GB	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
21-29	IRE	100.0%	100.0%	100.0%	100.0%	0.0%	100.0%	100.0%	
30-33	NETH	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
34-36	BELG	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
37	LUX	100.0%	100.0%	100.0%	100.0%	0.0%	100.0%	100.0%	
38-48	GER	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
49-61	FRA	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	



ROAD (in t-km)

WEASTflows													
Zone No.	Country	62 NETH	63 GER (N)	64 GER (S)	65 FRA	66 SWE	67 POL	68 UKR	69 AUS	70 GRE	71 ITA	72 SPA	73-76 ROW
1-19	GB	81	675	177	1848	0	1849	0	1062	373	331	791	0
21-29	IRE	7	31	9	70	0	3	0	4	0	60	41	0
30-33	NETH	1848	6143	1829	7016	2283	3125	0	2407	1125	1406	2207	662
34-36	BELG	483	4341	1105	255	2997	0	1708	648	1104	2554	0	0
37	LUX	22	704	146	904	0	209	0	0	0	68	18	0
38-48	GER	1067	34829	6727	4680	6541	11552	88	17430	3129	8459	5095	1371
49-61	FRA	221	4678	963	22605	276	2477	0	1979	1004	8227	12529	48

RAIL (in t-km)

WEASTflows													
Zone No.	Country	62 NETH	63 GER (N)	64 GER (S)	65 FRA	66 SWE	67 POL	68 UKR	69 AUS	70 GRE	71 ITA	72 SPA	73-76 ROW
1-19	GB	0	0	0	1	0	0	0	0	0	60	0	0
21-29	IRE	0	0	0	0	0	0	0	0	0	0	0	0
30-33	NETH	68	852	337	77	62	58	12	1276	12	1997	1	0
34-36	BELG	35	377	137	203	207	89	0	652	66	2796	0	132
37	LUX	0	31	9	17	125	15	0	53	1	203	0	0
38-48	GER	7	6737	2160	227	1305	357	1	4137	573	6007	650	663
49-61	FRA	0	132	37	3673	74	41	0	204	4	989	263	0

INLAND WATERWAYS (in t-km)

WEASTflows													
Zone No.	Country	62 NETH	63 GER (N)	64 GER (S)	65 FRA	66 SWE	67 POL	68 UKR	69 AUS	70 GRE	71 ITA	72 SPA	73-76 ROW
1-19	GB	0	0	0	0	0	0	0	0	0	0	0	0
21-29	IRE	0	0	0	0	0	0	0	0	0	0	0	0
30-33	NETH	557	1710	403	30	6	4	41	1087	107	3079	0	0
34-36	BELG	151	443	112	26	0	3	11	198	30	916	0	0
37	LUX	1	7	0	1	3	0	0	0	0	1	0	0
38-48	GER	396	750	74	5	229	10	0	182	62	1019	0	0
49-61	FRA	127	126	1	237	0	0	0	11	27	165	0	0

MARITIME (in t-km)

WEASTflows													
Zone No.	Country	62 NETH	63 GER (N)	64 GER (S)	65 FRA	66 SWE	67 POL	68 UKR	69 AUS	70 GRE	71 ITA	72 SPA	73-76 ROW
1-19	GB	63	10435	0	6572	10732	9663	2	0	1521	3181	8313	233673
21-29	IRE	10	300	0	483	1340	113	3	0	46	79	1376	4032
30-33	NETH	0	1170	0	250	8156	842	166	0	266	292	6156	465241
34-36	BELG	2	1287	0	859	9082	882	15	1	847	695	4144	385684
37	LUX	0	0	0	0	0	0	0	0	0	0	0	0
38-48	GER	0	0	0	7	140	0	0	0	0	0	0	0
49-61	FRA	10	545	0	1182	1626	294	35	0	714	462	2494	142123

TOTAL (in t-km)

WEASTflows													
Zone No.	Country	62 NETH	63 GER (N)	64 GER (S)	65 FRA	66 SWE	67 POL	68 UKR	69 AUS	70 GRE	71 ITA	72 SPA	73-76 ROW
1-19	GB	144	11110	177	8421	10732	5512	2	1063	1894	3573	9104	233673
21-29	IRE	17	331	9	553	1340	116	3	4	46	139	1417	4032
30-33	NETH	2473	9875	2569	7372	10508	4029	219	4771	1510	6774	8364	465903
34-36	BELG	671	6447	1354	11005	9544	3971	25	2559	1590	5511	6698	385815
37	LUX	23	722	155	921	127	224	0	53	1	272	18	0
38-48	GER	1469	42316	8960	4919	8216	11920	89	21750	3765	15485	5744	2034
49-61	FRA	358	5482	1002	27697	1976	2812	35	2194	1749	9844	15286	142172

ROAD MODAL SPLIT (in t-km)

WEASTflows													
Zone No.	Country	62 NETH	63 GER (N)	64 GER (S)	65 FRA	66 SWE	67 POL	68 UKR	69 AUS	70 GRE	71 ITA	72 SPA	73-76 ROW
1-19	GB	56.0%	6.1%	100.0%	21.9%	0.0%	33.5%	0.0%	100.0%	19.7%	9.3%	8.7%	0.0%
21-29	IRE	41.1%	9.4%	100.0%	12.7%	0.0%	2.9%	0.0%	100.0%	0.0%	43.3%	2.9%	0.0%
30-33	NETH	74.7%	62.2%	71.2%	95.2%	21.7%	77.6%	0.0%	50.5%	74.5%	20.8%	26.4%	0.1%
34-36	BELG	72.0%	67.3%	81.6%	90.1%	2.7%	75.5%	0.0%	66.8%	40.7%	20.0%	38.1%	0.0%
37	LUX	95.5%	94.9%	94.1%	98.1%	0.0%	93.4%	0.0%	0.0%	0.0%	25.0%	100.0%	0.0%
38-48	GER	72.6%	82.3%	75.1%	95.1%	79.6%	96.9%	99.3%	80.1%	83.1%	54.6%	88.7%	67.4%
49-61	FRA	61.8%	85.3%	96.2%	81.6%	14.0%	88.1%	0.0%	90.2%	57.4%	83.6%	82.0%	0.0%

RAIL MODAL SPLIT (in t-km)

WEASTflows													
Zone No.	Country	62 NETH	63 GER (N)	64 GER (S)	65 FRA	66 SWE	67 POL	68 UKR	69 AUS	70 GRE	71 ITA	72 SPA	73-76 ROW
1-19	GB	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.7%	0.0%	0.0%
21-29	IRE	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
30-33	NETH	2.8%	8.6%	13.1%	1.0%	0.6%	1.4%	5.4%	26.8%	0.8%	29.5%	0.0%	0.0%
34-36	BELG	5.2%	5.8%	10.1%	1.8%	2.2%	2.3%	0.0%	25.5%	4.1%	50.7%	0.0%	0.0%
37	LUX	0.0%	4.2%	5.9%	1.8%	97.8%	6.6%	0.0%	100.0%	100.0%	74.5%	0.0%	0.0%
38-48	GER	0.4%	15.9%	24.1%	4.6%	15.9%	3.0%	0.7%	19.0%	15.2%	38.8%	11.3%	32.6%
49-61	FRA	0.0%	2.4%	3.7%	13.3%	3.8%	1.5%	0.0%	9.3%	0.2%	10.0%	1.7%	0.0%

INLAND WATERWAYS MODAL SPLIT (in t-km)

WEASTflows													
Zone No.	Country	62 NETH	63 GER (N)	64 GER (S)	65 FRA	66 SWE	67 POL	68 UKR	69 AUS	70 GRE	71 ITA	72 SPA	73-76 ROW
1-19	GB	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
21-29	IRE	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
30-33	NETH	22.5%	17.3%	15.7%	0.4%	0.1%	0.1%	18.7%	22.8%	7.1%	45.5%	0.0%	0.0%
34-36	BELG	12.0%	6.9%	8.3%	0.2%	0.0%	0.1%	42.5%	7.7%	1.9%	16.6%	0.0%	0.0%
37	LUX	4.5%	0.9%	0.0%	0.1%	2.2%	0.0%	0.0%	0.0%	0.0%	0.5%	0.0%	0.0%
38-48	GER	26.9%	1.8%	0.8%	0.1%	2.8%	0.1%	0.0%	0.8%	1.7%	6.6%	0.0%	0.0%
49-61	FRA	35.5%	2.3%	0.1%	0.9%	0.0%	0.0%	0.0%	0.5%	1.5%	1.7%	0.0%	0.0%

MARITIME MODAL SPLIT (in t-km)

WEASTflows													
Zone No.	Country	62 NETH	63 GER (N)	64 GER (S)	65 FRA	66 SWE	67 POL	68 UKR	69 AUS	70 GRE	71 ITA	72 SPA	73-76 ROW
1-19	GB	44.0%	93.9%	0.0%	78.0%	100.0%	66.5%	100.0%	0.0%	80.3%	89.0%	91.3%	100.0%
21-29	IRE	58.9%	90.6%	0.0%	87.3%	100.0%	97.1%	100.0%	0.0%	100.0%	56.7%	97.1%	100.0%
30-33	NETH	0.0%	11.8%	0.0%	3.4%	77.6%	20.9%	75.9%	0.0%	17.6%	4.3%	73.6%	99.9%
34-36	BELG	0.2%	20.0%	0.0%	7.8%	95.2%	22.2%	57.5%	0.0%	53.3%	12.6%	61.9%	100.0%
37	LUX	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
38-48	GER	0.0%	0.0%	0.0%	0.1%	1.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
49-61	FRA	2.7%	9.9%	0.0%	4.3%	82.3%	10.5%	100.0%	0.0%	40.8%	4.7%	16.3%	100.0%

TOTAL CHECK (in t-km)

WEASTflows													
Zone No.	Country	62 NETH	63 GER (N)	64 GER (S)	65 FRA	66 SWE	67 POL	68 UKR	69 AUS	70 GRE	71 ITA	72 SPA	73-76 ROW
1-19	GB	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
21-29	IRE	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
30-33	NETH	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
34-36	BELG	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
37	LUX	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	0.0%	100.0%	100.0%	100.0%	100.0%	0.0%
38-48	GER	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
49-61	FRA	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

ROAD (in t-km)

WEASTflows															
Zone No.	Country	1-19		21-29		30-33		34-36		37		38-48		49-61	
		GB	IRE	NETH	BELG	LUX	GER	FRA							
62	NETH		258	15	1827	193	17	800						300	
63	GER(N)		2006	36	7412	4790	1196	35214						5756	
64	GER(S)		554	9	2243	1243	251	6636						1204	
65	FRA		2590	55	1795	7592	641	4005						19662	
66	SWE		0	0	1616	81	0	6487						311	
67	POL		3008	7	2653	1929	0	11125						3238	
68	UKR		0	0	0	0	0	0						0	
69	AUS		1819	4	1645	1322	0	15204						2117	
70	GRE		706	0	1020	478	0	3251						1431	
71	ITA		1068	49	648	1134	42	6410						6560	
72	SPA		2430	5	2868	1673	0	6066						14369	
73-76	ROW		0	0	0	0	0	654						0	

ROAD MODAL SPLIT (in t-km)

WEASTflows															
Zone No.	Country	1-19		21-29		30-33		34-36		37		38-48		49-61	
		GB	IRE	NETH	BELG	LUX	GER	FRA							
62	NETH	100.0%	100.0%	72.6%	68.4%	100.0%	90.8%	96.9%							
63	GER(N)	33.0%	4.6%	71.4%	68.5%	93.0%	79.3%	86.7%							
64	GER(S)	100.0%	100.0%	84.6%	84.8%	90.6%	72.5%	95.5%							
65	FRA	79.1%	22.3%	70.4%	94.2%	86.2%	89.5%	79.8%							
66	SWE	0.0%	0.0%	3.5%	0.5%	0.0%	80.0%	2.5%							
67	POL	22.4%	0.7%	11.7%	31.3%	0.0%	92.8%	36.0%							
68	UKR	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%							
69	AUS	99.7%	100.0%	50.1%	54.8%	0.0%	78.7%	87.0%							
70	GRE	30.6%	0.0%	21.8%	23.1%	0.0%	96.7%	50.3%							
71	ITA	34.6%	28.5%	15.2%	29.2%	64.8%	64.4%	89.4%							
72	SPA	22.8%	0.2%	52.6%	30.3%	0.0%	91.7%	84.3%							
73-76	ROW	0.0%	0.0%	0.0%	0.0%	0.0%	84.1%	0.0%							

RAIL(in t-km)

WEASTflows															
Zone No.	Country	1-19		21-29		30-33		34-36		37		38-48		49-61	
		GB	IRE	NETH	BELG	LUX	GER	FRA							
62	NETH		0	0	121	0	0	13						0	
63	GER(N)		0	0	318	302	89	8360						184	
64	GER(S)		0	0	136	111	26	2468						50	
65	FRA		172	12	118	194	102	466						3838	
66	SWE		0	0	133	358	32	1297						274	
67	POL		0	0	25	149	40	836						182	
68	UKR		0	0	0	0	0	0						0	
69	AUS		3	0	698	743	37	3645						298	
70	GRE		0	0	0	0	0	65						0	
71	ITA		131	0	1398	1509	23	3432						262	
72	SPA		0	0	1	0	0	552						29	
73-76	ROW		0	0	0	114	0	1						0	

RAIL MODAL SPLIT (in t-km)

WEASTflows															
Zone No.	Country	1-19		21-29		30-33		34-36		37		38-48		49-61	
		GB	IRE	NETH	BELG	LUX	GER	FRA							
62	NETH	0.0%	0.0%	4.8%	0.0%	0.0%	1.5%	0.0%							
63	GER(N)	0.0%	0.0%	3.1%	4.3%	6.9%	18.8%	2.8%							
64	GER(S)	0.0%	0.0%	5.1%	7.6%	9.4%	27.0%	4.0%							
65	FRA	5.3%	4.7%	4.6%	2.4%	13.8%	10.4%	15.6%							
66	SWE	0.0%	0.0%	0.3%	2.2%	100.0%	16.0%	2.2%							
67	POL	0.0%	0.0%	0.1%	2.4%	100.0%	7.0%	2.0%							
68	UKR	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%							
69	AUS	0.2%	0.0%	21.2%	30.8%	100.0%	18.9%	12.2%							
70	GRE	0.0%	0.0%	0.0%	0.0%	0.0%	1.9%	0.0%							
71	ITA	4.2%	0.2%	32.9%	38.9%	35.2%	34.5%	3.6%							
72	SPA	0.0%	0.0%	0.0%	0.0%	0.0%	8.3%	0.2%							
73-76	ROW	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%							

INLAND WATERWAYS (in t-km)

WEASTflows															
Zone No.	Country	1-19		21-29		30-33		34-36		37		38-48		49-61	
		GB	IRE	NETH	BELG	LUX	GER	FRA							
62	NETH		0	0	569	89	0	67						9	
63	GER(N)		1	0	954	703	1	812						188	
64	GER(S)		0	0	272	111	0	52						6	
65	FRA		0	0	20	10	0	3						147	
66	SWE		0	0	13	3	0	231						0	
67	POL		0	0	3	1	0	31						1	
68	UKR		0	0	0	0	0	19						0	
69	AUS		0	0	941	348	0	475						18	
70	GRE		0	0	110	19	0	47						5	
71	ITA		0	0	590	472	0	113						29	
72	SPA		0	0	0	0	0	0						0	
73-76	ROW		0	0	0	0	0	63						0	

INLAND WATERWAYS MODAL SPLIT (in t-km)

WEASTflows															
Zone No.	Country	1-19		21-29		30-33		34-36		37		38-48		49-61	
		GB	IRE	NETH	BELG	LUX	GER	FRA							
62	NETH	0.0%	0.0%	22.6%	31.6%	0.0%	7.6%	3.1%							
63	GER(N)	0.0%	0.0%	9.2%	10.1%	0.0%	1.8%	2.8%							
64	GER(S)	0.0%	0.0%	10.3%	7.6%	0.0%	0.6%	0.5%							
65	FRA	0.0%	0.0%	0.8%	0.1%	0.0%	0.1%	0.6%							
66	SWE	0.0%	0.0%	0.0%	0.0%	0.0%	2.8%	0.0%							
67	POL	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.0%							
68	UKR	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%							
69	AUS	0.0%	0.0%	28.7%	14.4%	0.0%	2.5%	0.7%							
70	GRE	0.0%	0.0%	2.3%	0.9%	0.0%	1.4%	0.2%							
71	ITA	0.0%	0.0%	13.9%	12.1%	0.0%	1.1%	0.4%							
72	SPA	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%							
73-76	ROW	0.0%	0.0%	0.0%	0.0%	0.0%	8.1%	0.0%							

MARITIME (in t-km)

WEASTflows															
Zone No.	Country	1-19		21-29		30-33		34-36		37		38-48		49-61	
		GB	IRE	NETH	BELG	LUX	GER	FRA							
62	NETH		0	0	0	0	0	0						0	
63	GER(N)		4078	756	1692	1194	0	3						510	
64	GER(S)		0	0	0	0	0	0						0	
65	FRA		511	179	617	262	0	1						995	
66	SWE		38938	3962	44646	15562	0	97						11862	
67	POL		10407	996	20089	4084	0	1						5579	
68	UKR		1935	159	5482	3306	0	0						3055	
69	AUS		3	0	0	0	0	0						0	
70	GRE		1601	164	3553	1567	0	0						1411	
71	ITA		1887	122	1616	766	0	0						490	
72	SPA		8230	2802	2583	3854	0	0						2656	
73-76	ROW		626360	44611	1387912	450581	0	61						358489	

MARITIME MODAL SPLIT (in t-km)

WEASTflows															
Zone No.	Country	1-19		21-29		30-33		34-36		37		38-48		49-61	
		GB	IRE	NETH	BELG	LUX	GER	FRA							
62	NETH	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%							
63	GER(N)	67.0%	95.4%	16.3%	17.1%	0.0%	0.0%	7.7%							
64	GER(S)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%							
65	FRA	15.6%	73.0%	24.2%	3.3%	0.0%	0.0%	4.0%							
66	SWE	100.0%	100.0%	96.2%	97.2%	0.0%	1.2%	95.3%							
67	POL	77.6%	99.3%	88.2%	66.3%	0.0%	0.0%	62.0%							
68	UKR	100.0%	100.0%	100.0%	100.0%	0.0%	0.0%	100.0%							
69	AUS	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%							
70	GRE	69.4%	100.0%	75.9%	75.9%	0.0%	0.0%	49.6%							
71	ITA	61.1%	71.3%	38.0%	19.7%	0.0%	0.0%	6.7%							
72	SPA	77.2%	99.8%	47.4%	69.7%	0.0%	0.0%	15.6%							
73-76	ROW	100.0%	100.0%	100.0%	100.0%	0.0%	7.8%	100.0%							

TOTAL (in t-km)

WEASTflows															
Zone No.	Country	1-19		21-29		30-33		34-36		37		38-48		49-61	
		GB	IRE	NETH	BELG	LUX	GER	FRA							

APPENDIX C

Project Partner	To/From	Tonnes from Zone 27				Tonnes to Zone 27			
		Road	Rail	IWW	Maritime	Road	Rail	IWW	Maritime
MWRA [Limerick - Zone 27]	Republic of Ireland	4,770	148	0	96	4,403	16	0	249
	Northern Ireland	64	0	0	25	75	0	0	10
	Great Britain	143	0	0	484	215	0	0	2,610
	Rest of Westflows	19	0	0	574	25	0	0	679
	Rest of Europe	17	0	0	494	14	0	0	1,310
	Rest of World	0	0	0	378	0	0	0	4,964

Project Partner	To/From	Tonnes from Zone 3				Tonnes to Zone 3			
		Road	Rail	IWW	Maritime	Road	Rail	IWW	Maritime
SEStran [Edinburgh - Zone 3]	Rest of Scotland	11,051	1,033	0	250	9,662	1,075	0	228
	Rest of GB	3,498	298	0	3,967	4,822	298	0	389
	Island of Ireland	69	0	0	224	75	0	0	228
	Rest of Westflows	174	0	0	8,671	281	0	1	724
	Rest of Europe	123	0	0	7,433	240	0	0	1,549
	Rest of World	0	0	0	2,941	0	0	0	706

Project Partner	To/From	Tonnes from Zone 51				Tonnes to Zone 51			
		Road	Rail	IWW	Maritime	Road	Rail	IWW	Maritime
AURH, IDIT, CRITT, LSN, CTS [Le Havre - Zone 51]	Rest of France (in Wf)	26,413	1,938	5,575	480	25,590	2,686	4,226	1,230
	UK + Ireland	245	0	0	2,313	176	0	0	5,385
	Rest of Westflows	1,749	55	31	5,648	2,699	35	25	1,072
	Rest of Europe	3,989	1,399	3	3,084	4,125	1,315	6	11,056
	Rest of World	1	0	0	18,388	0	0	0	32,907

Project Partner	To/From	Tonnes from Zone 9				Tonnes to Zone 9			
		Road	Rail	IWW	Maritime	Road	Rail	IWW	Maritime
LOOM [Liverpool - Zone 9]	Rest of England	45,000	3,717	0	2,117	53,000	3,992	0	1,404
	Rest of GB	14,721	1,234	0	677	11,152	1,037	0	3,173
	Island of Ireland	288	0	0	3,673	214	0	0	1,251
	Rest of Westflows	1,005	0	0	2,340	1,753	0	3	3,970
	Rest of Europe	714	0	0	1,451	1,499	0	0	5,353
	Rest of World	0	0	0	3,340	0	0	0	8,725

Project Partner	To/From	Tonnes from Zone 31				Tonnes to Zone 31			
		Road	Rail	IWW	Maritime	Road	Rail	IWW	Maritime
MOBYCON [Rotterdam - Zone 31]	Rest of NL (in Wf)	26,996	1,257	25,226	60	25,892	1,301	16,680	97
	UK+ Ireland	1,411	0	0	11,284	376	0	0	25,036
	Rest of Westflows	15,953	10,613	89,287	638	12,852	2,127	32,706	6,704
	Rest of Europe	13,022	5,267	7,440	12,695	10,831	3,559	5,301	49,958
	Rest of World	87	0	0	57,957	0	0	0	224,257

Project Partner	To/From	Tonnes from Zone 33				Tonnes to Zone 33			
		Road	Rail	IWW	Maritime	Road	Rail	IWW	Maritime
Infort, CQM, BOM, BBZOB [Eindhoven - Zone 33]	Rest of NL (in Wf)	25,669	1,300	11,475	1	26,568	1,258	12,365	6
	UK+ Ireland	1,484	0	0	2	435	0	0	375
	Rest of Westflows	16,784	794	8,405	0	14,915	620	9,203	100
	Rest of Europe	17,845	655	1,368	117	16,416	264	1,293	2,559
	Rest of World	91	0	0	151	0	0	0	663

Total Tonnes (Origins+Destinations)						
Project Partner	To/From	Road	Rail	IWW	Maritime	% by O/D
MWRA [Limerick - Zone 27]	Republic of Ireland	9,173	164	0	345	9,681
	Northern Ireland	139	0	0	35	174
	Great Britain	358	0	0	3,094	3,452
	Rest of Westflows	44	0	0	1,254	1,298
	Rest of Europe	31	0	0	1,804	1,835
	Rest of World	0	0	0	5,342	5,342
All OD		9,745	164	0	11,873	21,782
% by mode, all OD		45%	1%	0%	55%	100%

Total Tonnes (Origins+Destinations)						
Project Partner	To/From	Road	Rail	IWW	Maritime	% by O/D
SEStran [Edinburgh - Zone 3]	Rest of Scotland	20,713	2,108	0	479	23,300
	Rest of GB	8,320	595	0	4,356	13,271
	Island of Ireland	144	0	0	452	596
	Rest of Westflows	455	0	1	9,395	9,851
	Rest of Europe	363	0	0	8,982	9,345
	Rest of World	0	0	0	3,647	3,647
All OD		29,995	2,704	1	27,310	60,010
% by mode, all OD		50%	5%	0%	46%	100%

Total Tonnes (Origins+Destinations)						
Project Partner	To/From	Road	Rail	IWW	Maritime	% by O/D
AURH [Le Havre - Zone 51]	Rest of France (in Wf)	52,003	4,624	9,801	1,709	68,137
	UK + Ireland	421	0	0	7,698	8,119
	Rest of Westflows	4,448	90	56	6,720	11,314
	Rest of Europe	8,113	2,714	9	14,139	24,975
	Rest of World	1	0	0	51,295	51,296
	All OD		64,986	7,428	9,866	81,561
% by mode, all OD		40%	5%	6%	50%	100%

Total Tonnes (Origins+Destinations)						
Project Partner	To/From	Road	Rail	IWW	Maritime	% by O/D
LOOM [Liverpool - Zone 9]	Rest of England	98,000	7,709	0	3,521	109,230
	Rest of GB	25,873	2,271	0	3,850	31,995
	Island of Ireland	502	0	0	4,925	5,427
	Rest of Westflows	2,758	0	3	6,310	9,071
	Rest of Europe	2,213	0	0	6,804	9,016
	Rest of World	0	0	0	12,065	12,065
All OD		129,346	9,980	3	37,475	176,804
% by mode, all OD		73%	6%	0%	21%	100%

Total Tonnes (Origins+Destinations)						
Project Partner	To/From	Road	Rail	IWW	Maritime	% by O/D
MOBYCON [Rotterdam - Zone 31]	Rest of NL (in Wf)	52,888	2,558	41,906	157	97,509
	UK+ Ireland	1,787	0	0	36,320	38,107
	Rest of Westflows	28,805	12,739	121,993	7,343	170,881
	Rest of Europe	23,853	8,826	12,741	62,653	108,074
	Rest of World	87	0	0	282,214	282,301
All OD		107,420	24,124	176,640	388,687	696,872
% by mode, all OD		15%	3%	25%	56%	100%

Total Tonnes (Origins+Destinations)						
Project Partner	To/From	Road	Rail	IWW	Maritime	% by O/D
Infort, CQM, BOM, BBZOB [Eindhoven - Zone 33]	Rest of NL (in Wf)	52,237	2,558	23,840	7	78,642
	UK+ Ireland	1,919	0	0	377	2,296
	Rest of Westflows	31,699	1,414	17,607	100	50,820
	Rest of Europe	34,262	920	2,661	2,676	40,517
	Rest of World	91	0	0	814	905
All OD		120,208	4,892	44,108	3,974	173,181
% by mode, all OD		69%	3%	25%	2%	100%

Tonnes from Zone 49					Tonnes to Zone 49				
Project Partners	To/From	Road	Rail	IWW	Maritime	Road	Rail	IWW	Maritime
TPP, USTL-LAGIS	Rest of France (in Wf)	22,080	8,640	303	490	18,965	3,837	268	769
[Calais - Zone 49]	UK+ Ireland	444	0	0	16,351	323	131	0	3,072
	Rest of Westflows	3,226	2,022	1,928	1,318	5,078	418	2,445	611
	Rest of Europe	6,856	1,278	88	1,919	6,253	895	80	4,036
	Rest of World	2	0	0	2,768	0	0	0	18,051

Total Tonnes (Origins+Destinations)							
Project Partner	To/From	Road	Rail	IWW	Maritime	All modes	% by O/D
TPP, USTL-LAGIS	Rest of France (in Wf)	40,945	12,478	571	1,259	55,253	8%
[Calais - Zone 49]	UK+ Ireland	767	131	0	19,423	20,321	3%
	Rest of Westflows	8,304	2,440	4,373	1,929	17,046	2%
	Rest of Europe	13,110	2,173	168	5,956	21,407	3%
	Rest of World	2	0	0	20,819	20,821	3%
	All OD	63,128	17,222	5,112	49,386	134,847	19%
	% by mode, all OD	47%	13%	4%	37%	100%	

Tonnes from Zone 38					Tonnes to Zone 38				
Project Partner	To/From	Road	Rail	IWW	Maritime	Road	Rail	IWW	Maritime
UNIVERSITAT DUISBURG-ESSEN	Rest of GER (in Wf)	35,972	16,404	2,207	0	37,778	9,295	1,502	0
[Dusseldorf - Zone 38]	UK+ Ireland	341	0	404	363	107	0	139	34
	Rest of Westflows	5,275	1,693	16,495	36	4,026	3,366	48,968	18
	Rest of Europe	17,432	10,370	2,090	127	15,399	10,035	1,517	91
	Rest of World	58	0	0	0	14	0	29	0

Total Tonnes (Origins+Destinations)							
Project Partner	To/From	Road	Rail	IWW	Maritime	All modes	% by O/D
UNIVERSITAT DUISBURG-ESSEN	Rest of GER (in Wf)	73,750	25,698	3,708	0	103,156	15%
[Dusseldorf - Zone 38]	UK+ Ireland	448	0	543	397	1,388	0%
	Rest of Westflows	9,301	5,059	65,462	54	79,875	11%
	Rest of Europe	32,832	20,405	3,606	218	57,061	8%
	Rest of World	72	0	29	29	130	0%
	All OD	116,402	51,162	73,349	698	241,610	35%
	% by mode, all OD	48%	21%	30%	0%	100%	

Tonnes from Zone 45					Tonnes to Zone 45				
Project Partner	To/From	Road	Rail	IWW	Maritime	Road	Rail	IWW	Maritime
VRRN	Rest of GER (in Wf)	50,340	1,342	3,622	0	51,146	2,657	1,480	0
[Karlsruhe - Zone 45]	UK+ Ireland	427	0	0	0	147	0	0	0
	Rest of Westflows	6,599	405	3,680	0	5,508	1,516	9,191	0
	Rest of Europe	22,750	4,028	1,069	0	22,117	4,384	325	0
	Rest of World	73	2	0	0	19	0	0	0

Total Tonnes (Origins+Destinations)							
Project Partner	To/From	Road	Rail	IWW	Maritime	All modes	% by O/D
VRRN	Rest of GER (in Wf)	101,486	3,998	5,102	0	110,585	16%
[Karlsruhe - Zone 45]	UK+ Ireland	574	0	0	0	574	0%
	Rest of Westflows	12,107	1,921	12,871	0	26,899	4%
	Rest of Europe	44,867	8,411	1,393	0	54,672	8%
	Rest of World	92	2	0	0	94	0%
	All OD	159,126	14,332	19,366	0	192,823	28%
	% by mode, all OD	83%	7%	10%	0%	100%	

Tonnes from Zone 37					Tonnes to Zone 37				
Project Partner	To/From	Road	Rail	IWW	Maritime	Road	Rail	IWW	Maritime
Tudor	UK+ Ireland	109	0	2	0	59	0	0	0
[Luxembourg - Zone 37]	Rest of Westflows	7,005	293	186	0	10,593	1,035	561	0
	Rest of Europe	3,596	594	22	0	4,095	543	1	0
	Rest of World	0	0	0	0	0	0	0	0

Total Tonnes (Origins+Destinations)							
Project Partner	To/From	Road	Rail	IWW	Maritime	All modes	% by O/D
Tudor	UK+ Ireland	168	0	2	0	170	0%
[Luxembourg - Zone 37]	Rest of Westflows	17,598	1,327	747	0	19,672	3%
	Rest of Europe	7,691	1,137	23	0	8,851	1%
	Rest of World	0	0	0	0	0	0%
	All OD	25,457	2,465	772	0	28,693	4%
	% by mode, all OD	89%	9%	3%	0%	100%	

Tonnes from Zone 23					Tonnes to Zone 23				
Project Partner	To/From	Road	Rail	IWW	Maritime	Road	Rail	IWW	Maritime
IRISH EXPORTERS ASSOCIATION	Republic of Ireland	11,886	37	0	2	7,971	344	0	510
[Dublin - Zone 23]	Northern Ireland	1,679	0	0	213	1,643	0	0	18
	Great Britain	458	0	0	4,161	623	0	0	4,788
	Rest of Westflows	63	0	4	2,218	78	0	1	1,246
	Rest of Europe	56	0	0	729	38	0	0	1,691
	Rest of World	0	0	0	39	0	0	0	537

Total Tonnes (Origins+Destinations)							
Project Partner	To/From	Road	Rail	IWW	Maritime	All modes	% by O/D
IRISH EXPORTERS ASSOCIATION	Republic of Ireland	19,858	380	0	513	20,750	3%
[Dublin - Zone 23]	Northern Ireland	3,321	0	0	231	3,553	1%
	Great Britain	1,081	0	0	8,948	10,029	1%
	Rest of Westflows	141	0	5	3,464	3,611	1%
	Rest of Europe	94	0	0	2,419	2,513	0%
	Rest of World	0	0	0	576	576	0%
	All OD	24,495	380	5	16,152	41,033	6%
	% by mode, all OD	60%	1%	0%	39%	100%	

Tonnes from Zones 15,16,17					Tonnes to Zones 15,16,17				
Project Partner	To/From	Road	Rail	IWW	Maritime	Road	Rail	IWW	Maritime
IFS, Intermodality, Portsmouth Port	Rest of England	90,200	6,888	0	1,034	130,400	8,649	0	5,749
[South East of England- Zones 15,16,17]	Rest of GB	2,728	457	0	350	3,368	465	0	7,309
	Island of Ireland	400	0	0	294	320	0	0	4,361
	Rest of Westflows	1,350	0	0	13,397	2,589	0	42	13,837
	Rest of Europe	969	0	0	8,527	2,209	0	0	12,101
	Rest of World	0	0	0	12,184	0	0	0	30,112

Total Tonnes (Origins+Destinations)							
Project Partner	To/From	Road	Rail	IWW	Maritime	All modes	% by O/D
IFS, Intermodality, Portsmouth Port	Rest of England	220,600	15,537	0	6,783	242,920	137%
[South East of England- Zones 15,16,17]	Rest of GB	6,096	922	0	7,659	14,676	8%
	Island of Ireland	719	0	0	4,655	5,374	3%
	Rest of Westflows	3,939	0	42	27,233	31,214	18%
	Rest of Europe	3,178	0	0	20,628	23,806	13%
	Rest of World	0	0	0	42,296	42,296	24%
	All OD	234,532	16,459	42	109,255	360,287	204%
	% by mode, all OD	65%	5%	0%	30%	100%	

INLAND WATERWAY FREIGHT VOLUMES (000's tonnes) BY WEASTFLOWS ZONE
2012 Data, GDP Adjusted

		DESTINATION																																						
Zone No.	Country	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37		
	Place	Dumfries	Glasgow	Edinburgh	Perth	Aberdeen	Inverness	Shetland	Newcastle	Liverpool	Leeds	Nottingham	Birmingham	Cambridge	Colchester	London	Brighton	Southampton	Bristol	Wrexham	Cardiff	Belfast	Londonderry	Dublin	Donegal	Athlone	Galway	Limerick	Waterford	Cork	Amsterdam	Rotterdam	Enschede	Eindhoven	Antwerp	Brussels	Liège	Luxembourg		
1	Scot Dumfries	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2	Scot Glasgow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Scot Edinburgh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Scot Perth	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Scot Aberdeen	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Scot Inverness	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Scot Shetland	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Eng Newcastle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Eng Liverpool	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Eng Leeds	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Eng Nottingham	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Eng Birmingham	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Eng Cambridge	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Eng Colchester	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Eng London	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Eng Brighton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Eng Southampton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	Eng Bristol	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Wal Wrexham	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Wal Cardiff	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	NI Belfast	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	NI Londonderry	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Ire Dublin	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	Ire Donegal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	Ire Athlone	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	Ire Galway	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	Ire Limerick	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	Ire Waterford	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	Ire Cork	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	Neth Amsterdam	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Neth Rotterdam	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	Neth Enschede	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33	Neth Eindhoven	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	Belg Gent	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	Belg Brussels	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36	Belg Liège	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37	Lux Luxembourg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38	Ger Düsseldorf	0	4	1	0	0	0	0	0	3	300	8	90	0	0	8	13	0	6	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
39	Ger Köln	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
40	Ger Dortmund	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
41	Ger Koblenz	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	Ger Saarbrücken	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43	Ger Kassel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	Ger Frankfurt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	Ger Karlsruhe	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46	Ger Freiburg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	Ger Nuremberg	0	0	0	0																																			

INLAND WATERWAY FREIGHT VOLUMES (TOP 100) BY WEASTFLOWS ZONE
2012 Data, GDP Adjusted

Zone No.	Country / Area	Origin																																										Destination									
		38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76													
		Ger Düsseldorf	Ger Köln	Ger Dortmund	Ger Koblenz	Ger Saarbrücken	Ger Kassel	Ger Frankfurt	Ger Fulda	Ger Karlsruhe	Ger Freiburg	Ger Nuremberg	Ger Augsburg	Fra Cahal	Fra Amiens	Fra Le Havre	Fra Metz	Fra Strasbourg	Fra Ciel	Fra Rennes	Fra La Meuse	Fra Tour	Fra Dijon	Fra Reims	Mult North	Ger N Outside WF (E)	Ger S Outside WF (E)	Fra Outside WF	Mult Sweden	Mult Poland	Mult Ukraine	Mult Austria	Mult Greece	Mult Italy	Mult Spain	Mult Russia	Mult Asia/Pacific	Mult Middle East	Mult Americas														
1	Scot Dumfries	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00											
2	Scot Glasgow	0.00	0.00	0.00	220.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00											
3	Scot Edinburgh	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00											
4	Scot Perth	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00											
5	Scot Aberdeen	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00											
6	Scot Inverness	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00											
7	Scot Shetland	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00											
8	Eng Newcastle	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00											
9	Eng Liverpool	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00											
10	Eng Leeds	120.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00											
11	Eng Nottingham	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00											
12	Eng Birmingham	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00											
13	Eng Cambridge	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00											
14	Eng Colchester	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00											
15	Eng London	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00											
16	Eng Brighton	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00											
17	Eng Southampton	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00											
18	Eng Bristol	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00											
19	Wal Wrexham	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00											
20	Wal Cardiff	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00											
21	NI Belfast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00											
22	NI Londonderry	4.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00											
23	Ire Dublin	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00											
24	Ire Donegal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00											
25	Ire Athlone	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00											
26	Ire Galway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00											
27	Ire Limerick	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00											
28	Ire Waterford	0.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00											
29	Ire Cork	1.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00											
30	Neth Amsterdam	4692.50	265.50	1991.50	606.50	235.67	6.00	390.50	1764.50	126.50	167.00	1.00	267.00	99.50	5.00	100.50	27.00	468.67	873.50	14.00	14.00	1.00	0.50	4.50	4.																												

MARITIME VOLUMES
2011 (MILLION T.MT)

Table with columns: ORIGIN, DESTINATION, Zone No., Country, Place, and 37 destination codes (1-37). Rows list various ports and regions like Scot Duffinris, Scot Glasgow, Scot Edinburgh, etc., with numerical data for each destination.

*Internal flows are represented by a '-' that indicates zero displacements.

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