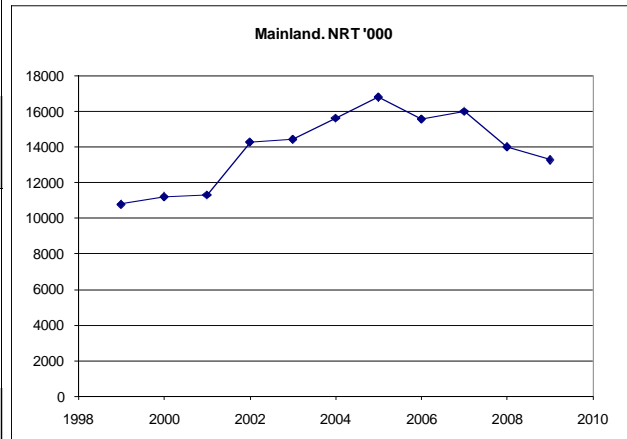
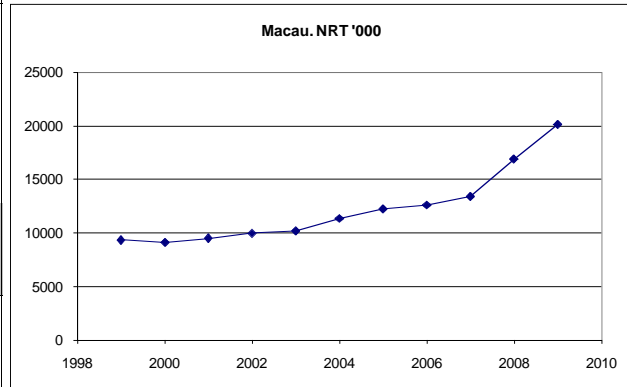


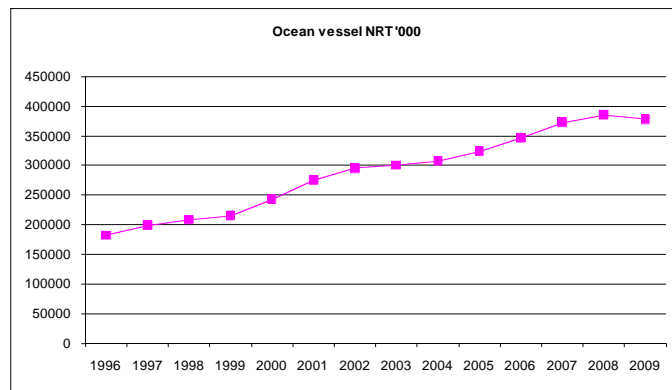
**Marine and Port Statistics : Vessel at cross-boundary ferry terminals**

	Year	Arrival		Departure		Total	
		No	NRT'000	No	NRT'000	No	NRT'000
<b>Total</b>	1999	68510	10076	68510	10075	137020	20151
	2000	68860	10182	68930	10194	137790	20376
	2001	70710	10411	70750	10417	141460	20828
	2002	72910	12133	72900	12133	145810	24266
	2003	72280	12326	72270	12326	144550	24652
	2004	81600	13471	81550	13497	163150	26968
	2005	84030	14519	84060	14525	168090	29044
	2006	84750	14058	85060	14112	169810	28170
	2007	89220	14696	89430	14733	178650	29429
	2008	90160	15464	90430	15484	180590	30948
	2009	90963	16690	91190	16733	182153	33423
<b>Projected</b>	2010	95186	17080	95455	17124	190642	34204
	2015	108296	20403	108708	20467	217004	40870
	2020	121407	23725	121960	23811	243367	47536
	2030	147627	30371	148465	30497	296092	60868
	2040	173848	37016	174969	37184	348817	74200
<b>Macau</b>	1999	42210	4674	42220	4674	84430	9348
	2000	42430	4575	42440	4576	84870	9151
	2001	43420	4759	43430	4761	86850	9520
	2002	44420	4991	44410	4990	88830	9981
	2003	43440	5115	43350	5101	86790	10216
	2004	46870	5664	47050	5696	93920	11360
	2005	47970	6096	48370	6163	96340	12259
	2006	48650	6262	49080	6340	97730	12602
	2007	51290	6663	51860	6758	103150	13421
	2008	57880	8425	58530	8503	116410	16928
	2009	61928	10052	62123	10088	124051	20140
<b>Projected</b>	2010	58973	8926	59543	9015	118516	17942
	2015	67927	11269	68795	11403	136722	22672
	2020	76881	13611	78046	13791	154927	27401
	2030	94789	18295	96548	18566	191337	36861
	2040	112697	22979	115050	23342	227748	46321
<b>Mainland (all)</b>	1999	26300	5402	26290	5401	52590	10803
	2000	26430	5607	26490	5618	52920	11225
	2001	27290	5652	27320	5656	54610	11308
	2002	28490	7142	28490	7143	56980	14285
	2003	28840	7211	28920	7225	57760	14436
	2004	34730	7807	34500	7801	69230	15608
	2005	36060	8423	35690	8362	71750	16785
	2006	36100	7796	35980	7772	72080	15568
	2007	37930	8033	37570	7975	75500	16008
	2008	32280	7039	31900	6981	64180	14020
	2009	29035	6638	29067	6645	58102	13283
<b>Projected</b>	2010	36213	8154	35912	8108	72125	16262
	2015	40369	9134	39913	9064	80283	18199
	2020	44526	10115	43914	10020	88440	20135
	2030	52838	12076	51917	11931	104754	24007
	2040	61150	14037	59919	13842	121069	27879

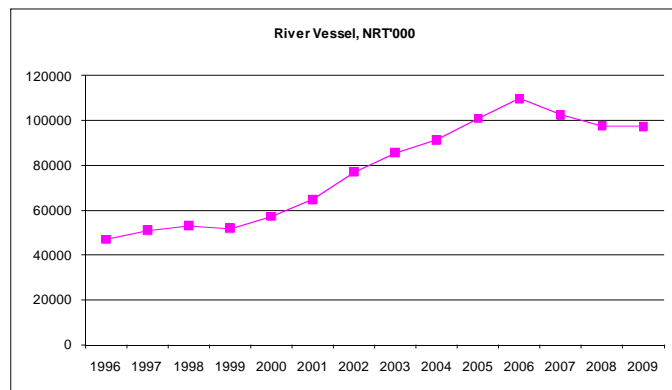


**Marine and Port Statistics : Vessel Arrivals by ocean/river**

Year	Ocean vessel	
	No	NRT'000
1996	41760	182367
1997	44480	199222
1998	41690	208577
1999	37580	215404
2000	37680	243256
2001	37350	275211
2002	35620	295285
2003	35790	300514
2004	35900	307713
2005	39140	323863
2006	39020	346645
2007	37150	372488
2008	35850	385426
2009	33160	377791
2010	34149	411561
2015	31573	493851
2020	28997	576142
2030	23846	740722
2040	18694	905303



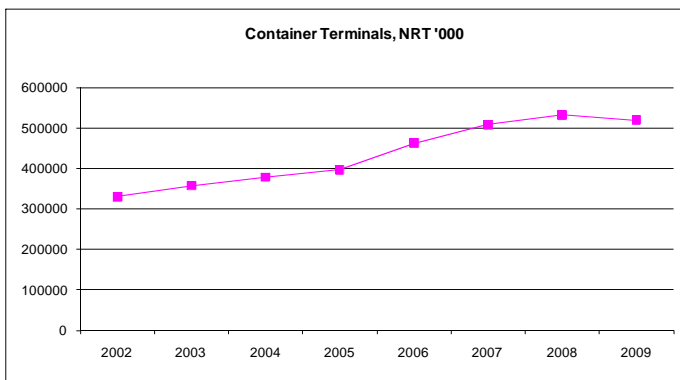
Year	River vessel	
	No	NRT'000
1996	177460	47077
1997	188980	51081
1998	189610	53117
1999	175270	51851
2000	178980	57350
2001	177390	64816
2002	182870	77130
2003	182270	85710
2004	189530	91318
2005	192680	100840
2006	191940	109757
2007	188840	102433
2008	181510	97638
2009	172350	97284
2010	184628	115906
2015	185347	141395
2020	186067	166885
2030	187506	217864
2040	188945	268842



**Marine and Port Statistics : Ocean Vessel at Container Terminals and anchorage**

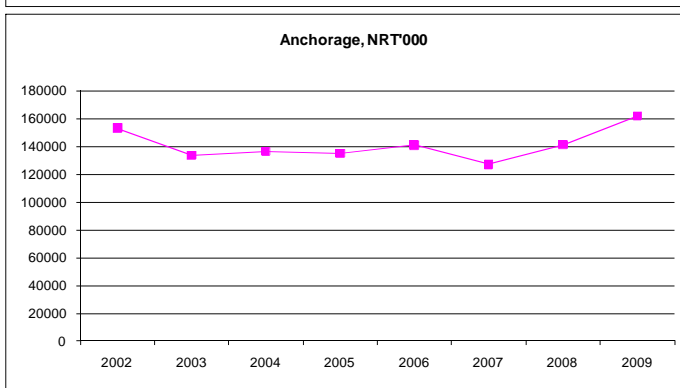
**(A) Container terminal**

Year	Arrival		Departure		Total	
	No	NRT'000	No	NRT'000	No	NRT'000
2002	9710	163420	9650	166372	19360	329792
2003	9790	176407	9930	180627	19720	357034
2004	9630	184855	10470	193866	20100	378721
2005	10290	192396	11020	203835	21310	396231
2006	12150	224312	12810	237454	24960	461766
2007	13340	249792	13550	257763	26890	507555
2008	13360	261810	13500	269588	26860	531398
2009	12135	257512	12204	261449	24339	518961
2010	13862	284119	14147	292922	28009	577042
2015	16708	362238	16930	372425	33638	734663
2020	19554	440356	19713	451929	39267	892284
2030	25247	596592	25280	610935	50526	1207527
2040	30939	752829	30846	769941	61785	1522770



**(B) Anchorage**

Year	Arrival		Departure		Total	
	No	NRT'000	No	NRT'000	No	NRT'000
2002	13810	80649	14640	72848	28450	153497
2003	13490	72138	14300	61690	27790	133828
2004	14440	71455	15320	65019	29760	136474
2005	17340	70245	17190	65000	34530	135245
2006	17550	73028	18280	68205	35830	141233
2007	14100	67031	13000	60372	27100	127403
2008	14600	74536	14480	66760	29080	141296
2009	14508	83539	14405	78559	28913	162098
2010	15495	75242	14848	70231	30343	145473
2015	16068	76535	14454	73481	30522	150016
2020	16641	77829	14060	76730	30701	154559
2030	17787	80416	13273	83229	31060	163645
2040	18933	83003	12485	89728	31418	172731



**Proportion of emission from cargo terminal**

	SO2	Nox	PM	VOC	Remark
Ratio of cargo to total marine emission	8.28%	12.09%	47.00%	96.06%	Based on 2003 emission inventory data provided by EPD

**Year 2010 emission inventory (all in tonnes)**

	SO2	Nox	PM	VOC	Remark
Cargo terminal	367.3358	2292.09	266.9806	331.4231	Calculated based on the ratio, as area source in Tsing Yi
海事活動 (total)	4438.0	18957.0	568.0	345.0	Data from Mid-term Review Report, see below for source apportionment

Categories	SO2	Nox	PM	VOC	CO
Ocean Going	79.2%	40.7%	67.2%	48.0%	26.3%
PRD Ferry	1.4%	4.5%	1.5%	3.5%	1.9%
Macau Ferry	5.6%	14.0%	5.5%	7.5%	4.0%
River Trade Container	3.3%	7.1%	3.9%	5.5%	7.6%
Other River Trade Ship	1.9%	4.4%	3.0%	3.9%	4.2%
Local Shipping	8.6%	29.3%	18.9%	31.6%	56.0%
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

**Breakdown of marine vessel emission inventory for Year 2010 (all in tonnes calculated based on the ratio above)**

Categories	SO2	Nox	PM	VOC
Ocean Going	3514.9	7715.5	381.7	165.6
PRD Ferry	62.1	853.1	8.5	12.1
Macau Ferry	248.5	2654.0	31.2	25.9
River Trade Container	146.5	1345.9	22.2	19.0
Other River Trade Ship	84.3	834.1	17.0	13.5
Local Shipping	381.7	5554.4	107.4	109.0
<b>Total</b>	<b>4438.0</b>	<b>18957.0</b>	<b>568.0</b>	<b>345.0</b>

**Projected NRT '000 for various types of vessels**

	2010	2015	2020	2030	2040
Cargo terminal	577042	734663	892284	1207527	1522770
River Vessel	115906	141395	166885	217864	268842
international ferry (PRD)	16262	18199	20135	24007	27879
international ferry (Macau)	17942	22672	27401	36861	46321
Local Shipping	-	-	-	-	-
Ocean going vessel	411561	493851	576142	740722	905303

**Growth factor relative to 2010**

	2010	2015	2020	2030	2040
Cargo terminal	1.0	1.3	1.5	2.1	2.6
River Vessel	1.0	1.2	1.4	1.9	2.3
international ferry (PRD)	1.0	1.1	1.2	1.5	1.7
international ferry (Macau)	1.0	1.3	1.5	2.1	2.6
Local Shipping	1.0	1.0	1.0	1.0	1.0
Ocean going vessel	1.0	1.2	1.4	1.8	2.2

**Emission projection for Year 2015 (all in tonnes)**

	SO2	NOx	PM	VOC
Cargo terminal	468	2918	340	422
Ocean Going	4218	9258	458	199
PRD Ferry	70	955	10	14
Macau Ferry	278	2970	35	29
River Trade Container	179	1642	27	23
Other River Trade Ship	103	1018	21	16
Local Shipping	382	5554	107	109
<b>TOTAL</b>	<b>5696</b>	<b>24315</b>	<b>998</b>	<b>812</b>

**Emission projection for Year 2020 (all in tonnes)**

	SO2	NOx	PM	VOC
Cargo terminal	568	3544	413	512
Ocean Going	4920	10801	534	232
PRD Ferry	77	1056	11	15
Macau Ferry	308	3286	39	32
River Trade Container	211	1938	32	27
Other River Trade Ship	121	1201	25	19
Local Shipping	382	5554	107	109
<b>TOTAL</b>	<b>6587</b>	<b>27381</b>	<b>1160</b>	<b>947</b>

**Emission projection for Year 2030 (all in tonnes)**

	SO2	NOx	PM	VOC
Cargo terminal	769	4796	559	694
Ocean Going	6326	13886	687	298
PRD Ferry	92	1259	13	18
Macau Ferry	511	5453	64	53
River Trade Container	275	2530	42	36
Other River Trade Ship	158	1568	32	25
Local Shipping	382	5554	107	109
<b>TOTAL</b>	<b>8513</b>	<b>35047</b>	<b>1503</b>	<b>1233</b>

**Marine Emission Inventory (Year 2030)**

	Total Emission (Including CT10)				Emission for CT10			
	SO2	NOx	PM	VOC	SO2	NOx	PM	VOC
Cargo terminal (AQO Review)	769	4796	559	694	-	-	-	-
Cargo terminal (Adjusted based on the latest information from cargo terminal companies) <sup>(1)</sup>	293	1827	213	264	59	365	43	53
River Trade Container	275	2530	42	36	-	-	-	-
Other River Trade Ship	158	1568	32	25	-	-	-	-
PRD Ferry	92	1259	13	18	-	-	-	-
Macau Ferry	511	5453	64	53	-	-	-	-
Local Shipping (HK Harbour)	76	1111	21	22	-	-	-	-
Local Shipping (HK Water)	305	4444	86	87	-	-	-	-
Ocean Going (Cruise)	3163	6943	343	149	-	-	-	-
Ocean Going (Maneuvering)	633	1389	69	30	-	-	-	-
Ocean Going (Anchorage)	2530	5554	275	119	16	36	2	1
<b>Total</b>	<b>8037</b>	<b>32078</b>	<b>1158</b>	<b>803</b>	<b>75</b>	<b>401</b>	<b>44</b>	<b>54</b>

Note:

(1) With reference to the press releases from Modern Terminals, it is expected to reduce the fuel consumption per each converted RTGC by nearly 40% after 2009. For the Hongkong International Terminals (HIT), HIT has a plan to convert 70% of RTGC to electric RTGC by 2010. Apportionment of emission based on the ratio of the area for these two companies.

**Marine emission distribution & spatial surrogate**

	SO2	NOx	PM	VOC	File	ACST	Counties	SSC
Cargo terminal	234	1462	170	211	area_marine.pn	2279001000	26	45
River Trade Container	275	2530	42	36	area_marine.pn	2283004000	21	38
Other River Trade Ship	158	1568	32	25	area_total.pn	2284000000	21	43
PRD Ferry	92	1259	13	18	area_total.pn	2279003000	21	39
Macau Ferry	511	5453	64	53	area_total.pn	2279003001	21	40
Local Shipping (HK Harbour)	76	1111	21	22	area_total.pn	2280003000	20	30
Local Shipping (HK Water)	305	4444	86	87	area_total.pn	2280003000	21	43
Ocean Going (Cruise)	3163	6943	343	149	area_marine.pn	2280003010	21	38
Ocean Going (Maneuvering)	633	1389	69	30	area_marine.pn	2280003020	21	46
Ocean Going (Anchorage)	2514	5519	273	118	area_marine.pn	2279001000	21	44
CT10 Cargo terminal	59	365	43	53	area_marine.pn	2279001000	32	53
CT10 Anchorage	16	36	2	1	area_marine.pn	2279001000	31	52