

Benchmark of Environmental Reports and Environmental Management of German Airports – Comparison to some European Airports

Bachelor Thesis Susan Richter and Sveva Neulen

Adapted version for the

G.A.R.S. – Workshop 28th November 2007

by Hansjochen Ehmer



Agenda



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1. Introduction
2. Benchmarking & Communication
3. Benchmarking Findings
 - Environmental Reports
 - Environmental Management
 - Noise
 - Emissions
 - Waste, Water, Energy
 - Mediation / personal communication
4. Conclusion

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Introduction



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- **Base:** 21 German airports
 - Analysis concerning European airports is nearly ready
- **Measurement:** Environmental reports, environmental management, service, noise, emissions, energy, waste, water
- **Goal:** Best practices, leading airports, suggestion for improvement
- **Sources:** Only public available data considered
 - An analysis of non-published data will follow
 - Cooperation with ADV is prepared
- **Reason:** So far no comparison of environmental behavior of German airports
- **Limitation:** Snapshot of current situation
 - A more dynamic analysis could be the next step

20 European Airports as a benchmark



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Benchmarking & Communication



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- Difference in **benchmarking** and comparative study is that benchmark does not only reveal industry best practices, but obtains a **clear understanding of how they are used**
- Different **communication measures** are used
 - within environmental reports
 - personal & non-personal communication
- **Qualitative** criteria system due to airport peculiarities and fairness (monetary reasons, limited comparability)
- **Limitation:** No dangerous goods, ground management and inherited burdens considered
- German international airports and FDH, LBC, PAD

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Criteria



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- 37 main criteria, partially according to IÖW “Ranking Environmental Reports” 2000
- 80 sub-criteria altogether
- For each of these criteria 0, 1, 3, or 5 points could be reached, together with a weight factor
- Example:

Minimum noise routings

- 5: The airport developed minimum noise routings and encourages the use of them frequently during day and night
- 3: Minimum noise routings were developed, but are not frequently used
- 1: Minimum noise routings developed, but aren't used
- 0: No existence of minimum noise routings

Airport	Environment. Report	Environment. Management	Service	Noise	Emission	Energy	Waste	Water	Total Points	Pos.	
FRA	452	143	22.5	275	95	7.5	13.3	95	1108	1	
HAM	354	110	20	245	60	15	45.8	87.5	542	2	
MUC	323	95	11.3	95	90	12.5	22.5	75	727	3	
HAJ	348	80	10	100	45	7.5	25	70	688	4	
BER	296	50	7.5	140	0	57.5	8.33	57.5	619	5	
FDH	231	65	7.5	70	30	7.5	18.3	15	446	6	
FMO	176	35	16.3	60	45	0	0	70	404	7	
NUE	0	45	25	130	80	0	34.2	65	382	8	
DRS	0	25	1.25	135	0	0	5	70	237	9	
DTM	0	18.3	7.5	80	25	0	5	50	187	10	
LEJ	0	15	5	55	0	7.5	0	50	133	11	
DUS	0	25	16.3	50	0	0	16.7	20	129	12	
CGN	0	15	16.3	80	0	0	0	0	112	13	
BRE	0	7.5	12.5	15	0	0	0	12.5	48	14	
LBC	0	0	7.5	0	25	0	0	0	33	15	
STR	0	0	1.25	30	0	0	0	0	31	16	
ERF	0	0	13.8	15	0	0	0	0	29	17	
SCN	0	7.5	5	0	0	0	0	0	13	18	
GARS PAD	Cologne 28-11-07	H. Ehmer	0	7.5	0	0	0	0	0	10	19

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Benchmarking Findings - Germany



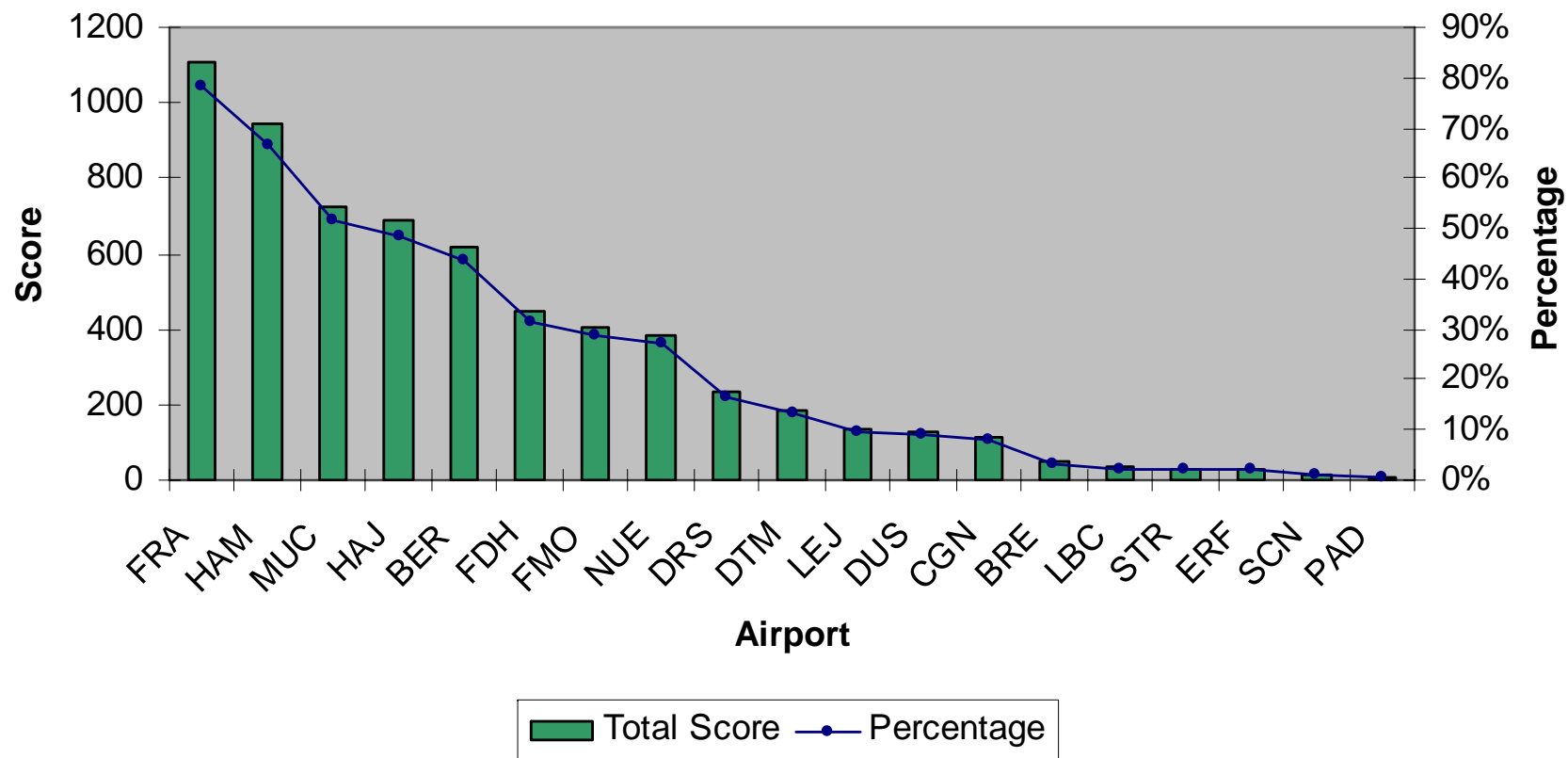
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Benchmark Findings - Total Score



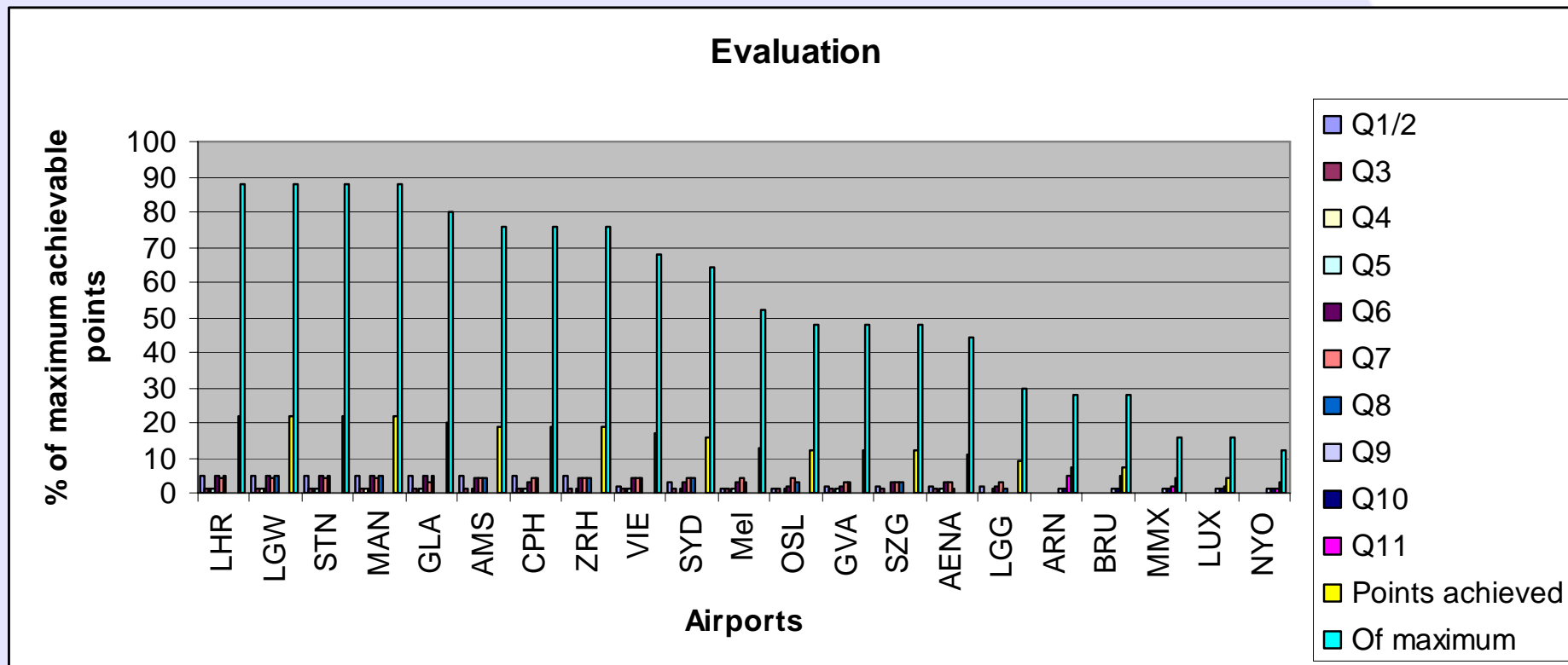
Benchmarking Findings - Europe



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Benchmarking Findings



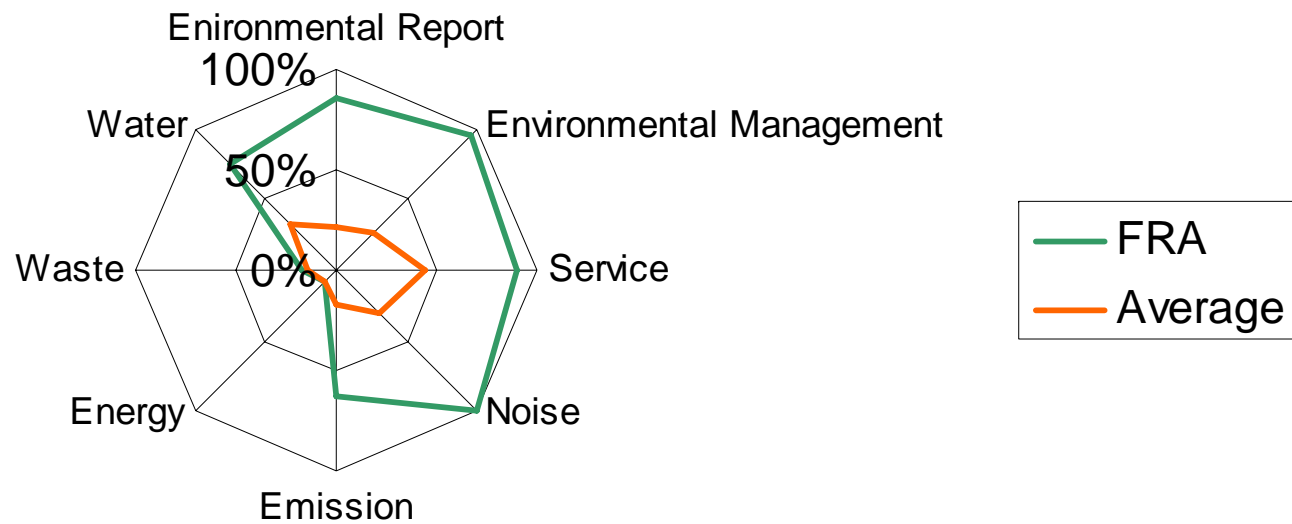
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Benchmarking Outcome - FRA



Benchmarking Findings



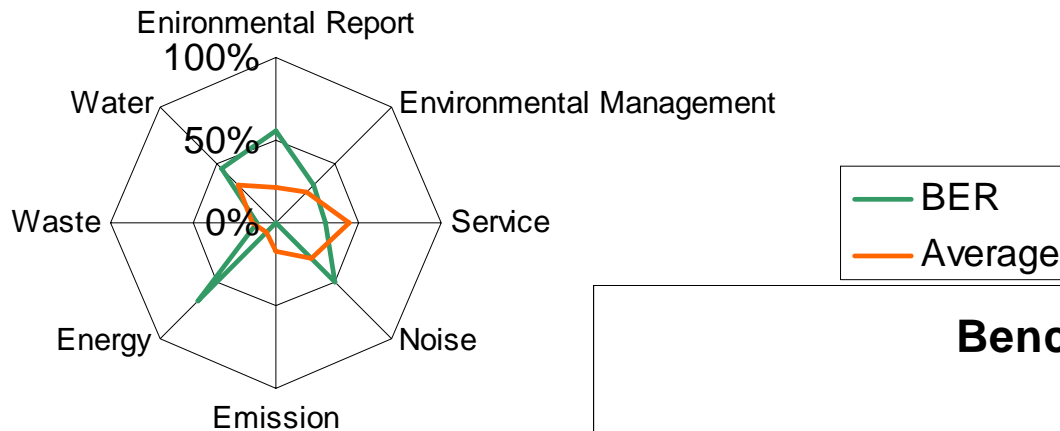
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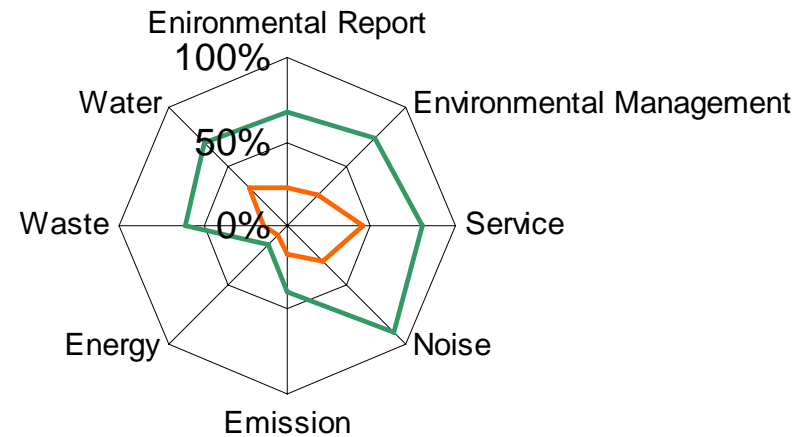
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Benchmarking Outcome - BER



Benchmarking Outcome - HAM



Benchmarking Findings



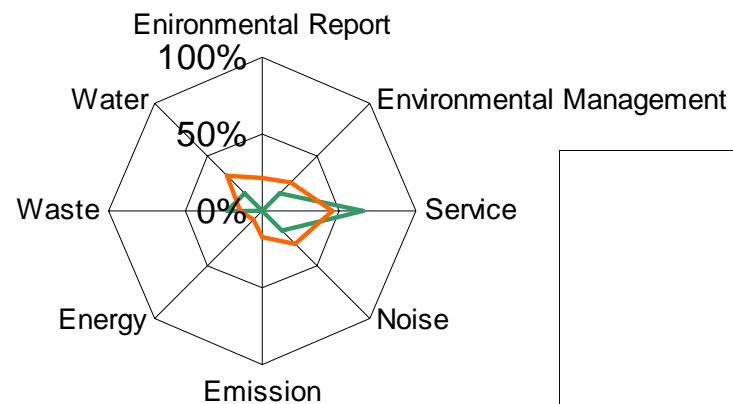
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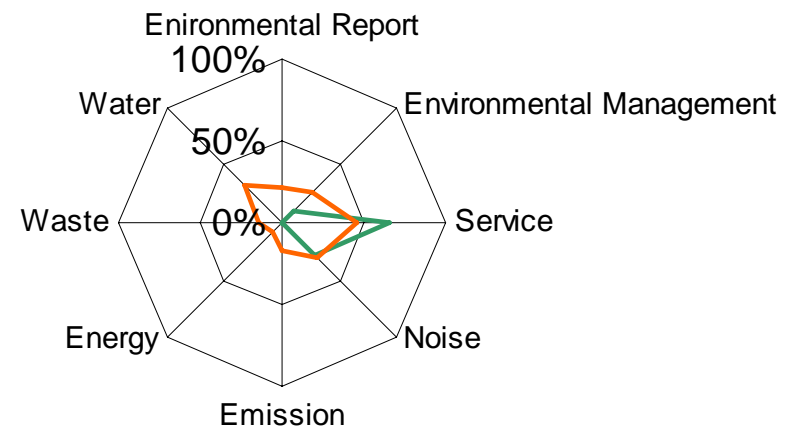
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Benchmarking Outcome - DUS



Benchmarking Outcome - CGN



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Environmental Reports



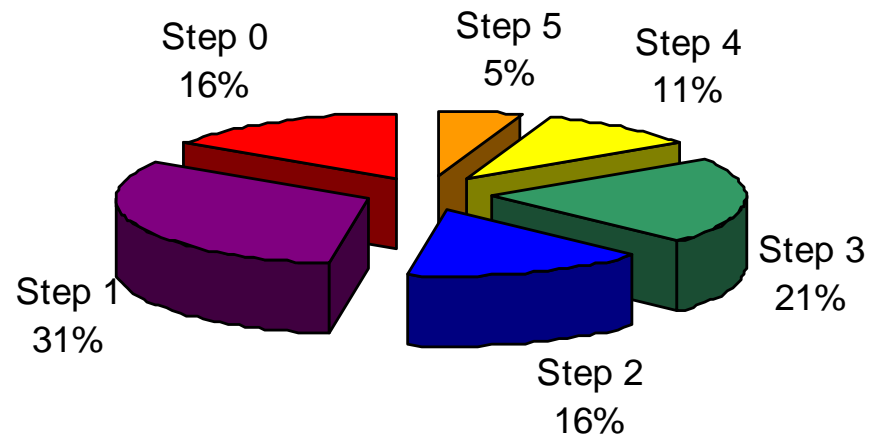
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Environmental Publication of Benchmarked Airports



Step 0: no environmental information (3)

Step 1: short environmental information (6)

Step 2: ecological brochures, statement of company, examples (3)

Step 3: environmental report (4)

Step 4: different media (reports, brochures, internet) (2)

Step 5: sustainability report (1)

Environmental Reports



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- No information SCN, PAD, STR
- FRA published sustainability report
 - More long run criteria
 - Including external benefits
 - Including economic + social sustainability
- 7 airports published environmental reports, only FMO not validated and certified
- FRA most innovative and informative
- Findings backed up by awards given to FRA
- HAM best improvement of environmental reports over time

Environmental Reports



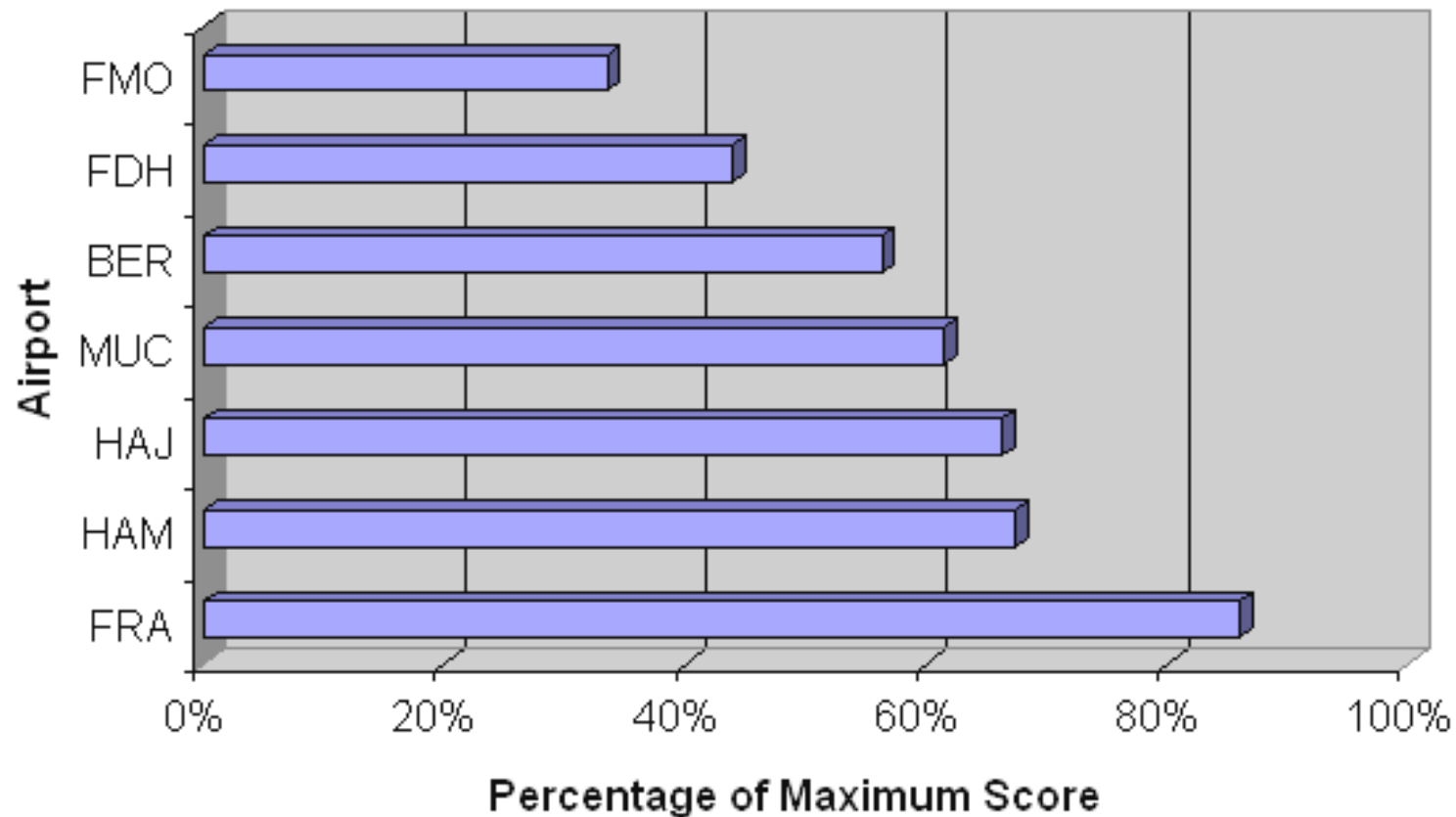
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Benchmark Findings - Environmental Reports



Environmental Reports – Europe



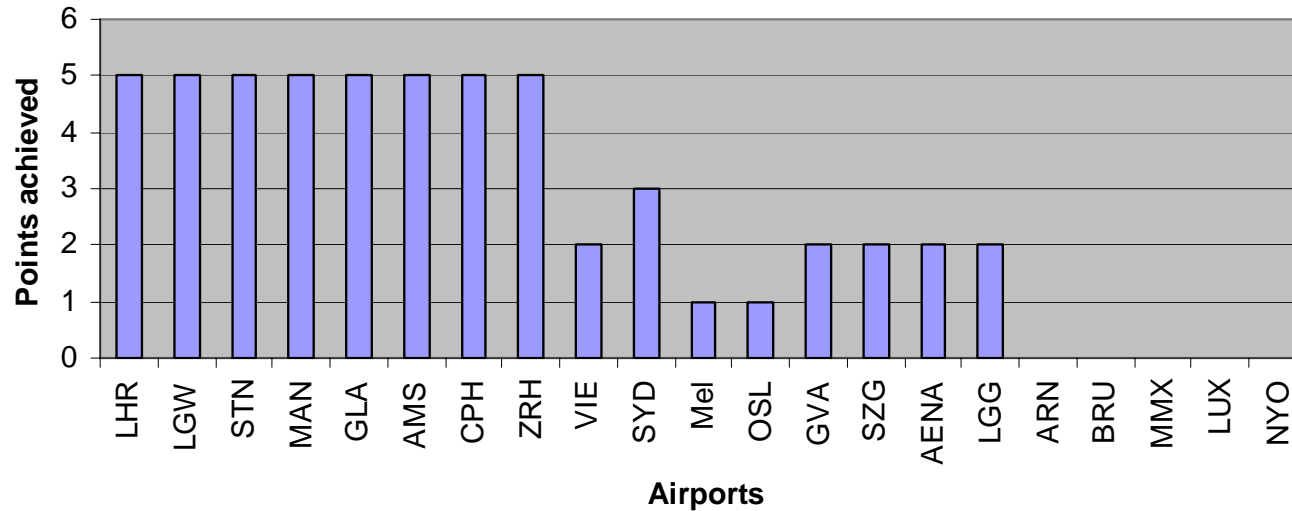
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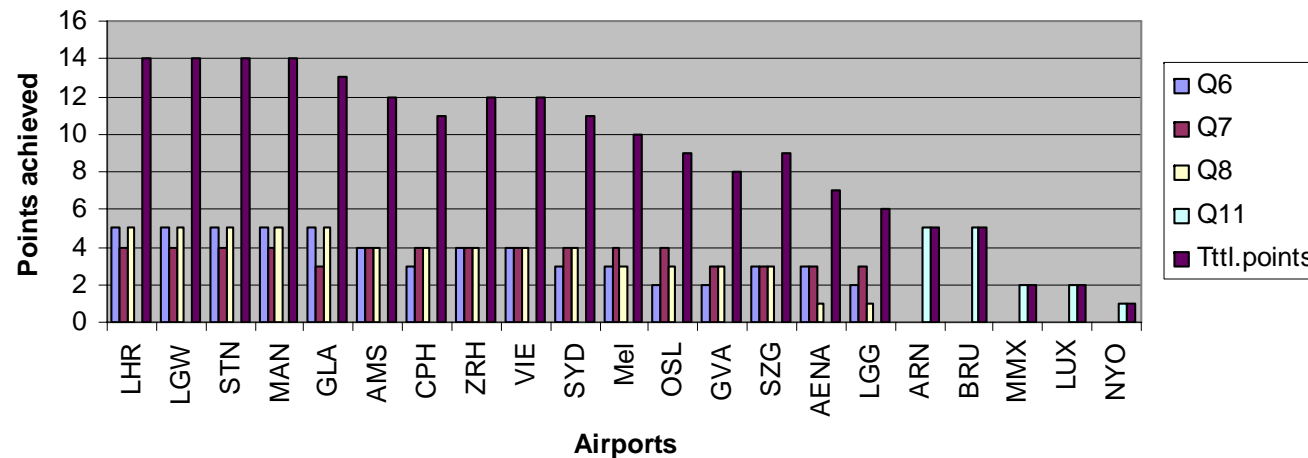
Environmental Report availability



Complete over 5 years
Over 5 years
actual report available

Several reports
no report

Questions 6-8 & 11



Attractiveness;
understandability;
completeness of the
report; amount of other
information



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Environmental Management



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- FRA precursor and most innovative (setting of German-wide standards / applied to national law)
- FRA sponsorship program
- HAM, FRA connection of social and environmental aspects (schools, educate public)
- HAM first one to be validated and certified
- FDH first and only regional airport to be validated and certified
- NUE leading in service (environmental department, complaint management system, free parking etc.)
- DTM – input / output analysis

Environmental Management



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Airport	Environmental Management	%	Ranking
FRA	143	95%	1
HAM	110	73%	2
HAJ	95	63%	3
MUC	80	53%	4
FDH	65	43%	5
BER	50	33%	6
NUE	45	30%	7
FMO	35	23%	8
DRS	25	17%	9
DUS	25	17%	10
DTM	18.3	12%	11
LEJ	15	10%	12
CGN	15	10%	13
BRE	7.5	5%	14
SCN	7.5	5%	15
LBC	0	0%	16
STR	0	0%	17
ERF	0	0%	18
PAD	0	0%	19

Max. 150 points

Airport	Service	%	Ranking
NUE	25	100%	1
FRA	22.5	90%	2
HAM	20	80%	3
FMO	16.3	65%	4
DUS	16.3	65%	5
CGN	16.3	65%	6
ERF	13.8	55%	7
BRE	12.5	50%	8
MUC	11.3	45%	9
HAJ	10	40%	10
BER	7.5	30%	11
FDH	7.5	30%	12
DTM	7.5	30%	13
LBC	7.5	30%	14
PAD	7.5	30%	15
LEJ	5	20%	16
SCN	5	20%	17
DRS	1.25	5%	18
STR	1.25	5%	19

max.25 points

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Noise



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- FRA score of 100 per cent, but still able to develop further and improve
- CGN fines airlines for leaving assigned flight routes
- Introduction of noise navigation system CGN
- NUE – brochure for VFR pilots to avoid populated areas
- FRA, HAM, TXL use actual measures noise values for noise surcharges
- FRA first airport worldwide to have introduced actual noise surcharges based on real values
- HAM prohibiting auxiliary power units, introduced noise protection hangar
- FRA, LEJ free hotlines
- NUE – counseling for people in surrounding area that do not qualify for noise abatement measures

Noise



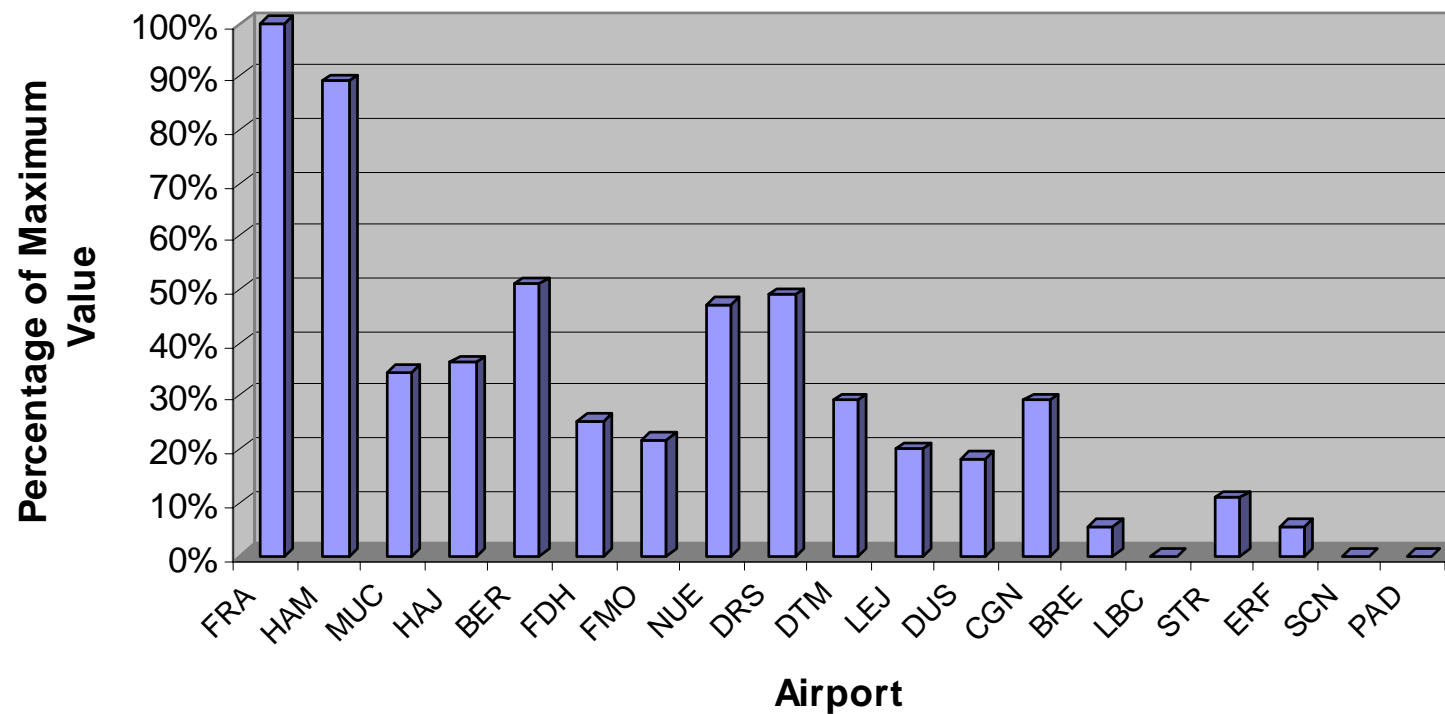
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Benchmark Findings - Noise



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Emissions - Germany



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- NUE – “To work by bike”
- MUC, FRA support a car sharing of employees
- Most airport vehicles of MUC environmentally friendly
- Biomonitoring conducted by HAJ, LBC, NUE and MUC*
- “Atmosfair” supported and promoted by HAJ
- MUC considering emission related landing surcharges

* According to publications – CGN has it too

Emissions – Europe



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- **Airport**
 - Vienna
 - Salzburg
 - Copenhagen
 - Amsterdam Schiphol
 - Oslo Gardermoen
 - AENA
 - Stockholm Arlanda
 - Geneva
 - Zurich
 - London Heathrow
 - London Stansted
 - London Gatwick
 - Glasgow
 - Manchester
 - X by Brussels, Liège, Luxembourg, Malmö, Stockholm Skavsta,
- Emission management**
- Total no of emissions, emissions about ground handling machines
- Detailed about emissions, how much is produced by aviation
- „NO direct correlation between air quality and flights“
- Quieter airplanes - more NO emissions
- Complicated section about gases, monitored results emissions reported Menorca, Burgos, Huesca-Pirineo
- Biogas buses
- NO₂, SO₂, O₂ measured
- assisted ICAO on measuring emissions at airports
- New terminal, reduction of carbon dioxide
- Case study emissions 2010
- Air Quality action plan
- 10% decrease in CO₂ while passenger numbers rose
- Most detailed

Emissions



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LEJ	0	0%	12
DUS	0	0%	13
CGN	0	0%	14
BRE	0	0%	15
STR	0	0%	16
ERF	0	0%	17
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Waste, Water, Energy



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- MUC de-icing filter, re-use of de-icing substance
- FRA 287 water measuring stations
- Introduction of washable hand towels, recyclable hygienic paper and re-usable cleaning rags at HAJ (highest recycling rate of 97 %)
- HAM, MUC charge lessees by weight of produced waste
- Waste brochure published by NUE
- MUC largest photovoltaic system at passenger airport worldwide
- Computer based energy management system MUC

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Mediation / personal communication



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- **To increase neighbors contentment and avoid costly court decisions, mediation is the way to go**
- Not every airport examined in both thesis are reporting about mediation / personal communication
- Big differences about airports' willingness to respond and its quality
- The following airports did:
 - Düsseldorf first introduced a "Bürgerbüro"
 - Vienna: 50 parties have made up a mediation group
 - Salzburg: An ombudsman taking care of neighbors concerns
 - Brussels: Regular meetings with the municipalities of neighboring towns (as all German airports do!)
 - Amsterdam: Schiphol Regional consultant committee (CROS) has been set up
 - London Heathrow + Stansted: A consultation committee meets 4 times yearly
 - London Gatwick: has a consultative committee named GATCOM

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Next steps

- Harmonize both investigations
- Sensitivity analysis to show how different weightings can change the order
 - but it does not change the deficits
- Special comparison between GB and D
- Contact the German airports about differences between communicated and all measures



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Conclusion

- Large gaps amongst German airports concerning environmental reporting and environmental management aspects
- Big differences between the countries
British airports top; Swedish airports flop
- No airport with all best practices
- Even non certified airports can be quite positive
- Best for airports to apply mixture of best practices and get validated and certified if they are not already
- Individual improvement suggestions should be considered (already applied by NUE)



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Thank you for your attention



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Proposals for improvements?

Time for Questions

Further contact: h.ehmer@fh-bad-honnef.de