DELHI INDIRA GANDHI INTERNATIONAL AIRPORT

Delhi International Airport Limited
(Formerly known as Delhi International Airport (P) Limited)

GMR

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Letter No.: DIAL/2020-21/Regulatory/326
Date: 21st August 2020

To,

The Director,
Policy & Statistics
Airports Economic Regulatory Authority of India
AERA Building, Administrative Complex
Safdarjung Airport
New Delhi – 110003

Subject : Response to stakeholder comments
Reference : Stakeholder comments in response to consultation paper no 15/2020-21 vide public notice no. 12 dtd. 7th Aug'2020

Dear Sir,

This is with reference to the stakeholder comment in response to the consultation paper no 15/2020-21 dtd 9th Jun'2020, Please find below the list of DIAL's comments to the stakeholder responses:

Stakeholder	Reference	DIAL response
IATA	Letter dtd. 31st July'2020	Please find attached detailed response as Annexure-1
AOC	Letter no. AOC/DEL/AERA/2020/1014-(R) dtd. 30th July'2020	Please find attached detailed response as Annexure-2
BAoA	Email dtd. 22nd July'2020	Please find attached detailed response as Annexure-3
ACI	Letter dtd. 5th August'2020	We have gone through the responses and we have no further comments on these responses.
APAO	Email dtd. 31st July'2020	
MIAL	MIAL/VPR/2020-21/06 dtd. 31st July'2020	
ASSOCHAM	-	
PHDCCI	Communication dtd. 31st July'2020	
FICCI	-	

Thanking You,

Yours Sincerely,
For Delhi International Airport Ltd.

NARAYANA RAO KADA

Digitally signed by NARAYANA RAO KADA
DN: c=IN, o=Personal, postalCode=110070, st=Delhi, 2.5.4.20=a2e918eab37778f14cfd7522d392ec18978281dabf52a842eb187736754d3867, serialNumber=1d111a9b85fa931ac57bff9bb2f110c25db133b0d1c3ec8b68035fb5c131a3c1, cn=NARAYANA RAO KADA
Date: 2020.08.21 18:15:28 +05'30'

K Narayana Rao
Director

Annexure-1

At the outset we would to like state that submissions of IATA are highly lopsided to serve the self-interest of Airlines, while airport is an asset of national importance serving overall public interest. However, please see below para-wise response to IATA comments:

A. Response to COVID 19 proposal by IATA – Phase 3A & AUCC

In its response, IATA has proposed to delay the tariff determination process by at least one year. In this regard it is stated that the Delhi Airport operates in a regulated environment as far as the aeronautical charges are concerned, which are subject to review by regulator on periodic basis. As regards to such regulated charges the airport margin are regulated and very thin. The delay in the determination of correct tariff would be detrimental to DIAL as there is no scope for the airport operator to compensate the losses incurred. Accordingly, any delay in tariff determination is not called for in case of a regulated entity. Further, such delays will bring in more uncertainty in the airport business which will have wide spread impact on DIAL including the funding of Phase 3 A capex. However, considering the uncertainty we are in today we agree that the tariff once decided may be reviewed by the regulator within a control period if there is a substantial change in the assumptions considered at present.

As regards to the suggestion of postponing the capex and a complete freeze on the capital expenditure suggested by IATA, it may be perused that in accordance with the concession agreement, DIAL has to ready the airport well in advance for all expected traffic triggers. In this regard DIAL before COVID crisis had submitted phase 3A plans to the relevant authority in accordance with OMDA and initiated project phase post obtaining required approvals. Accordingly, DIAL has in February 2019 awarded phase 3A Development works to the EPC contractor on lump sum contract basis through an international competitive bidding process and after intense price negotiations and the Phase 3A Development Works are currently ongoing.

Further, as per the traffic estimates, DIAL expects to achieve pre-COVID traffic levels in FY'23, by then, there will be a need of additional terminal space and airside capacity. Accordingly the phase 3A capex plan will complement the need of additional space and will fulfill the future need of various stakeholders.

Since the construction works are ongoing and the project is expected to meet the estimated traffic demand of IGI Airport, delaying the project will lead to additional cost/claims which will not be in the interest of any of the stakeholder. However, the detailed response is presented below in the relevant portions. In this regard we have following submission:

1. **Background:** Major Development Plan known as Phase 3A Expansion program has been conceptualized, prepared with the help of M/s AECOM and NACO, the world renowned Airport design consultants, considering present inadequate infrastructure at and around Terminal 1, the operational needs of domestic airlines operating therefrom, the standards of development and quality parameters subjected to DIAL under OMDA, increasing passenger

numbers and their needs & expectations form the airport, the environment conservation measures from the airport operations. Such Master Plan was finalized after conducting complete stakeholders consultation and which fact is not in question.

Once the preliminary development designs were ready, DIAL started the process of engaging with all stakeholders including IATA, AOC, BAoA, Airlines, and other stakeholders such as MoCA, DGCA, AAI, BCAS, CISF etc. DIAL has already submitted to the Authority evidence of the entire stakeholder consultation.

The main objectives of such engagement with all these stakeholders were:

a. Explain the complete Phase 3A development requirement and its scope, and

b. Obtain and resolve the comments received from the stakeholders

DIAL, through it's senior officials from the Project department, including Chief Development Officer, prepared a detailed presentation along with all the necessary technical details and presented the same to the stakeholders. All the meetings were interactive wherein details w.r.t comments given by the persons attended have been captured and to the extent, minutes of meeting were also prepared. In addition to this, many stakeholders have furhter communicated to DIAL with their observations, which were collected, adequately addressed and responded to appropriately.

Adequate time and opportunity were provided to all stakeholders to bring forth their inputs and feedback, prior to consolidation of all comments and inputs, well before the bidding process for Phase 3A Works was initiated. DIAL, with the extensive engagement of all stakeholders, received their comments and appropriately incorporated their inputs.

The Authority has deployed their techno-commercial experts, M/s KITCO as their consultant for review of the complete Phase 3A capital expenditure program including the Major Development Plan. KITCO, through their numerous visits to IGI Airport and meetings with DIAL, examined threadbare all the aspects, assumptions, technical specifications, cost details, timeline etc. and accordingly conveyed their recommendation to AERA. DIAL understands from AERA that other than certain cost reductions, which in the opinion of DIAL is incorrect, KITCO provided full acceptance of the complete Phase 3A plan. The report of M/s KITCO annexed to the consultation paper may be referred in this regard.

2. <u>Cost discovery through bidding process:</u>

DIAL had undertaken an ICB (International Competitive Bidding) process for undertaking the phase 3A works on Engineering, Construction and Procurement ("EPC") basis on the lump-sum quoted price and pre-qualified four very reputed international construction leaders competing for this prestigious job.

DIAL in order to create a common understanding had shared an estimated BOQ prepared by DIAL consultant M/s AECOM with all the bidders for their reference and the technical and financial

evaluation of the bidders. The meetings were conducted with all bidders to fully apprise them about the project, operational requirements and DIAL's expectations.

DIAL has as part of the bid documents for the EPC contract have clarified and informed the impediments of the project to the international bidders. However, the bidders being experienced in construction of such complex airports, their evaluation of the risks and accordingly cost involved may be varied/different from our consideration.

The actual cost arrived for phase 3A works is a result of price discovery through a transparent international competitive bid process and thus has its sanctity to be maintained by all. The cost arrived is based on facts and does not necessarily match exactly with the estimation of DIAL and KITCO, as the costs associated to the risks perceived by each party is different. Therefore, it is absolutely clear that DIAL has taken all precautions and measures to ensure very open bidding process against clearly established tender documents, including Major Development Plan.

3. Response to IATA's specific issues- Capital Expenditure (CAPEX) – Chapter 4

Para 1:

It is of utmost surprise that IATA is relating the "Major Development Plan" of Phase 3A with Covid-19 situation prevailing in the country. IATA is fully aware of and were party towards finalization of Phase 3A Major Development Plan during the conceptualization and consultation stage of the project in the year 2017. Covid-19 is a very recent development, therefore provision of future pandemic in project development will be, in the opinion of DIAL, totally inappropriate and misplaced. Such idea of having a pandemic and thereby shelving projects will be against national interest, overall prosperity and progress of the country and its common citizens.

We would like to highlight that in terms of the OMDA, DIAL has to plan for adequate capacities based on the traffic triggers. In its projection of the traffic even in the post COVID scenario where the traffic would be reaching 74 mppa in the FY 2023-24, DIAL would have to be prepared before such trigger. Under such circumstances, all of us would be caught on the wrong footing if the project is not commissioned before such trigger.

Para 2:

IATA's recommendation of immediate freeze of Phase 3A capital investments due to Covid-19 is totally misplaced and does not consider: (A) the feasibility of such proposal for an ongoing project; (B) the cost implications of demobilization and mobilization of the works; (C) the claims of EPC contractor and other stakeholders; (D) the inconvenience and safety/ risk and other hazards, which the freeze of works may pose to the airport operations and the other stakeholders; and (E) the impact of freeze on national growth and prosperity. As stated above, IATA and all the stakeholders, including AERA must be aware of the efforts being taken by not only the Government of India, but also all major governments of the world wherein both

prevention and cure are being developed. As it is well known to everybody that some of the prevention and cure possibilities are in advanced stages of development and in fact, in some places, mass manufacturing of such prevention measures has also begun. Therefore, the situation may improve drastically and stating to close all the projects, which are of national importance is totally wrong, against national interest.

Further we have also noted that CAPEX freeze has not been applied on other projects across the world. In fact, the reduction in aircraft movements and passengers has freed up time and space to enhance infrastructure at airports such as Amsterdam Schipol, Vienna Airport, unveiling of parallel runway and beginning of next phase of Brisbane Airport etc. Meanwhile, airports in Hong Kong, Norway, UK, Ecuador, Mexico etc. are using this time to trial and implement new technologies

Para 3:

IATA's statement w.r.t Phase 3A Development on pre-COVID levels of demand is not applicable at present due to the Covid-19 situation, is incorrect and misplaced, as explained above in response to Paras 1 and 2. Herein, IATA has again reiterated on capital freeze, which in the opinion of DIAL is not only against the interest of the country, as we would be caught on the wrong foot when the demand picks up and also comes with additional cost. It is also required to be understood by IATA that deferment of projects, which are in progress and have attained progress of the order of 25% will have high cost impact as there will be large scale demobilization and remobilization of manpower, machinery and other resources. Such a recommendation of IATA appears to have been taken without understanding of how the construction industry works and various impediments posed due to stoppage of works in-between and restarted after a certain gap of time. If such a decision is taken, there will be huge cost impact w.r.t goods and equipment that have already been manufactures, delivered to site, in-transit or under fabrication at various plants across the world.

DIAL therefore completely rejects such idea wherein, the country at large, and Airlines in particular will be suffering.

Para 4:

IATA indicated the requirement of AUCC. It appears that IATA has complete disregard to the process of consultation that DIAL has taken before going for project bidding with all stakeholders, records of which have been already submitted to Authority. In the opinion of DIAL, such statement of IATA w.r.t inadequate consultation is completely incorrect and misleading.

Multiple stakeholder consultation sessions were held on 27th September, 2017, 28th September, 2017 and 3rd October, 2017, each having representation from IATA, AOC, Airlines and other Airport Users. The MDP was developed further to finalization of the Master Plan 2016 in consultation with stakeholders such as Ministry, AAI, other Government entities, IATA, Airlines etc. It is further stated in the minutes that the objective of the meeting was to present the MDP

and take stakeholders' inputs before finalization, which is in direct contravention of IATA's claim that the session was conducted with a non-consultative agenda.

DIAL has carried out multiple rounds of discussions with representatives of IATA as well as Airlines and Passenger Associations. **In fact, the meeting held on 3rd October 2017 was held at the specific request of IATA and Indigo, wherein the MDP was presented to IATA and Indigo representatives.** Further, upon IATA's request, another session was organized on 30th October, 2017 for presentation of MDP to Assistant Director, Airport Development, APCS, IATA. This clearly demonstrates the baselessness of IATA's allegation that DIAL demonstrated disregard for genuine consultation.

It may also be seen that specific queries raised by IATA and Airlines and their responses by DIAL include, but are not limited to the following which were culminated to the minutes of meeting:

Query Raised	**DIAL response**
Adequacy of number of CUSS machines	Originally 40 CUSS machines were planned, same can be increased to 108 nos. including 36 nos. SBD
Airlines' request for adequate office space	DIAL conveyed the availability of the same
Airlines' request for bigger and more FIDS	DIAL agreed to examine the same
Adequate queuing area for passengers	DIAL agreed to incorporate the same
Provisioning of GPU and PCA	DIAL conveyed the availability of the same
Inter-terminal mobility due to increased domestic passenger traffic	DIAL conveyed that there is a provision for Automatic People Mover (APM) between T1 and T3, which would be taken up in a future phase of expansion, subject to project feasibility and approval by competent authorities
IATA's query regarding traffic projection	DIAL conveyed that traffic had increased at a higher rate than that projected in the Master Plan report but was expected to taper off and balance out with forecast figures. Considering traffic growth and stakeholder inputs, DIAL designed T1 considering 35-40 MPPA against Master Plan recommendation of 30 MPPA
Rationale for demolition of T1C	DIAL conveyed that demolition of T1C was necessary due to the building's age and quality of concrete used (M20). IATA agreed that it would be cheaper and faster to demolish and re-construct a

	modernized building than refurbish and strengthen the existing building.
IATA stated that there should be no columns between baggage belts in Arrivals	DIAL clarified that it would be factored in the design
IATA's suggestion to consider Body Scanners	DIAL agreed to consider it during project implementation stage
IATA's query on capital costs of Phase 3A	DIAL clarified that MDP, BOQs and cost have been submitted to AERA. Further details to be shared by AERA for stakeholder consultation.
International best practice – formation of working committee for project phasing	Flights Operation and Planning Committee (FOPC) formed under guidance of MoCA, chaired by CEO-DIAL and co-chaired by AAI with members from various airlines operating out of Delhi

It is evident from the above that sufficient discussions were held with IATA, details of MDP were provided and queries were responded. Besides the above queries IATA members had also given some suggestions on separate emails which were also duly considered. However, their claim of having sent further queries vide letter dated 20th Dec 2017 is totally denied. DIAL never received such letter from IATA or AOC. The level of detail of discussion was definitely not on a superficial or lip service. DIAL takes strong objection to such comments. The presentation itself was meticulously detailed, and included all technical details, tentative phasing and schedule etc. and clarifications were provided both in MDP document as well as Q&A session with the stakeholders. Clearly, the various sessions that were conducted were interactive in nature, with all available and relevant details shared and all feedback suitably recorded and addressed by DIAL.

Para 5:

IATA's comment on adhering to AERA's protocol vis-à-vis DIAL's willingness to work collaboratively with stakeholders, DIAL would like to clarify and put it on record that required consultation process has been followed as explained above. DIAL has systematically taken everybody along the path of project development, described the project CAPEX to AERA, process of project cost discovery along with various project impediments to the consultant appointed by AERA in a very transparent and open manner. Statement of IATA that DIAL has not carried out structured interaction is totally incorrect and has no basis.

Need for re-development of terminal 1 and airside facilities has been explained and dealt in detail during almost entire year of 2017, in the deliberations amongst DIAL, airlines operating from Terminal 1 and the Ministry of Civil Aviation, when the proposal of shifting of airlines operating

from Terminal 1 to Terminal 2 was being contested by them and also during the proceedings before the court in the writ petition preferred by Indigo Airlines in Oct, 2017 to challenge the decision to shift the airlines from T1 to T2. The commencement of entire phase 3A development works got extended by almost one year to resolve this issue, but for which the developments would have been at much advanced stage of completion.

Para 6, 7 & 8:

IATA's statement w.r.t submission of pre-determined plans and sharing of only high level information to airlines once again establishes IATA's intention of working against the interest of the country at large as the statement is totally a figment of someone's imagination.

Accordingly, IATA's statement of DIAL's disregard to consultation is totally baseless as there were numerous meetings, sharing of data and personal meeting with senior representatives of DIAL to understand the project requirements, which have already been established by DIAL. DIAL therefore totally rejects the baseless allegations of IATA regarding inadequate consultation, only high level data sharing with the airlines, pre-determined outcomes, not seeking airline's requirements, not building consensus, not sharing project cost, no attempt to consult at key project stages etc. This has already been clarified in the above stated paras.

DIAL's response to IATA's recommendations:

IATA's recommendations on the following points such as immediate stoppage of projects, sufficient time for thorough assessment of projects, comprehensive traffic forecast, Phase 3A business cases w.r.t viability of project cost etc., review of Master Plan, review of essential investments, selective investment are actually based on complete derailment of the country's self—sufficiency towards meeting aviation growth. If such a recommendation is even considered for review, it will be totally disastrous and set IGI Airport back to 2013-14 when the Master Planning exercise was commenced. It appears that IATA has not given a thought to the progress of the country at large and how IGI Airport can work as a growth engine supporting airlines.

Even considering the COVID-19 situation, it may be perused that the primary areas of expansion stand to benefit domestic aircraft and passenger movements (expansion of domestic terminal and its apron, enhancement of runway and taxiway network for aircraft circulation improvements, enhancement of road network serving various terminals). Domestic flight operations have already begun and expected to steadily rise. Phase 3A Works completion will overlap the expected traffic trigger, thereby keeping DIAL ideally placed to tackle the aircraft and passenger traffic. Conversely, delay in resumption of the project would leave DIAL and airlines scrambling to meet capacity demands in a complex operating airport environment

The whole process started long back and each and every stakeholder was taken into confidence at appropriate stages and in a timely manner. Therefore, AERA is requested to totally reject such misplaced ideas and recommendations of IATA.

DIAL's response to IATA's comments on consultation documentations:

With regard to IATA's recommendations on the total project fees, deployment of Independent Consultant for capital efficiency, scrutiny of capital cost, not agreeing to lump sum contract, maintaining service levels and operational disruption in AERA's cost estimate, allegation w.r.t limited details of project, not sharing of Terminal concepts and options, details of 4th Runway, reduction of runway width to 45m, confirmation of inclusion of AGL pits and ducts, questioning the requirement of 4th Runway, raising questions on Eastern Cross Taxiway wrt cost, benefit etc. having no insight of Landside connectivity, review of Terminal 3 along with airlines and lastly review of CAPEX projects through AUCC, DIAL would like to finally put the clarifications for the kind perusal of AERA:

i. The way IATA has structured their response, it appears that their approach is somehow to stop the readiness of IGI Airport to meet the future demand of passenger growth, country's economic advancement, not considering the fact of technical consultations carried out by DIAL with all the stakeholders, including Ministry of Civil Aviation, wherein airlines representatives and other User organizations were also present.

ii. Systematically, the observations and stakeholders were noted and clarified.

iii. Details of project development in phases and interfaces with operating systems were explained to all the concerned parties.

iv. Comprehensive interactions with AERA's appointed consultant, detailed review by them, numerous correspondences w.r.t technical parameters, development of framework of the IGI Airport expansion, basis of expansion, limit of expansion, cost of expansion have been discussed and analyzed to the extent possible.

v. In the scenario that the Covid-19 pandemic had not disrupted not only the expansion works but also the world's day-to-day functioning, DIAL would have completed a few of the key project milestones.

vi. IGI Airport being a highly complex operating environment, DIAL believes that during this time, there is an opportunity to fast-track the expansion works so that once pre-COVID levels of traffic and passenger movement are achieved, IGI Airport would be fully equipped to handle the operations as well as be future-ready.

vii. Further, the letter referred to by IATA dated 20th December 2017 has never been received by DIAL. However, the entire concerns have already been addressed and there remains no doubt that adequate consultation has been done in case of DIAL.

B. <u>Traffic Forecast (Chapter 9)</u>

DIAL has revisited the traffic for the third control period affected due to the impact of COVID-19 and presented to the stakeholders as well as the same has been submitted to the Authority vide

our response dated 31st July 2020. In its projection DIAL has taken cognizance of various available reports and the experience of DIAL in the COVID-19 scenario. The position of traffic presented by IATA in its response also reinforces the estimation of traffic put forth by DIAL. Accordingly, the traffic estimate provided by DIAL is based on current scenario and the estimated recovery as per DIAL and hence it should be considered.

A periodic review of traffic will bring more uncertainty to the airport economics hence the traffic should be estimated for the full control period on best available estimates.

C. <u>True ups of the First and second control periods (Chapters 2 & 3)</u>

DIAL has submitted its response to the Authority on the issues emanating out of the considerations of the true up of CP1 and CP2 in its response to the consultation paper. However, with regard to the comments of the IATA regarding the cost allocation and the efficient levels of the cost we have responded it separately the later part of this submission in detail.

Further, IATA has raised concern regarding the correlation of debt to RAB. In this regard it is stated that the funding in assets at DIAL includes that of aeronautical services as well as non-aeronautical services. IATA's attempt to compare the debt to aeronautical RAB is totally out of place and misleading. The Authority while calculating the WACC considers the gearing of the funding including debt, equity and other means, which is then multiplied to the applicable RAB. In such an exercise the funding proportion is considered limited to the RAB only in allowing the return for the period. Similarly, the forex losses once calculated are further split into aeronautical and non-aeronautical as per the methodology adopted by the Authority.

D. <u>Depreciation (Chapter 4)</u>

The suggestion provided by IATA are baseless and doesn't have any sound logic. The regulatory principles are enshrined under the OMDA for calculation of each building block which do not allow any such treatment of a depreciation pause. In an attempt to reduce tariff by any means IATA's response lacks merit. It may also be perused that no asset has come to a complete halt for the entire useful life.

Further, depreciation in regulatory building block is for recovery of investment made. Any deferment will lead to delay of recovery and higher tariff in future. Current practice is in line with the tariff principal laid down in the concession agreement hence should not be deviated.

E. <u>Operative expense – (Chapter 5)</u>

As regard to the efficient cost determination, it is stated that the IATA has not objectively stated any discrepancies in the cost incurred by DIAL. It has however based on fictitious grounds rejected the study of an independent consultant as well as the assessment of the Authority. In this regard DIAL in Sept'2019 appointed Leigh Fisher to do a benchmarking of DIAL operating cost to similar airport. Leigh Fisher benchmarked DIAL cost vis a vis airports like Amsterdam, Changi,

Heathrow, Beijing, HongKong, Melbourne, Mumbai, San Francisco, Tokyo Narita, Washington Dulls etc.. Out of 16 airports analyzed DIAL ranked at last in terms of total operating cost on capacity basis. This summarizes that DIAL is an Airport which has been operated at the lowest cost around the world. A copy of the benchmarking exercise is attached herewith as **Annexure-A**.

Further, with respect to the efficient operating cost study conducted by the consultant to AERA M/s RS & CO, we believe that a detailed study was conducted by RS & Co. on operating expense. Though we have some reservation on the outcome, however, the study was thoroughly done and hence no further study is required. RS & Co. had gone through each and every aspect of cost in detail and also recommended its own analysis of the cost allocation and considerations of efficient costs.

With regard to bottom up approach suggested by IATA, we would like to submit that the bottom up approach will also require some benchmark. Since, DIAL is operated at a lowest cost around the world the bottom up approach will yield to same result. IATA's suggestion on comparison of airport cost to other industry is baseless. The expert are unable to find similarity among the airport which make them comparable, the comparison with other industry will not yield any logical outcome.

F. <u>OPEX variations through the Third control period</u>

Delhi Airport in order to address the business complexities as well as policy advocacy need advice from domain experts in various areas. At Airport sector a pool of experts are available in the field of Finance, Taxation, Operations, Commercial, IT, HR, Legal and construction management which are used by DIAL along with other airport entities within group.

Corporate departments help to bring in standardization in systems, processes, resources and activities, it is a repository of best practices, able to leverage the brand name of the group and DIAL also leverage the experience and business knowledge of key people, the experience of which cannot be duplicated. The costs of hiring consultant from outside for various activities on need basis is very high and it is charged on hourly basis. Using a pool of experts in their own area certainly help in reducing the costs as well as ensure availability of consultant/expertise available round the clock. It is the most efficient way to manage the resources in a pool.

Since Delhi Airport is going for major expansion, the airport will require domain expert as well as policy level guidance in various areas where availability of external consultants/expertise is not easily available. These resources have been associated with DIAL since long and developed expertise specific to airport sector. These experts are in demand outside hence in order to retain them within sector, it becomes all the more necessary to compensate them adequately hence a reasonable annual increase is in evitable. Accordingly, DIAL estimated that the corporate cost will increase basis expansion growth, real increase as well as inflation. However, AERA restricted the growth to the level of past five year CAGR. It may be seen that such costs are justified when we are witnessing an expansion of almost double the existing capacity. The current expansion is

unique in nature and with this expansion the area of operation of DIAL will increase significantly hence there will be increase in number of resources so as to address the increased operation and provide desired support as and when required.

With respect to advertisement and sales promotion expenditure IATA stated that these expenses are not required as people use the airport only to fly. In this regard we would like to excuse the ignorance shown by IATA, and for the fact of the matter would like state that the travel retails plays significant role in overall airport business. Also in case of DIAL a significant portion of aeronautical revenue is being cross subsidized by non-aeronautical business. Advertising and sale promotion not only improves the airport visibility to attract traffic, introduction of new routes and airlines but also improved non-aero revenue which ultimately reduces tariff burden on passengers as well as airlines. Further, it may be perused that the advertisement expenses are also related to various public notices issued in the newspapers in discharge of DIAL's obligations including tendering and other aspects. In a complex retail environment where competition is very tough and e-commerce is taking the business away from the retailers, advertisement and sales promotion is very important to drive the attention of the traveler to buy at the airport rather the buying through e-commerce site.

DIAL has proposed to consider the Consultancy expense to grow in line with inflation, real growth as well as expansion. The consultancy goes hand in hand with the business growth and capacity increase. DIAL is increasing its capacity accordingly there will need of more advise from industry experts, innovation etc. on airport operation and related area, financial consultant, legal advisors etc. Most of the consultants and industry experts are charging hourly fee as their availability is not that easy as well as they are in demand hence their costs increases more than the annual inflation.

We strongly disagree on IATA remark wherein they have questioned the existence of service under airport operator fee. In accordance with concession agreement Schedule 8 of OMDA, DIAL was required to put in place an Airport Operator Agreement to ensure DIAL operates, maintains and manages the Airport in order to meet the stated service standards. The scope of services includes general services, manager services and consultancy services which are related to the operation and maintenance of Aeronautical and Non-Aeronautical assets. DIAL in past with the help of airport operator was able to achieve various significant milestone and operation efficacy. The experience of airport operator in the specific field of airport operation gives DIAL an advantage in effective airport operation. Further, it is DIAL's responsibility and obligation to operate and manage the airport efficiently and hence DIAL has to make available all experience and airport expertise to manage airport efficiently and with high standard service levels.

Further, on recalculation of FY'2020 expenditure we would like to submit that DIAL had estimated operating expense to the tune of Rs 8379 cr for third control period, however same has been reduced to Rs 6345 Cr by the Authority in the consultation paper. Authority in the consultation paper had already reduced opex for the control period around 24% from the submission of DIAL. The said reduction itself is significant considering the airport is due for expansion.

Further, DIAL had to incur additionally Rs 5-10 Cr additionally due to COVID in FY'20 and considering the current situation this expense will further increase in coming years to rebuild the confidence of the passenger in air travel.

G. Allocation of cost (Chapter 3, 4 & 5)

The principal allocation methodology for DIAL was formulated by Jacobs consultancy. The allocation methodology being adopted on the basis of following key principles:

Full allocation: all costs, revenues and expenditure should be allocated uniquely avoiding both missing items and double counting;

Attribution quality: wherever possible, costs, revenues and assets should be directly pointed to aeronautical or other activities, or allocated using a credible and accurate measurement system. More general apportionment of costs in the form of overheads should be minimised;

Relevance: costs and asset allocations not directly measurable should be attributed using drivers which are clearly related to usage in the area concerned;

Objectivity: where possible attribution bases should be directly measurable;

Consistency: the approaches used to attributing costs in different areas should be broadly consistent with each other. In addition cost, revenue and asset allocations for any activity should be consistent with each other;

Continuity: the methodology used to allocate costs between aeronautical and other activities, should also be used (where required) to allocate aeronautical costs between areas such as runways and taxiways, terminals and parking areas (albeit at a greater level of detail);

Avoidable Cost: the primary activity of the airport is to provide aeronautical services and the users should bear the cost of these. The resources essential to the primary activity, operation of the airport, even if there were no secondary (non-aeronautical) activities should be allocable to aeronautical activities. Where, however, the presence of non-aeronautical activities has generated an additional requirement for space or facilities, which would otherwise not have been needed, the resulting otherwise avoidable costs should be regarded in full as non-aeronautical.

Transparency: the allocation system should be clear and verifiable when scrutinized.

Accordingly, the allocation exercised are based on settled principle and need not to be revisited. Further, on the specific observation of IATA on additional space built due to Non-Aeronautical business requirement, we would like to submit that the non-aeronautical revenue plays a vital role in the airport viability. IATA has mentioned the commercial space created by airport leads to cost increase, however, IATA has not mentioned that the non-aeronautical revenues derived from such areas keeps the aeronautical tariff at lower level. In case of DIAL 30% of non-aero revenue cross subsidize aeronautical tariff. In past two control period non-aero revenue at DIAL reduced the tariff burden on its stakeholders to the extent of Rs. 4000 Cr.

The allocation methodology is also aligned to the DIAL concession i.e. OMDA. OMDA provides the list of aeronautical service as well as non-aeronautical services. As per concession the assets have been classified based on the service provided by them accordingly the assets which are providing aeronautical services mentioned in schedule 5 of OMDA are classified as aeronautical and asset providing non-aeronautical service mentioned in schedule 6 of OMDA classified as non-aeronautical. Further, the allocation exercise has been tested by the independent consultant appointed by the Authority and annexed to the consultation paper.

IATA in its response suggested to allocate runway cost to non-regulated activity on the ground that if the runway is closed then no passenger can arrive and certain activity will have no customer. This argument is baseless and against the basic premise of concession as well as global practice. If we go by this logic then there are various non-aero activities like F&B, Lounges, retail, car park without which the passenger cannot think of using airport/airlines however the cost providing these service have not been allocated to aeronautical business. Further, AERA also recognize that due to aeronautical facility airport is able to earn the non-aeronautical revenue this is the basic premise due to which AERA cross subsidizes aeronautical tariff from 30% of non-aeronautical revenue.

In a nutshell, we would like to submit that allocation principle adopted by Delhi Airport are based on sound logical grounds, concession terms and basis the best global practices accordingly required no revisit or reinvention.

H. <u>WACC - Return on Equity – Chapter 6</u>

<u>Beta -</u> Authority consider true up of all building block in regulatory tariff determination however any loss of non-aero revenue has not been made good. DIAL has to face brunt of non-aero revenue reduction. Accordingly DIAL carries significant risk in terms of non-aeronautical and non-airport revenue which are not protected in a regulatory regime.

Further, IATA has not considered various external risk like regulatory uncertainty, economic risk, risks due to current pandemic situation like COVID, demand risk etc. Even in terms of aeronautical revenues the regulatory intervention can cover the risk only when there is traffic. In such time when there is no predictability of traffic which has been acknowledged by IATA also, the true up process would not help recover the losses incurred by DIAL in near term. Accordingly DIAL still carries significant unsystematic risk which are required to be considered while considering Beta. Further, in case of DIAL the beta should be considered from like to like economies. Accordingly while considering beta for DIAL AERA should consider beta of airport from similar developing countries. Dublin Airport is part of developed countries hence same is not comparable to Delhi Airport.

<u>Gearing</u>

IATA has indicated that the study for the cost of equity presents no assessment of whether the calculated average of gearing is the ‘efficient’ level. The issue may be responded by Authority as

the study has been conducted by the consultants appointed by the Authority. It may though be pointed out that the inference of the gearing is not on assumption basis as has been presented by IATA. The gearing considered by the consultant of the Authority is based on benchmarks of airports and industry bodies. Hence, an arbitrary figure presented by the IATA is uncalled for in the given circumstances.

Equity Risk Premium

In case of ERP we are in agreement with IATA that the AERA should choose most accepted and used method for calculating the ERP is based on historic information. Since the historic data is more reliable it remove the uncertainty which the predicted ERP carries.

In this regard DIAL has already submitted the CRISIL report on return on equity for Delhi Airport. In this report CRISIL has determined the ERP based on most reliable Indian market index i.e. sensex and also the period which they have considered is of 40 year which takes care short term volatility and make the ERP so arrived most reliable. Also, since it is derived from the Indian market it is more reliable in Indian context vis a vis the ERP derived basis some study.

Risk Free Rate

IATA in its submission for risk free rate completely ignored the CAPM methodology used for determining return on equity. It is a fundamental concept of any financial acumen that the risk free rate and ERP are two different concept altogether. ERP is a premium which is factored in for the market risk company carries over and above the risk free rate. Accordingly, IATA apprehension of double counting of risk is illogical and frivolous observation.

Further, we agree with IATA that AERA should not consider 18 year horizon in case of risk free rate as worldwide situation was very different from more than a decade. Hence, we would like to submit that AERA should consider 10 year horizon for GOI bonds in line with our response to the consultation paper.

I. WACC - Refundable Security Deposit (RSD) Treatment

The issue of RSD being eligible for return or not was the matter of contention in the appeal filed by DIAL against the AERA order no 3/2011-12 filed before the Hon'ble Tribunal. The matter had been adjudicated by the Hon'ble Appellate tribunal. The Appellate tribunal in this matter pronounce an order mentioning that the RSD is eligible for some return and the quantum of return can be decided by AERA.

In this regard we would like to submit that RSD has equity like features such as long duration of availability of funds and also it has no restriction of usage of this fund. These features are available for equity funding accordingly a return equivalent to equity should be provided to DIAL on RSD. DIAL as part of its response already submitted the expert report of KPMG and CARE which supports DIAL contention of return on RSD should be equivalent to return on Equity.

J. Tax – Chapter 8

IATA has suggested that S Factor will lead to artificial tax to DIAL. The understanding of IATA in this context is incorrect in our opinion. It may be perused that the Authority by virtue of TDSAT order at para 3.6.4 of the consultation paper has proposed to consider S factor as part of revenue for providing aeronautical taxes as a benefit as part of tariff determination process.

The S Factor has been considered in aeronautical P&L to arrive Aeronautical PBT. The actual tax liability of DIAL then allocated into so arrived aero and non-aero PBT. Hence, the S Factor will not result into artificial tax benefit to DIAL.

Also, the IATA submission on reduction of level of cross subsidy is also misleading. The non-aeronautical revenue cross subsidizes aeronautical revenue and the tax is only resultant on the profit earned. The cross subsidy (S-Factor) is nothing but **a part** of aeronautical revenue only. Hence, for aeronautical P&L purpose same needs to be considered.

Since the cross subsidy is part of aeronautical revenue it has to be considered while drawing aeronautical P&L.

Further, we understand that Airlines Operators Committee which is an association under IATA in its response dtd. 30th July'2020 supported AERA view on this and stated following:

> *"AOC wishes to submit that it is in sync with AERA's proposal to arrive at the aeronautical taxation including the 'S' factor which can be trued up during the tariff determination exercise of the next control period"*

Accordingly, we would request Authority to consider the S Factor in aeronautical P&L while calculating tax.

K. <u>Service Level</u>

In case of Delhi Airport, the quality standard already been laid down in schedule 3 & 4 of OMDA. A periodic compliance report to these being submitted to AAI on quarterly basis. The Concession Agreement also provides for penalty to be paid by DIAL to AAI, should the quality of service not be achieved by DIAL in line with the requirement under OMDA. Accordingly, there are enough checks and balance in built in the concession agreement to take care of the compliance of the required service standards.

Authority in the consultation paper no 15/2020-21 evaluated various media report, ASQ ranking as well as skytrax ranking and drawn its satisfaction to the quality standard maintained by the DIAL at IGI Airport.

The ASQ program is a worldwide accepted airport quality benchmarking exercise and needs to be given due weightage.

Annexure -2

Response to Airlines Operators Committee (AOC) comments

1. Phase 3A development (AUCC) Consultation

AOC in their letter dated 30.07.2020 the following to be considered:

i) Post COVID, urgent reassessment of capacity enhancement keeping in mind that the trends and estimates can only be reasonably predicted by the end of this current Financial Year must be undertaken.
ii) Immediate cessation of all Package 1-4 works of Phase 3A Major Development.
iii) Realignment of Package 5 prioritizing it over packages 1 to 4.
iv) The delay of 10 months in commencement of Phase 3A work thus incurring additional expense of INR 502 Crores (Truing it up with 6.31% Inflationary impact) needs to be reconsidered and must not be recovered from end users.

DIAL would like to respond as follows:

i. AOC indicated the requirement of AUCC. It appears that AOC has complete disregard to the process of consultation that DIAL has taken before going for project bidding with all stakeholders. In the opinion of DIAL, such statement of AOC with respect to the inadequate consultation is completely incorrect, misleading and against the best interest of airlines and passengers.

Multiple stakeholder consultation sessions were held on 27th September, 2017, 28th September, 2017 and 3rd October, 2017, each having representation from IATA, AOC, Airlines and other Airport Users. The MDP was developed further to finalization of the Master Plan 2016 in consultation with stakeholders such as Ministry, AAI, other Government entities, IATA, Airlines etc. It is further stated in the minutes that the objective of the meeting was to present the MDP and take stakeholders' inputs before finalization, which is in direct contravention of AOC's claim that the session was conducted with a non-consultative agenda.

DIAL has carried out multiple rounds of discussions with representatives of AOC, IATA as well as Airlines and Passenger Associations. This clearly demonstrates the baselessness of AOC's allegation that DIAL demonstrated disregard for genuine consultation.

It may also be seen that specific queries raised by all stakeholders and their responses by DIAL include, but are not limited to the following which were culminated to the minutes of meeting:

Adequacy of number of CUSS machines	Originally 40 CUSS machines were planned, same can be increased to 108 nos. including 36 nos. SBD
Airlines' request for adequate office space	DIAL conveyed the availability of the same
Airlines' request for bigger and more FIDS	DIAL agreed to examine the same
Adequate queuing area for passengers	DIAL agreed to incorporate the same
Provisioning of GPU and PCA	DIAL conveyed the availability of the same
Inter-terminal mobility due to increased domestic passenger traffic	DIAL conveyed that there is a provision for Automatic People Mover (APM) between T1 and T3, which would be taken up in a future phase of expansion, subject to project feasibility and approval by competent authorities
IATA's query regarding traffic projection	DIAL conveyed that traffic had increased at a higher rate than that projected in the Master Plan report but was expected to taper off and balance out with forecast figures. Considering traffic growth and stakeholder inputs, DIAL designed T1 considering 35-40 MPPA against Master Plan recommendation of 30 MPPA
Rationale for demolition of T1C	DIAL conveyed that demolition of T1C was necessary due to the building's age and quality of concrete used (M20). IATA agreed that it would be cheaper and faster to demolish and re-construct a modernized building than refurbish and strengthen the existing building.
IATA stated that there should be no columns between baggage belts in Arrivals	DIAL clarified that it would be factored in the design
IATA's suggestion to consider Body Scanners	DIAL agreed to consider it during project implementation stage

	IATA's query on capital costs of Phase 3A	DIAL clarified that MDP, BOQs and cost have been submitted to AERA post stakeholder consultation. Further details to be shared by AERA for stakeholder consultation.
	International best practice – formation of working committee for project phasing	Flights Operation and Planning Committee (FOPC) formed under guidance of MoCA, chaired by CEO-DIAL and co-chaired by AAI with members from various airlines operating out of Delhi

It is evident from the above examples that the level of detail of discussion was definitely not on a superficial or high level. The presentation itself was meticulously detailed, and included all technical details, tentative phasing and schedule etc. and clarifications were provided both in MDP document as well as Q&A session with the stakeholders. Clearly, the various sessions that were conducted were interactive in nature, with all available and relevant details shared and all feedback suitably recorded and addressed by DIAL.

As regards to the suggestion of curtailment of project it is stated that such curtailment would not only jeopardize the capacity enhancement of IGI Airport, which should be ahead of demand, notwithstanding the delay due to Covid-19, but also increase the cost of project as the whole project implementation is in full swing. Any reduction in scope due to fear of Covid-19 would require compensation to the Contractors, sub-contractors, manufacturers etc. and their remobilization at a later date to meet the enhanced capacity would also come at a cost. Therefore, any knee-jerk reaction to put the project works on freeze would be totally inappropriate, against the interest of country's progress and ability to meet enhanced demand by IGI Airport, incurring unnecessary cost due to demobilization and remobilization of various resources, putting burden on the stakeholders, end users and mainly on airport operator.

ii. The overall project is based on certain sequencing against a fixed timeline, which has again been determined after extensive consultation with various stakeholders and approvals from statutory and regulatory authorities to ensure appropriate steps of meeting passenger requirements. Therefore, stoppage of Package 1-4 works would only put the whole project in jeopardy considering that construction work has been taken up at all fronts. Further, as explained above, such stoppage would not only increase the costs but also cause huge inconvenience to the airlines and passengers.

iii. Please see comment ii) above.

iv. The process of any project development takes time, more so in the case of Phase 3A, which is a highly complex project with multiple interfaces and stakeholders in an operating airport. DIAL has awarded phase 3a project following international bidding, accordingly the cost arrived at actual should be considered by the Authority.

Further, need for re-development of terminal 1 and airside facilities has been explained and dealt in detail during almost entire year of 2017, in the deliberations amongst DIAL, airlines operating from Terminal 1 and the Ministry of Civil Aviation, when the proposal of shifting of airlines operating from Terminal 1 to Terminal 2 was being contested by them and also during the proceedings before the court in the writ petition preferred by Indigo Airlines in Oct, 2017 to challenge the decision to shift the airlines from T1 to T2. The commencement of entire phase 3A development works got extended by almost one year to resolve this issue, but for which the developments would have been at much advanced stage of completion.

2. <u>CUTE-CUSS</u>

Authority has dealt with the subject matter of contention at para 6.110 of order no 40/2015-16. Following is the relevant excerpt"

> *….. the Authority had further sought opinions from the Ministry of Civil Aviation and AAI and had also sought legal counsel on the matter. The Authority is in receipt of their response, and has also received views from MIAL on the matter.* ***The ministry has suggested that these services be treated as non-aeronautical unless there are pressing reasons to presume otherwise. Hence, it was noted that all the above views concurred that CUTE counter services and Cargo X-Ray screening services may be treated as Non-Aeronautical in nature.*** *The Authority does not find it prudent to infer the nature of treatment of any service when signing parties to the OMDA themselves concur on the treatment of the service. This view is also consistent with the view taken by the Authority in its MIAL Tariff Order no. 32/201213. Hence, the Authority has in principle decided to consider cargo X-Ray screening services and CUTE counter charges to be non-aeronautical in nature….(Emphasis added)*

…..This view is also consistent with the view taken by the Authority in its MIAL Tariff Order no. 32/201213. Hence, the Authority has in principle decided to consider cargo X-Ray screening services and CUTE counter charges to be non-aeronautical in nature.

Accordingly, in terms of the concession, CUTE service considered non-aeronautical in case of DIAL. Further, it may also be perused that the CUTE counter charges have been discontinued from 1st December 2018 vide the order of the Authority dated 19th November 2018.

3. <u>Tax- S Factor</u>

AOC has shown agreement to the Authority's view in this matter and suggested to consider S-Factor in calculation of tax. We are in agreement with the AOC view.

In accordance with the SSA, while determining tariff Authority subsidies the aero eligibility of DIAL calculated as per building block by 30% of revenue from revenue share assets. In other words some part of the aeronautical revenue is expected to be recovered through cross subsidy from revenue from revenue share assets. However, while determining tax Authority has not considered this 30% of revenue.

TDSAT in case of MIAL appeal no 4 of 2013 against the CP1 order of MIAL in its order dtd. 15th Nov'2018 at para 15 opined that:

"…by the provision in the Agreement, 'S' is an element of revenue on aero side and by the same yardstick must be added while calculating the 'T'. We find some merit in these arguments.."

Accordingly TDSAT vide Judgment at Para 41(i) remanded the matter of considering the S-Factor as part of revenue in calculation of tax, to AERA.

The Authority should consider the S-Factor in consideration for aeronautical tax for DIAL. Since, this is the issue of settling principle under the SSA the effect of such consideration should be taken from the first control period itself. Accordingly, we request Authority to kindly take positive view on the subject matter.

Annexure-3

Response to Business Aircraft Operators Association (BAOA) comments

1. **Phase 3A development plan:**

   BAoA has supported the phase 3a development plan of DIAL. BAoA categorically mentioned that,

   > *"..there should be no let up in the pace of development and expansion of infrastructure at DIAL due to COVID-19 situation. The additional and improved infrastructure being created at DIAL would be required soon after the COVID-19 situation gets under control with availability of vaccine, hopefully by mid of next year. Therefore, it would be advisable to use the present lean period of flying to accelerate the pace of infrastructural development at DIAL as per the approved master plan"*

   We are in fully agreement with BAoA on this suggestion. Worldwide many airport are taking this pandemic time to improve their infrastructure and capacity so that they are ready for the recovery period and to fuel the economic growth.

2. In the context of discussion on master plan of DIAL we would like to submit that DIAL is a responsible airport operator and every time as part of expansion plan DIAL has followed the terms of the concession agreement and put forth the proposed plan for stakeholder comments and followed the process laid down in the concession agreement. Also, the inputs received from various stakeholders have been taken in to account and suitably incorporated in the respective master plan.

3. **Compensatory tariff in lieu of Fuel throughput Charges (FTC):**

   We are in agreement with the BAoA view to compensate DIAL in case of loss of revenue due to abolishment of FTC by MoCA. However, since FTC is in the nature of royalty and in terms of the concession same should be considered as non-aeronautical revenue in case of DIAL.

4. **General Aviation Parking, Hangar space and ground handling charges:**

   The BAoA once again mistaken the hangar rental with Housing Charges. A similar clarification was sought by BAoA in May'2017 to which DIAL had already responded. We would like to once again reiterate that Hangar charges are not covered under housing charges. Hangar service are purely non-aeronautical in accordance with AERA Act as well as Concession Agreement. Hangar is an entry no 7 in Schedule 6- Non-Aeronautical Services of OMDA. Accordingly, the Hangar rentals are not regulated. DIAL as part of promoting general aviation business appointed two concessionaires and provided four hangars to them which they can operate in accordance with the terms of respective concession agreement.

In case of Ground Handling we would like to submit that both Ground Handling as well as General Aviation is non-aeronautical service in accordance with schedule 6 of OMDA. As far as General Aviation is concerned DIAL had appointed two independent concessionaire to develop dedicated general aviation facility and provide comprehensive services including MRO exclusively for general aviation aircrafts. Since both Ground Handling and General aviation are non-aeronautical service as per OMDA, concessionaire can set the tariff card in accordance with the respective concession agreement. Accordingly, it is requested that the business agreement should be discussed and agreed between the parties and the regulator should not regulate such services.

Leigh Fisher

FINAL REPORT

OPERATING COSTS BENCHMARKING

Prepared for

Delhi International Airport Limited

September 2019

TABLE OF CONTENTS

1 INTRODUCTION

LeighFisher Limited (LF), is pleased to present this Final Report to Delhi International Airport Limited (DIAL) containing various benchmarking data relating to its operating costs.

DIAL is in discussions with AERA regarding an application for tariff increases, and has requested that LeighFisher provide various benchmarking data to help inform DIAL's discussion with its regulator, AERA. At this stage, the data requested is intended to assist the regulator in understanding the relative level of operating costs at DIAL compared to those at comparable airports worldwide.

In line with our proposal submitted on 06 August 2019 and telephone conversations with DIAL prior to that, we have carried out an initial analysis of data relating to sixteen airports, including DIAL.

DIAL has requested that, where data are available, the benchmarking should produce comparisons of:

- Total operating costs;
- Staff costs;
- Total non-staff operating costs (excluding depreciation);
- Maintenance costs.

This Final Report consists of six main sections:

- A description of LF's experience in carrying out similar benchmarking studies;
- A commentary on the sample of airports chosen as comparators;
- Presentation of and comments on the results of the benchmarking analysis based on a per passenger analysis;
- Presentation of and comments on the results of the benchmarking analysis based on a per ATM analysis;
- Presentation of and comments on the results of the benchmarking analysis based on an airport capacity-related analysis;
- A summary of the overall analysis.

2 LEIGHFISHER'S EXPERIENCE IN AVIATION BENCHMARKING

Our relevant experience for this project is based on the production since 1997 of the annual *Airport Performance Indicators* publication by Peter Mackenzie-Williams, a Director with LF, who has led and carried out a large proportion of this study. Peter joined LF in 2006, having previously worked with the UK's Transport Research Laboratory (TRL) since 1998. Before that, he worked (from 1989) with Travers Morgan (later Symonds Travers Morgan). From 1990 onwards Peter was responsible for the authorship and production of the annual publication *Review of Airport Charges* with *Airport Performance Indicators* following from 1997 onwards. Following Peter's move to LF in 2006 the intellectual property vested in these studies was acquired by LF, and the production of both publications has continued under the same authorship.

Both publications have become recognised worldwide as the leading reference source for comparisons of airport charges and financial and operational performance, and are used extensively by airports, regulators, airlines, analysts and industry bodies, including ACI and IATA. In addition, we are frequently invited to carry out individual comparative pricing studies based on the methodology used in the published work.

Airport Performance Indicators

The production of this study relies on data extracted from the published audited Report and Accounts of a range of airports around the world, supplemented in some cases by additional information requested from the airports. The overall approach taken is that financial measures are first calculated in units of local currency and then converted to a single unit of currency (Special Drawing Rights – SDRs), to enable comparisons to be made across multiple currencies.

A particular difficulty related to comparisons of airport performance is caused by the fact that the range of activities undertaken by different airports varies considerably. For example, a number of airports included in our sample perform their own ground handling services or operate their own car parks, but many do not. A number of airports' Report and Accounts cover the activities of a national civil aviation administration, which as well as operating the airports perform other functions such as the provision of air traffic control services. If this difficulty is not addressed, a number of performance measures, especially those related to staff numbers, are likely to be distorted.

The approach which is taken to deal with this problem is to identify those activities which do not constitute what can be regarded as being core to the operation of an airport, and to adjust the relevant data by deducting all revenues, costs and staff numbers associated with those additional activities. At the same time it is reasonable to assume that if the airport did not itself carry out functions such as the operation of car parks it would appoint a concessionaire to do so, and that the concessionaire would pay the airport a concession fee. In these cases a notional fee is added back to the airport's revenues so as to allow like-with-like comparisons to be made with airports where concessionaires are actually in place.

Related work

We have carried out a significant number of individual airport performance benchmarking studies, based largely or wholly on the methodology described above. These have included:

- A report used by Melbourne airport in its Air Service Agreement negotiations with airlines relating to aeronautical charges for the five years commencing July 2017, focusing on the relative level of the airport's charges in the context of its capital expenditure over the previous five years;
- A report that examined the premise that Singapore Changi airport's commercial revenue per passenger could be expected to remain constant in real terms in the future. Using benchmark data for a selection of relevant peer airports, the report demonstrated that this assumption could not be

relied upon. For the same client, we devised a methodology for an Air Hub Competitiveness Index to assess Changi's competitiveness as a hub airport in relation to key competing airports in Asia and the Middle East.

- A report to assist the operator of Melbourne Airport in making submissions to the Productivity Commission in a review of the system of airport price regulation in Australia taking place during 2011. This examined Melbourne's level of prices in a regional and international context, and assessed its general level of performance in a range of financial and operation benchmark measures. The work repeated a similar exercise carried out for the previous pricing review which took place in 2006;
- On behalf of the Airports Company South Africa, we carried out a benchmarking study to assess the comparative levels of various aspects of the operational and financial performance of ACSA's three main international airports. This work identified a situation in which both aeronautical and non-aeronautical revenues were very low by international standards;
- We carried out a detailed bottom-up benchmarking exercise to assess the operating expenditure levels at Dublin Airport, on behalf of the Irish Commission for Aviation Regulation;
- From 2006 to 2015 we were retained to carry out an annual business plan review for Aeroporti di Roma. This work included the benchmarking of AdR's projections and past performance with peer airports in order to assess operating and financial efficiency;
- On behalf of Toronto Airport, we carried out a benchmarking study to identify world best practice in the generation of airport non-aeronautical revenues. This work was required as Toronto has been subject to criticism over the level of its aeronautical charges, and has been seeking to understand the potential to develop alternative revenue streams;
- We assessed a total of twelve performance metrics relating to Melbourne Airport, including revenue and cost performance, profitability, return on capital and capital expenditure. This work was required by Melbourne as part of its submission to the Productivity Commission in 2006, which was carrying out a periodic Inquiry on airport price regulation in Australia. The work demonstrated that, under the light-handed regime of price monitoring which had followed the full price regulation regime originally introduced when Australia's airports were privatized, cost efficiency and staff productivity remained at high levels, while profitability had improved such that the timely introduction of new airport infrastructure was possible. The outcome of the Inquiry was that approval was given for the light-handed approach to regulation to continue for a further five years;
- We are frequently engaged to provide business planning advice to potential investors in or owners of airport assets. As part of this work we routinely carry out benchmarking of key financial and operational aspects of the target airport. These have included work relating to the various airport privatisations in Brazil, and to London Gatwick, Copenhagen, Brussels, Bristol, Birmingham and Bratislava airports;
- On behalf of the then BAA, revenue yields and profitability at its two main Scottish airports were compared with those at a sample of European airports of comparable size. BAA was not subject to price regulation at these airports but for some years it had exercised restraint in applying tariff increases. The owners of BAA, Ferrovial, wished to assess the scope to apply tariff increases in the light of this restraint;
- We were commissioned by IATA to produce a study intended to identify examples of airport best practice. This work was based on a time-series of data for a sample of 30 major international airports, and used a simple proportional scaling approach to combine performance in six key performance indicators so as to produce a single measure of combined performance.

3 THE AIRPORTS CHOSEN AS COMPARATORS

The initial selection criterion for comparator airports was that they should ideally be of a comparable size to DIAL in terms of its passenger capacity of around 66 mppa. While there are a number of large US hub airports of this size most are not ideal for benchmarking purposes in an international context. This is partly because at many large US hubs one or more of the terminal buildings is owned and operated by airline(s) which use the airport as a hub, so the operating costs associated with those terminals are not borne by the airport. Second, at many large US airports there is a very heavy predominance of domestic traffic, so the airport's operating costs do not reflect the use of complex baggage sorting systems, and do not require space for immigration and Customs areas, to the same extent as airports with a larger proportion of international traffic.

As explained in our Proposal, at this size the number of airports suitable for inclusion in a benchmarking sample is also limited by a lack of publicly available data for a number of important international hubs, including Dubai, Bangkok Suvarnabhumi, Kuala Lumpur, Frankfurt and Paris Charles de Gaulle.

Taking these factors into account we provided DIAL with a recommended selection of fifteen airports for which data are available and which broadly meet our criterion of comparable airport size. These are set out in the table below, together with details of passenger throughput in 2017, and also details of non-core activities of the type described in Section 2 for which it has been necessary to make data adjustments.

Table 1: Airports selected for initial benchmarking sample

	Passenger numbers 2017 (000s)			
	Domestic	International	Total	Non-core activities
Delhi	**48,390.3**	**17,301.4**	**65,691.7**	**-**
Amsterdam	0.2	75,800.1	75,800.3	Utilities sold on, insourced car parking and a hotel operation
Beijing	70,142.0	25,644.5	95,786.4	Insourced car parking
Hong Kong	0.0	73,600.0	73,600.0	-
London Gatwick	3,987.9	41,705.5	45,693.3	-
London Heathrow	4,800.8	73,212.0	78,012.8	Railway operation access fees
Los Angeles	60,903.7	25,729.4	86,633.1	-
Melbourne	25,888.4	10,866.4	36,754.8	Insourced car parking
Miami	22,323.1	21,435.3	43,758.4	-
Mumbai	34,849.8	13,646.7	48,496.4	-
Munich	9,824.5	34,721.7	44,546.3	Insourced ground handling
Rome Airports	11,681.1	35,015.5	46,857.7	-
San Francisco	43,902.6	13,820.3	57,723.3	-
Singapore Changi	0.0	62,972.1	62,972.1	-
Sydney	27,352.3	15,972.2	43,324.5	Insourced car parking
Tokyo Narita	7,460.7	33,447.8	40,908.5	Railway operation

Source: ACI. Domestic and international figures may not sum to the total due to transit passengers.

For all of these airports, it has been possible to produce benchmarks of:

- Total operating costs
- Staff costs
- Total non-staff operating costs

In addition, data are available to produce benchmarks of maintenance costs for the following nine airports (in addition to DIAL):

Amsterdam	London Gatwick	San Francisco
Beijing	London Heathrow	Singapore Changi
Hong Kong	Melbourne	Sydney

The data needed to produce these four benchmarks (ie total operating costs, staff costs, total non-staff operating costs and maintenance costs) for the various numbers of airports as set out above are all available from verifiable published sources, with the exception of data for Mumbai airport. The latter data are provided to LeighFisher by Mumbai to assist in the production of our publication *Airport Performance Indicators*, in which the data appear. The benchmarks have been produced using data for calendar year 2017 or financial year 2017/18.

In most cases, the data for total non-staff operating costs are broken down into various sub-categories. With some exceptions (for example maintenance) the categories do not correspond between the different airports so it is not possible to make inter-airport comparisons of the sub-categories. However, we list the sub-categories at Appendix 1 and show the percentage which each represents out of the total non-staff operating costs.

In some cases, in order to be able to make valid like-with-like comparisons, it has been necessary to adjust the raw published data so as to remove anomalies caused in cases where airports are involved in non-core activities and incur costs associated with those activities. As an example, Beijing, Melbourne and Sydney airports all operate their own car parking facilities, and incur associated operating and staff costs. In those cases, identifiable operating and staff costs have been deducted so as to allow more meaningful comparisons to be made. Appendix 1 shows the effect of the adjustments on both staff costs and non-staff costs.

The results are expressed in three ways:

- on a per passenger basis;
- on a per ATM basis;
- in relation to airport capacity;

and in the following currencies for each of the three options above:

- Indian Rupees;
- US Dollars;
- SDRs (see below).

The SDR is an international reserve asset, created by the International Monetary Fund (IMF), to supplement its member countries' official assets. The value of the SDR is based on a basket of five currencies – the US Dollar, the Euro, the Chinese Renmimbi, the Japanese Yen and the British Pound. When member countries seek distress funding from the IMF, as was the case following the 2009 financial crisis, the IMF's allocations are made in SDRs. In studies of this type it provides an alternative value to a single currency exchange rate (such as the US Dollar) and, when used in time-series analyses, it may help to reduce the fluctuations that may occur in single-currency exchange rates.

4 RESULTS OF THE ANALYSIS – PER PASSENGER BASIS

In a small number of cases, airports rank in different positions depending on the currency used as a denominator. However, Delhi's position is not affected by the currency used.

Delhi ranks in 15th position out of 16 airports in terms of total costs per passenger, demonstrating a highly efficient position in terms of operating costs. Its total costs per passenger are 20.8% of the average for the sample of airports. While the majority of the airports with higher cost bases are European and therefore subject to operations with relatively high levels of staff remuneration, Delhi is also competitive in relation to Singapore, Hong Kong and Beijing, where labour rates are closer to those in India.

Delhi ranks in 16th and 15th positions in terms of staff costs and non-staff costs per passenger respectively. Delhi's staff costs are only 9.4% of the average for the sample. As an average for the sample of airports, non-staff costs account for around two-thirds of total operating costs although in Delhi's case the relationship is around 84%/16%, emphasizing Delhi's very low levels of staff costs.

For maintenance costs per passenger, a smaller sample size of ten airports including Delhi was used, due to a lack of data specifically relating to maintenance costs for the remainder of the larger sample. Delhi ranked in 8th position out of ten, and its maintenance costs equate to 49% of the average for the sample.

We have some doubts as to whether the figures reported for maintenance by each airport are necessarily made on similar cost allocation bases. The percentage which maintenance costs represents as a proportion of total non-staff costs varies between around 12% and 32%, with Delhi placed at the top of that range, and there is no significant clustering of percentages within the range. The scale of this range suggests that airports may be allocating costs to the maintenance category on different bases.

The following series of charts illustrates the results of our analysis on a per passenger basis.

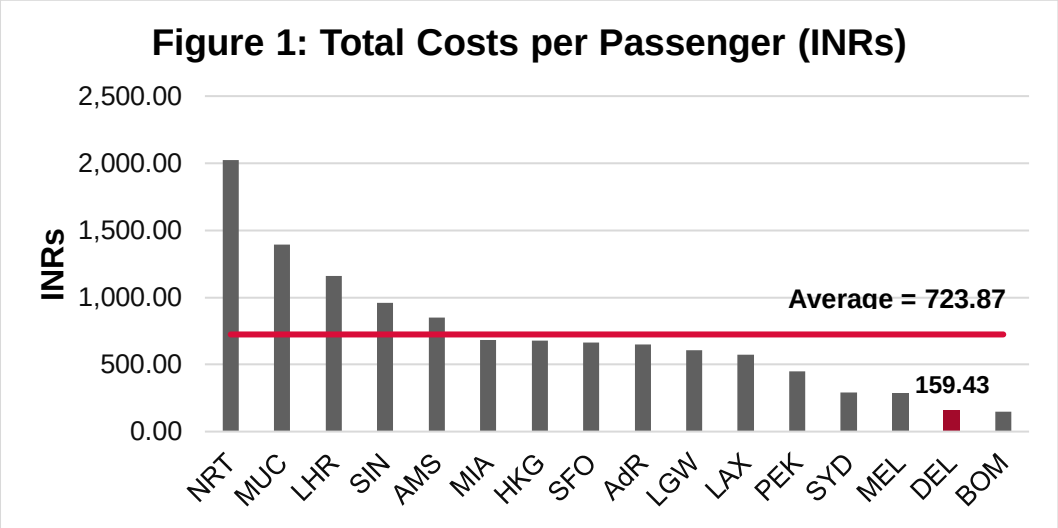


Figure 1: Total Costs per Passenger (INRs)
INRs
2,500.00
2,000.00
1,500.00
1,000.00
500.00
0.00
Average = 723.87
159.43
NRT
MUC
LHR
SIN
AMS
MIA
HKG
SFO
AdR
LGW
LAX
PEK
SYD
MEL
DEL
BOM

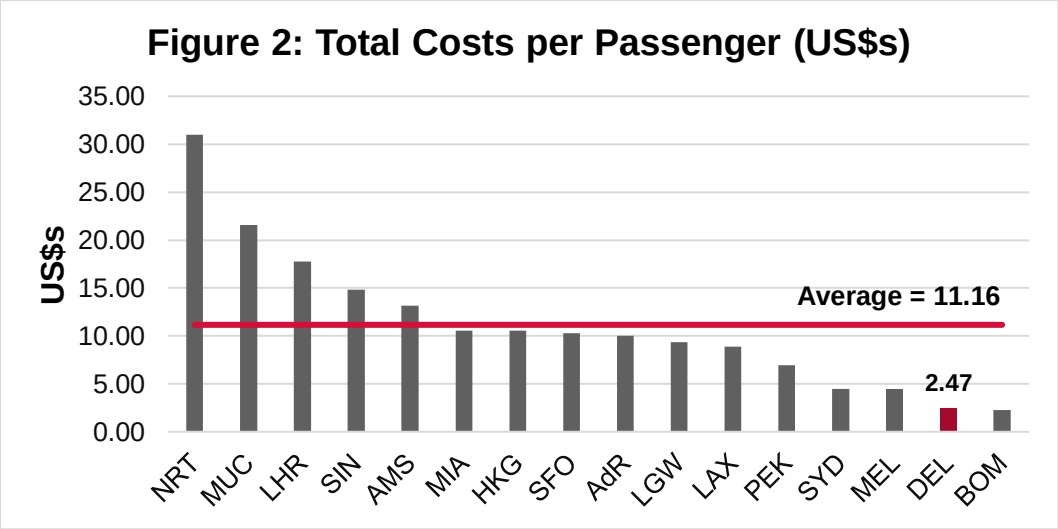


Figure 2: Total Costs per Passenger (US$s)
US$s
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
Average = 11.16
2.47
NRT
MUC
LHR
SIN
AMS
MIA
HKG
SFO
AdR
LGW
LAX
PEK
SYD
MEL
DEL
BOM

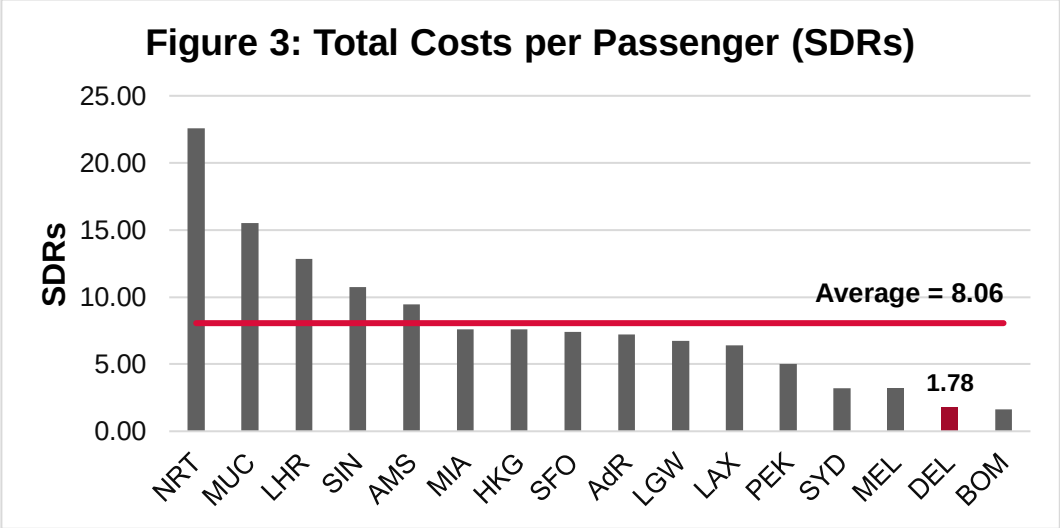


Figure 3: Total Costs per Passenger (SDRs)
SDRs
25.00
20.00
15.00
10.00
5.00
0.00
Average = 8.06
1.78
NRT
MUC
LHR
SIN
AMS
MIA
HKG
SFO
AdR
LGW
LAX
PEK
SYD
MEL
DEL
BOM

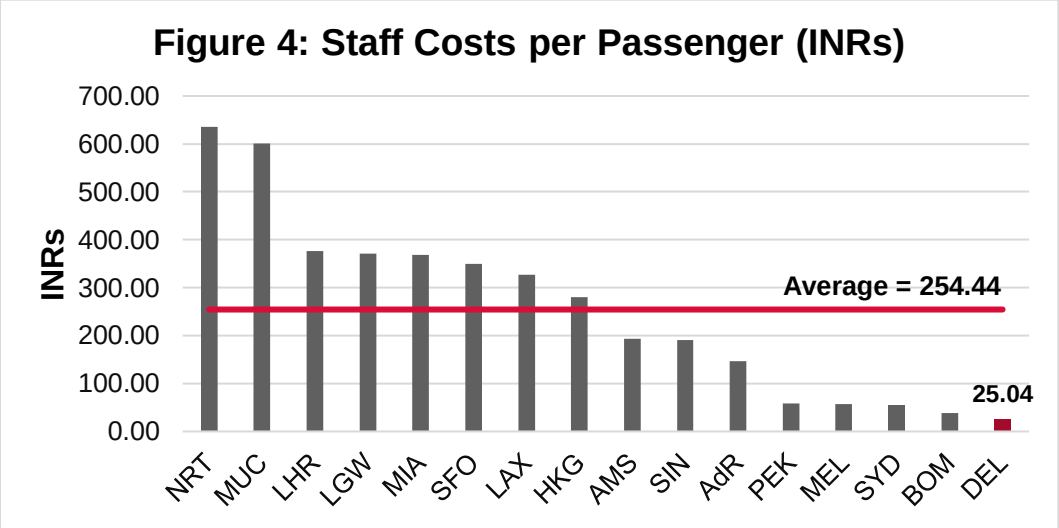


Figure 4: Staff Costs per Passenger (INRs)
INRs
700.00
600.00
500.00
400.00
300.00
200.00
100.00
0.00
Average = 254.44
25.04
NRT
MUC
LHR
LGW
MIA
SFO
LAX
HKG
AMS
SIN
AdR
PEK
MEL
SYD
BOM
DEL

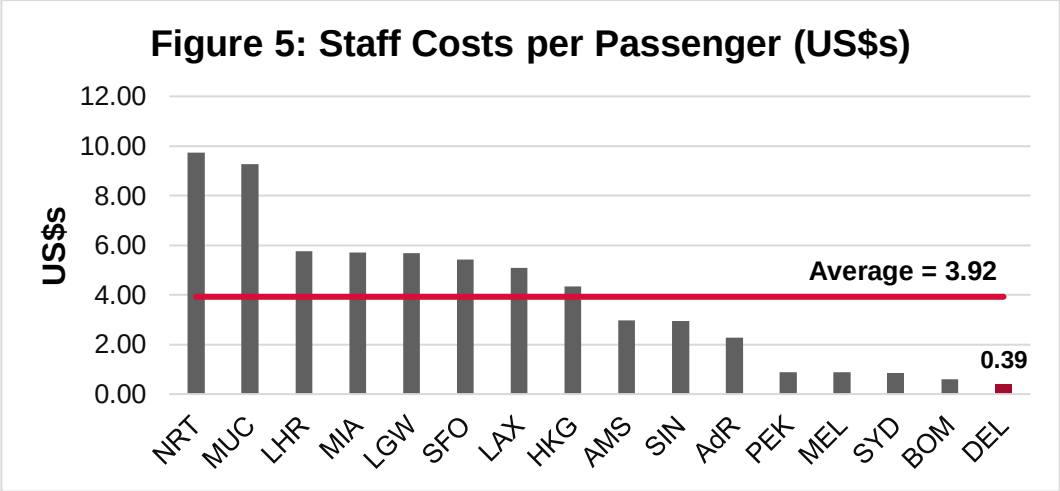


Figure 5: Staff Costs per Passenger (US$s)
US$s
12.00
10.00
8.00
6.00
4.00
2.00
0.00
Average = 3.92
0.39
NRT
MUC
LHR
MIA
LGW
SFO
LAX
HKG
AMS
SIN
AdR
PEK
MEL
SYD
BOM
DEL

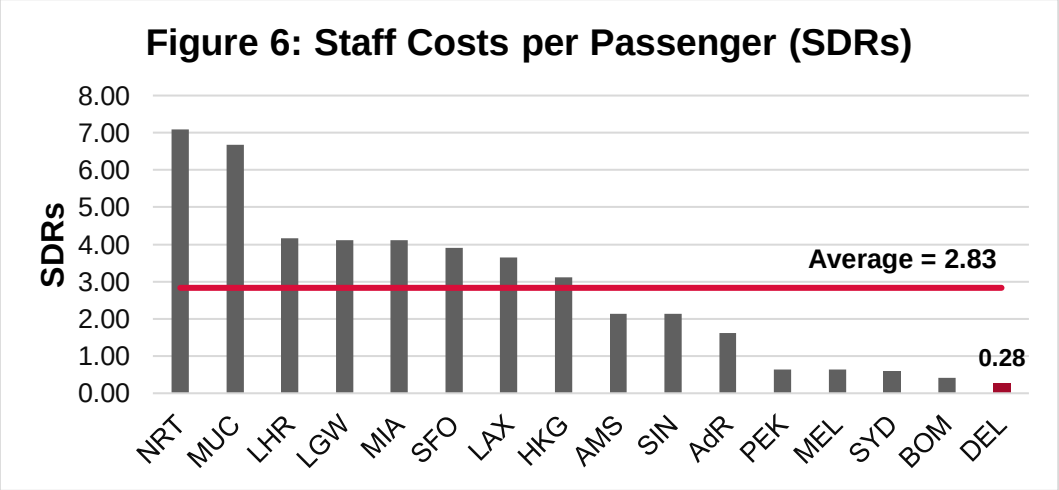


Figure 6: Staff Costs per Passenger (SDRs)
SDRs
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
Average = 2.83
0.28
NRT
MUC
LHR
LGW
MIA
SFO
LAX
HKG
AMS
SIN
AdR
PEK
MEL
SYD
BOM
DEL

Figure 7: Total Non Staff Costs per Passenger (INRs)

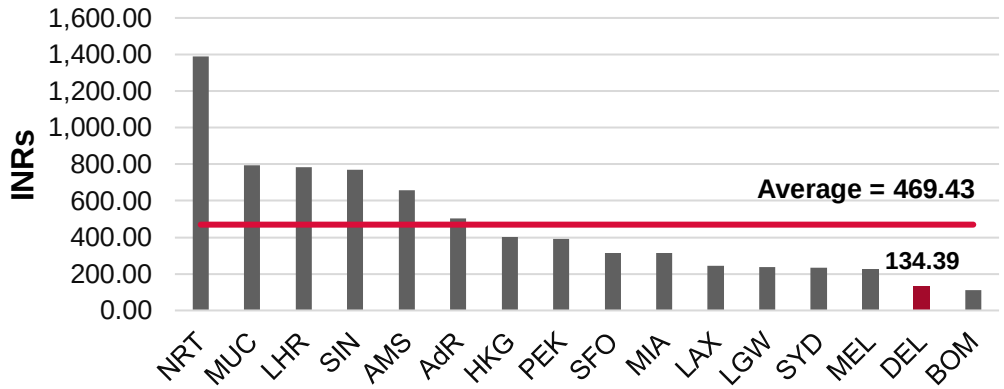


Figure 8: Total Non Staff Costs per Passenger (US$s)

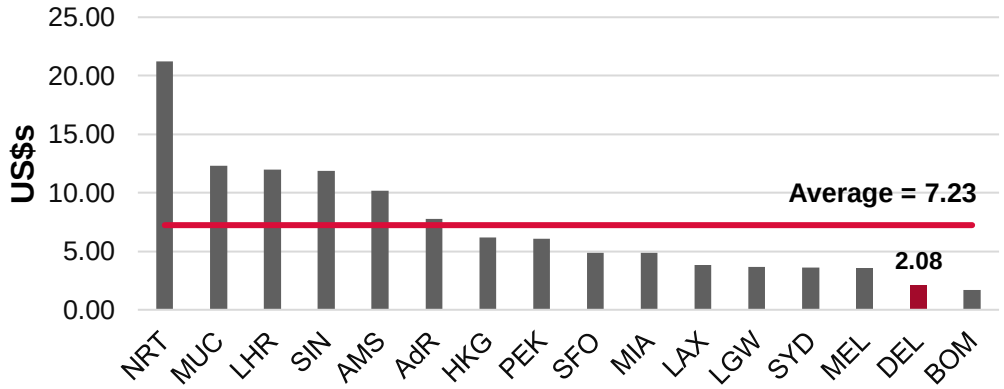


Figure 9: Total Non Staff Costs per Passenger (SDRs)

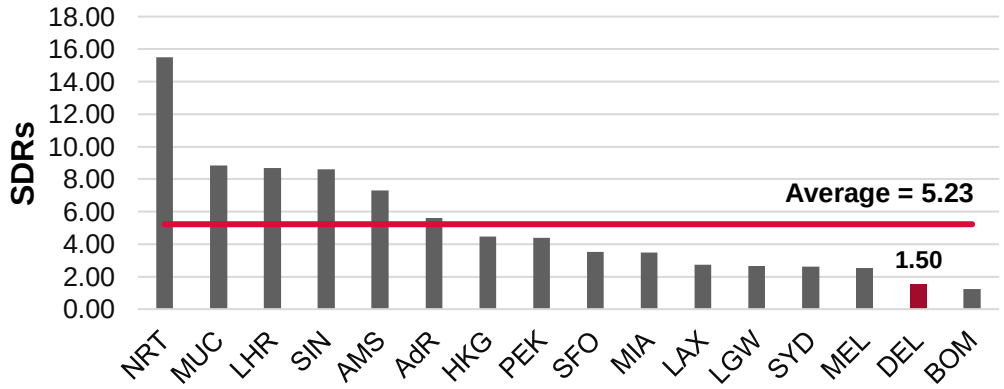


Figure 10: Maintenance Costs per Passenger (INRs)

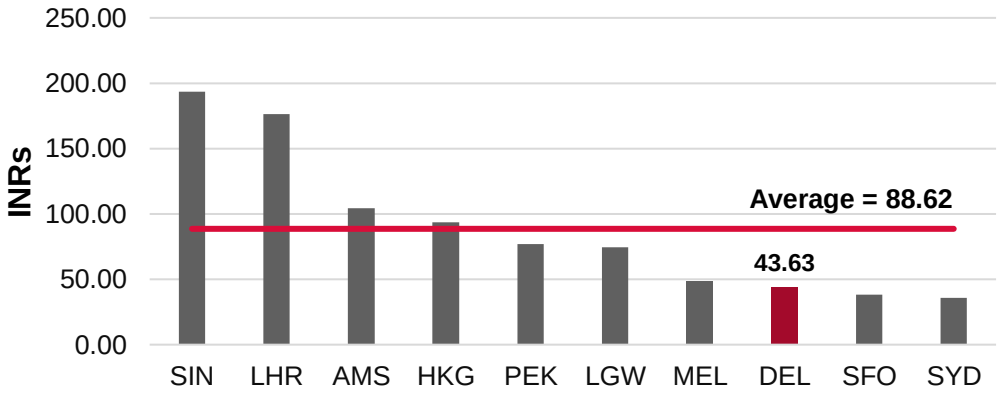


Figure 11: Maintenance Costs per Passenger (US$s)

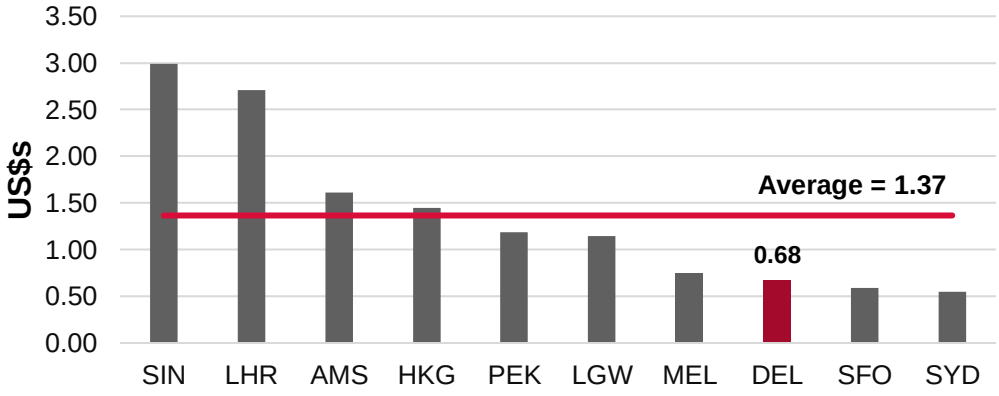
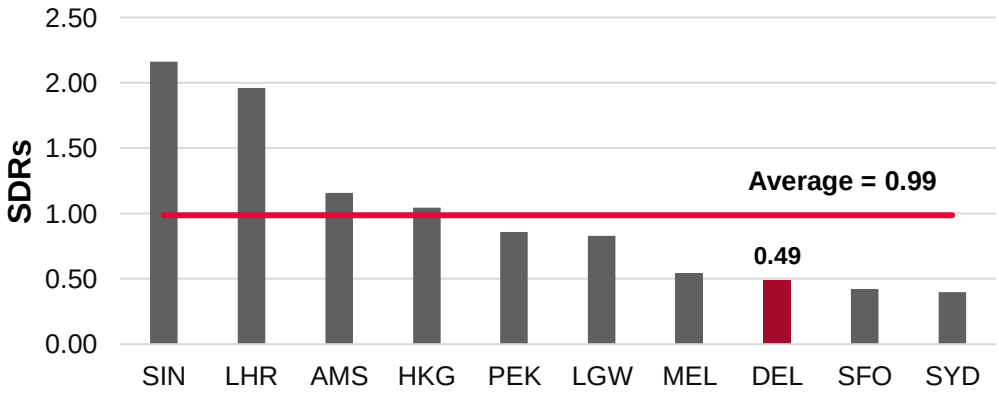


Figure 12: Maintenance Costs per Passenger (SDRs)



5 RESULTS OF THE ANALYSIS – PER ATM BASIS

Any variation between the results of the per passenger and per ATM analyses will be determined by the relationship between the two denominators, i.e. the passengers per ATM for each airport.

Table 2 below shows the relevant figures for each airport in the sample.

Table 2: Passengers per ATM

	Passengers	ATMs	Pax/ATMs
Hong Kong	73,600,000	423,000	174.0
Singapore	62,972,068	377,429	166.8
London Heathrow	78,012,825	474,033	164.6
London Gatwick	45,693,329	280,792	162.7
Tokyo Narita	40,908,450	253,745	161.2
Beijing	95,786,442	597,259	160.4
Mumbai	48,496,430	320,689	151.2
Melbourne	36,754,784	244,476	150.3
Delhi	**65,691,662**	**459,243**	**143.0**
San Francisco	57,722,960	410,846	140.5
Amsterdam	75,800,270	547,604	138.4
Los Angeles	86,633,058	639,036	135.6
Sydney	43,324,488	322,424	134.4
Aeroporti di Roma	46,857,693	351,727	133.2
Munich	44,546,263	383,934	116.0
Miami	44,938,486	415,781	108.1

If the number of ATMs in relation to passengers is high (as at Miami) then the airport's per ATM ranking will tend to be lower than its per passenger ranking. Conversely, if the number of ATMs in relation to passengers is low (as at Hong Kong) then costs per ATM will tend to go up.

In the case of Delhi, passengers per ATM are close to the central point for the sample. Because of this, Delhi's per ATM rankings are the same as its per passenger rankings in all cases. The comments made at the start of the previous section therefore apply equally in the case of the per ATM metrics.

The following series of charts illustrates the results of our analysis on a per ATM basis.

Figure 13: Total Costs per ATM (INRs)

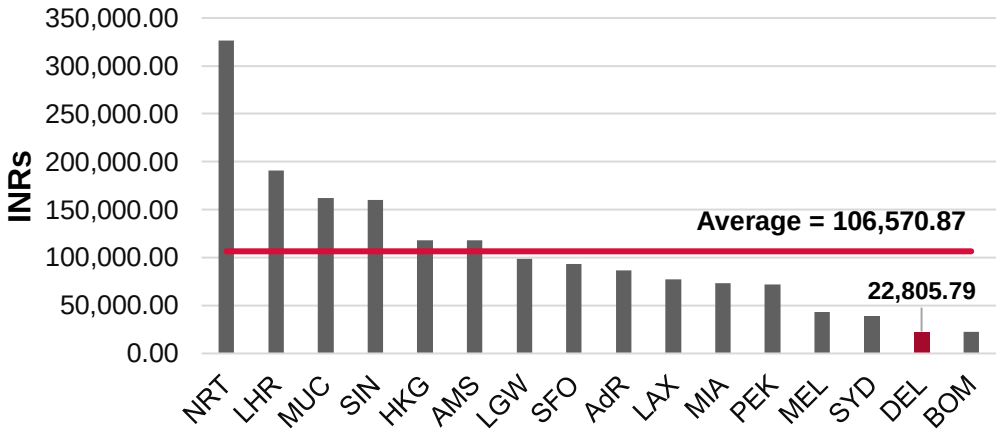


Figure 14: Total Costs per ATM (US$s)

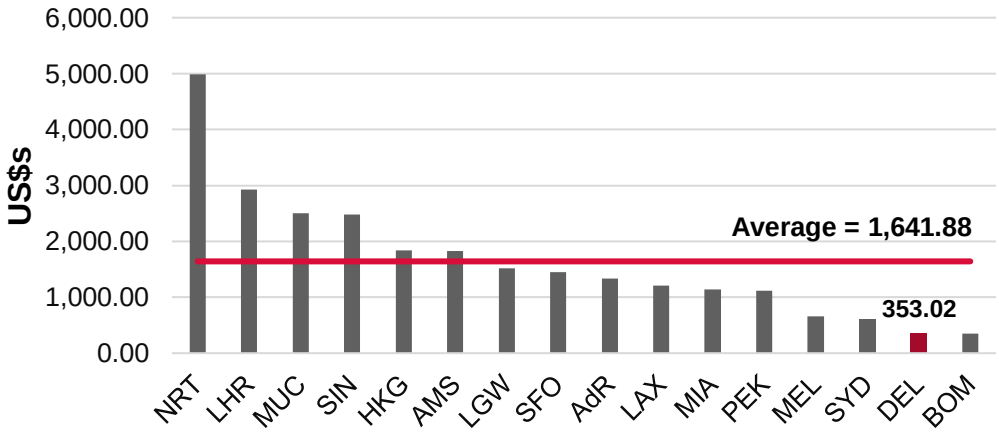
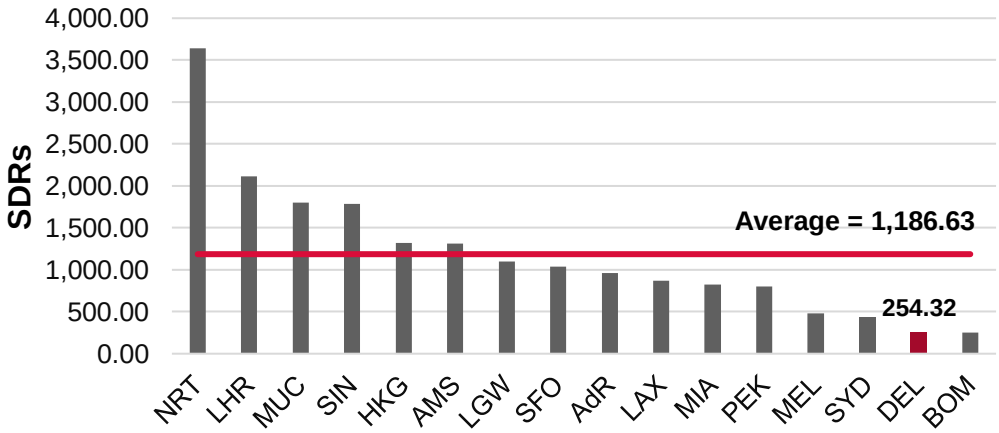


Figure 15: Total Costs per ATM (SDRs)



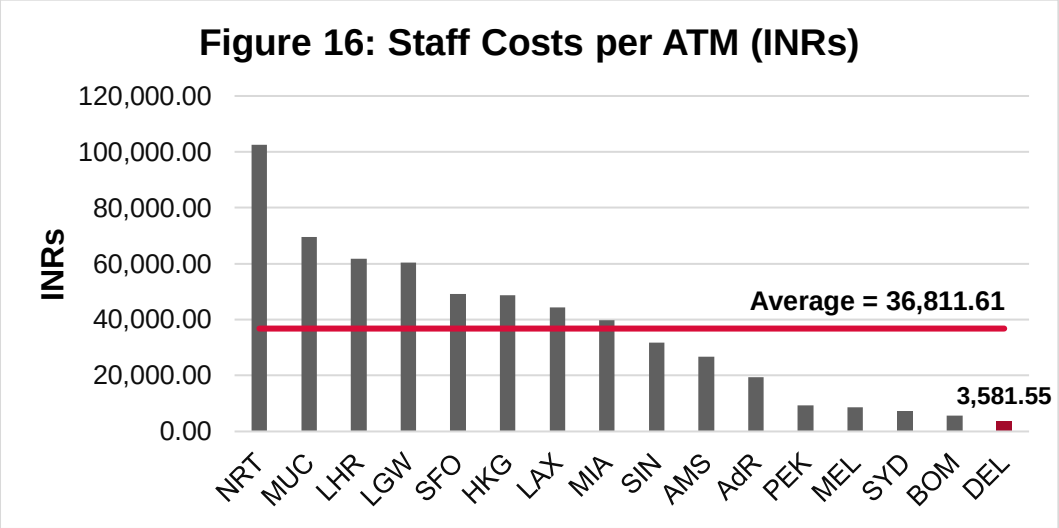


Figure 16: Staff Costs per ATM (INRs)
INRs
120,000.00
100,000.00
80,000.00
60,000.00
40,000.00
20,000.00
0.00
Average = 36,811.61
3,581.55
NRT
MUC
LHR
LGW
SFO
HKG
LAX
MIA
SIN
AMS
AdR
PEK
MEL
SYD
BOM
DEL

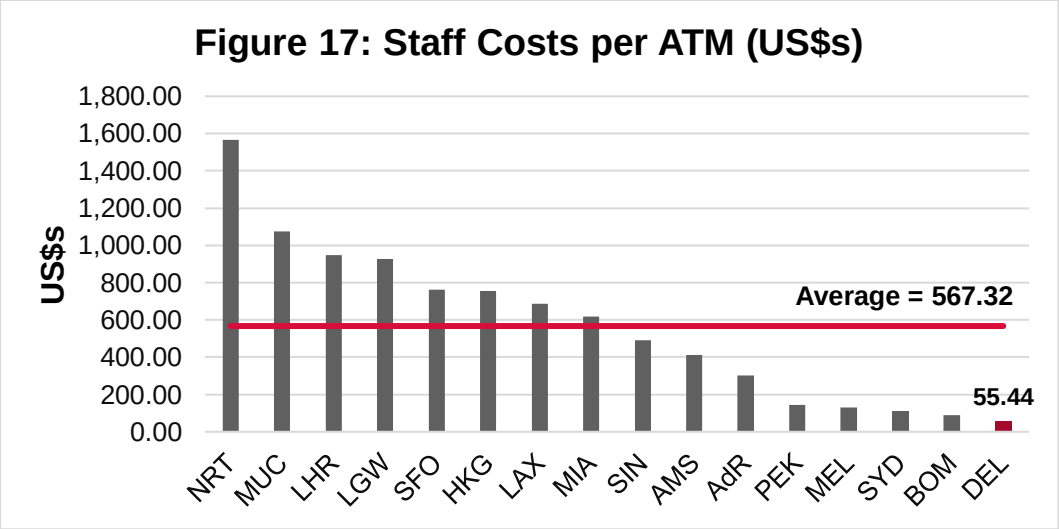


Figure 17: Staff Costs per ATM (US$s)
US$s
1,800.00
1,600.00
1,400.00
1,200.00
1,000.00
800.00
600.00
400.00
200.00
0.00
Average = 567.32
55.44
NRT
MUC
LHR
LGW
SFO
HKG
LAX
MIA
SIN
AMS
AdR
PEK
MEL
SYD
BOM
DEL

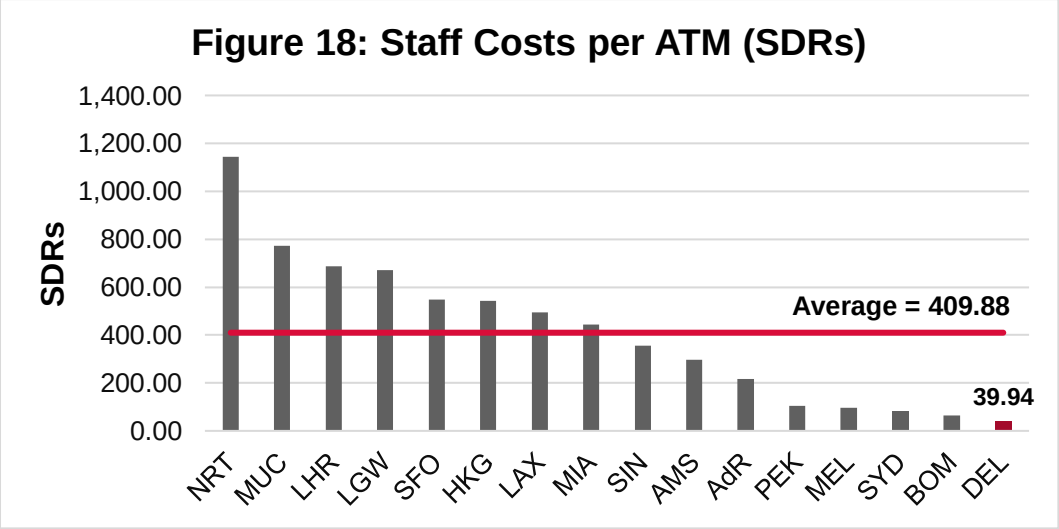


Figure 18: Staff Costs per ATM (SDRs)
SDRs
1,400.00
1,200.00
1,000.00
800.00
600.00
400.00
200.00
0.00
Average = 409.88
39.94
NRT
MUC
LHR
LGW
SFO
HKG
LAX
MIA
SIN
AMS
AdR
PEK
MEL
SYD
BOM
DEL

Figure 19: Non Staff Costs per ATM (INRs)

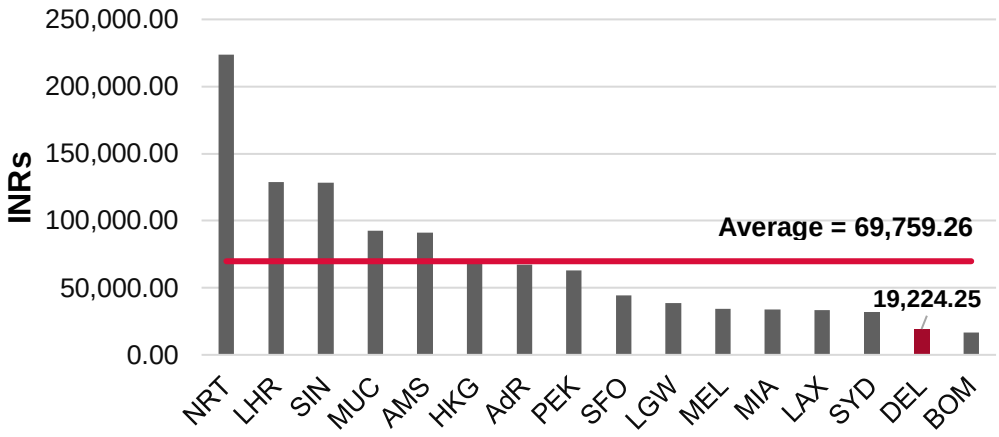


Figure 20: Non Staff Costs per ATM (US$s)

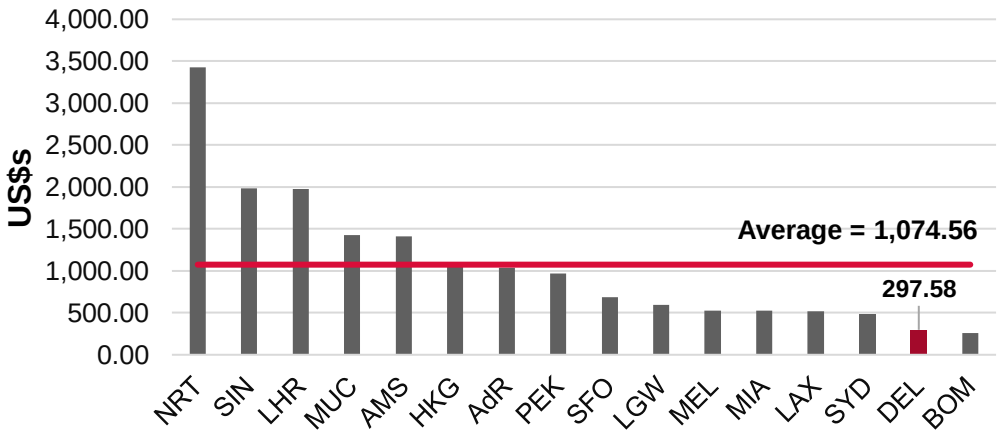


Figure 21: Non Staff Costs per ATM (SDRs)

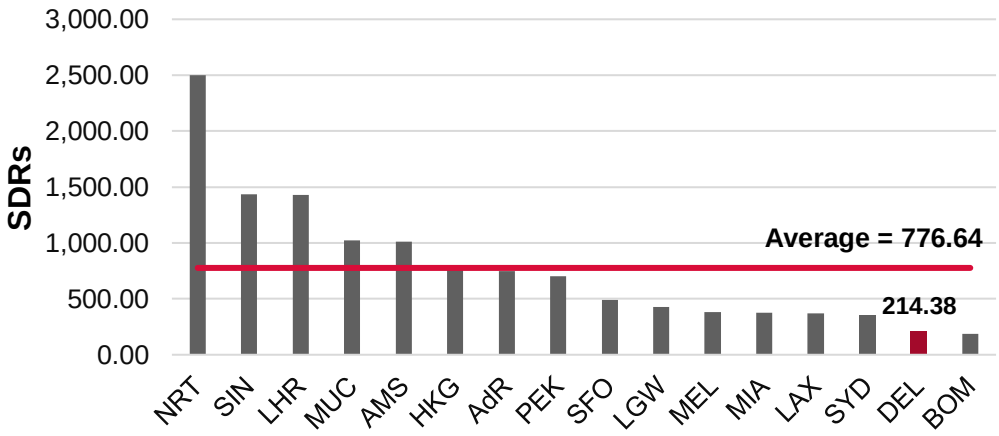


Figure 22: Maintenance Costs per ATM (INRs)

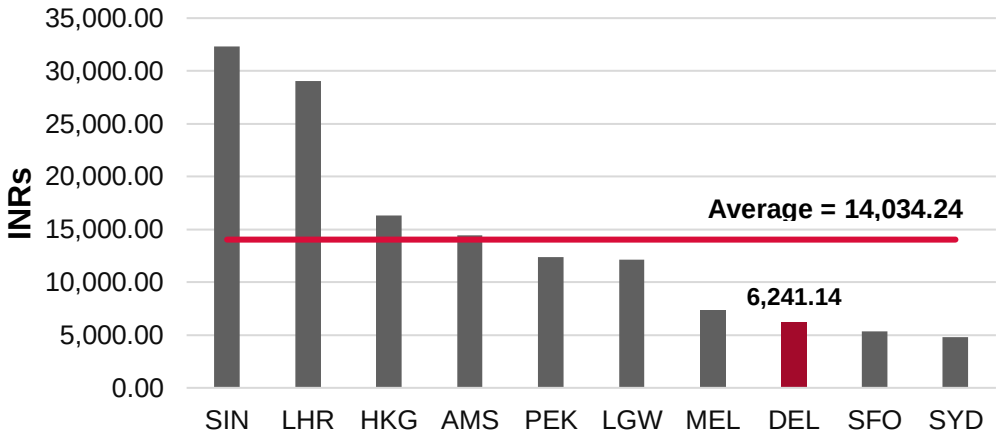


Figure 23: Maintenance Costs per ATM (US$s)

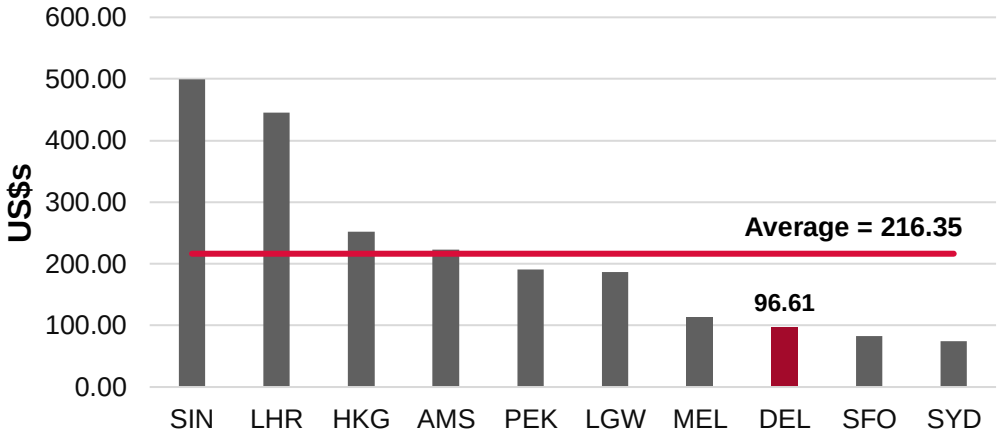
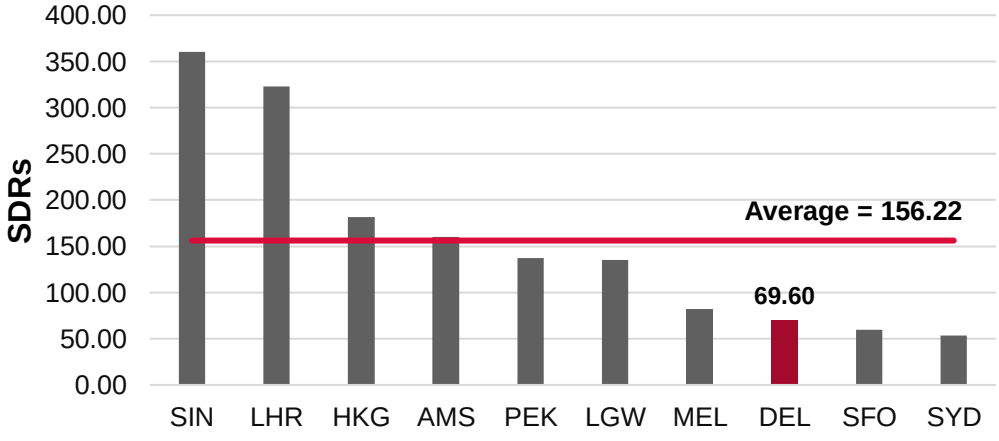


Figure 24: Maintenance Costs per ATM (SDRs)



6 RESULTS OF THE ANALYSIS – AIRPORT CAPACITY BASIS

DIAL has requested that the benchmarking analysis also be carried out in relation to the airports' passenger capacity. Before commenting on this analysis it may first be useful to set out some observations on issues relating to the definition of airport capacities.

At any given time, airport capacity is a function of runway capacity, passenger terminal capacity and aircraft parking stand capacity. However, the first two of these variables may change over time, not necessarily as a result of either capital expenditure or operating expenditure being contributed by the airport. In the case of runway capacity, this may vary as a result of changes to air traffic control procedures, as well as because of incremental changes on the ground, such as the development of additional taxiways and the introduction of runway rapid entries/exits. As an example, it would be possible to raise the current hourly runway capacity at London Heathrow from its current level of 86 to around 99 ATMs per hour, with minimal additional expenditure, if the government was prepared to approve mixed mode rather than the current segregated mode operations. Similarly, San Francisco International Airport has been in discussion with the FAA regarding the introduction of various improved operating procedures which are expected to raise hourly runway movements capacity with a corresponding increase in passenger capacity from 50 million passengers to 57 million passengers p.a. Thus the cost/capacity relationship may not be fixed at an airport over time.

The capacity of passenger terminals is generally defined at the time of their construction. However, again over time, the capacity of the overall terminal structure may change as a result of minor capital investments which have little or no impact on operating expenditure. In addition, it is not uncommon for the passenger throughput of a terminal to exceed its stated capacity on a routine basis. As an example, Aeroporti di Roma expected that, for the period 2010 – 2015, passenger throughput at Rome Fiumicino would exceed capacity by between 2% and 11%. In such cases, delays in capital projects combined with growth in passenger numbers mean that the airport is obliged to accept that passenger service standards will be adversely affected by crowding in the terminal(s).

In view of these caveats, therefore, it must be accepted that design- or declared capacities should only be regarded as approximations to the maximum potential capacity of the airport.

Table 3 below sets out the capacities which we have assumed for the sample of airports.

Table 3: Assumed airport capacities (Millions of passengers p.a.)

		% in use 2017
Amsterdam	75.0	101.1%
Beijing	95.5	100.3%
Delhi	**66.0**	**99.5%**
Hong Kong	74.0	99.5%
London Gatwick	45.5	100.4%
London Heathrow	85.0	91.8%
Los Angeles	79.0	109.7%
Melbourne	40.0	91.9%
Miami	50.0	89.9%
Mumbai	40.0	121.2%
Munich	61.0	73.0%
Aeroporti di Roma	47.0	99.7%
San Francisco	62.0	93.1%
Singapore	85.0	74.1%
Sydney	45.0	96.3%
Tokyo Narita	49.5	83.5%

The analysis in this section expresses costs in relation to the airports' passenger capacity. Therefore, by definition, per passenger capacity costs will be lower than per passenger costs unless the airport is already operating at over its full capacity.

When we carried out this analysis in our previous report for DIAL, the airports in the sample were in a position of mostly operating at well below their available capacity. The average level of utilisation was 76.2%, and the highest level of utilisation was 93.6%. This situation reflected the fact that traffic levels in 2010 were in many cases lower than they had been a few years previously, because of the widespread traffic downturns that occurred as a result of the worldwide economic problems of 2008 and 2009. This situation has changed significantly in the intervening years; the average utilisation in 2017 was 95.3%, and nine of the sixteen airports in the sample, including Delhi, were operating at over 95% of their capacity.

Because passenger throughputs are now relatively closely aligned with passenger capacities, the rankings for Total Costs per Passenger (Figures 1 to 3) are similar in a number of cases to the rankings for Total Costs per Passenger Capacity (Figures 25 to 27); a total of five airports out of the sample of 16 have the same ranking in both metrics. In the case of the two airports with the lowest percentages of capacity in use, Munich and Singapore, the ranking positions fall, from 2nd to 4th and from 5th to 6th respectively.

In the case of Staff costs per Passenger and per Passenger Capacity (Figures 4 – 6 and 28 – 30 respectively), the ranking results are more closely aligned; a total of ten airports have the same ranking in the two metrics, including both Munich and Singapore.

For Non-staff costs per Passenger and per Passenger Capacity (Figures 7 – 9 and 31 – 33 respectively), there are fewer ranking changes, with twelve rankings remaining unchanged. Delhi's position is 15th in both cases.

For Maintenance costs per Passenger and per Passenger Capacity (Figures 10 – 12 and 34 – 36 respectively), Delhi's ranking position remains unchanged at 8th out of the 10 airports. Our comments made in Section 4 regarding possible differences within the airport sample in the way in which maintenance costs are allocated apply equally in the case of these metrics.

The following series of charts illustrates the results of our analysis on a per capacity basis.

Figure 25: Total Costs per Passenger Terminal Capacity (INRs)

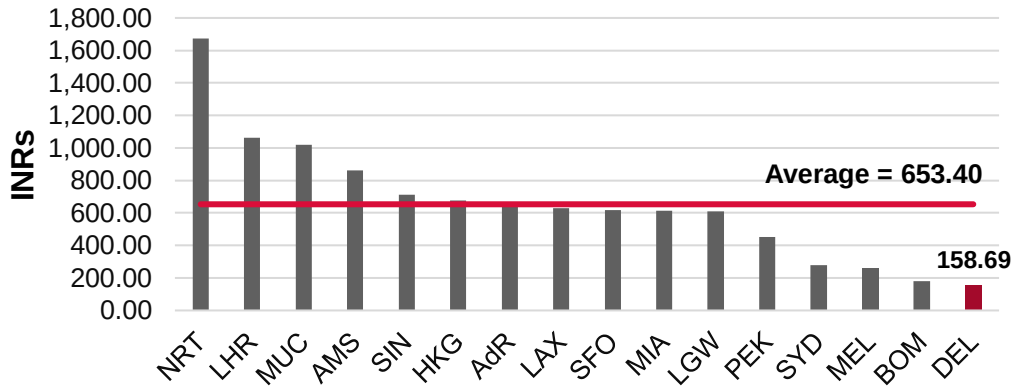


Figure 26: Total Costs per Passenger Terminal Capacity (US$s)

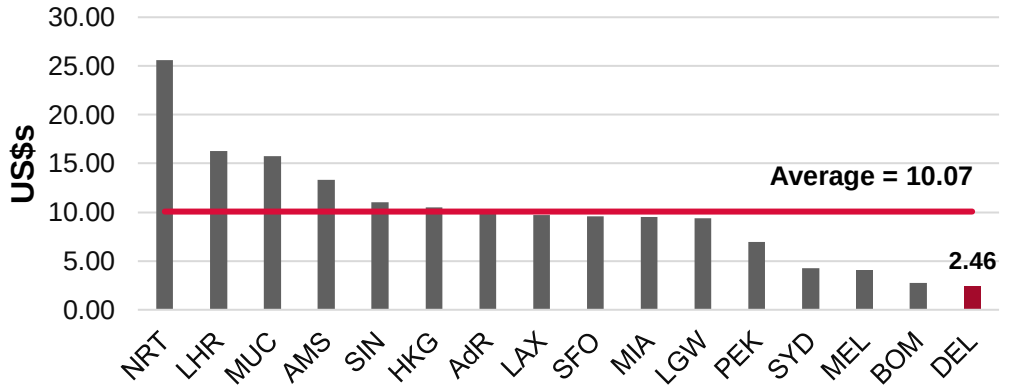


Figure 27: Total Costs per Passenger Terminal Capacity (SDRs)

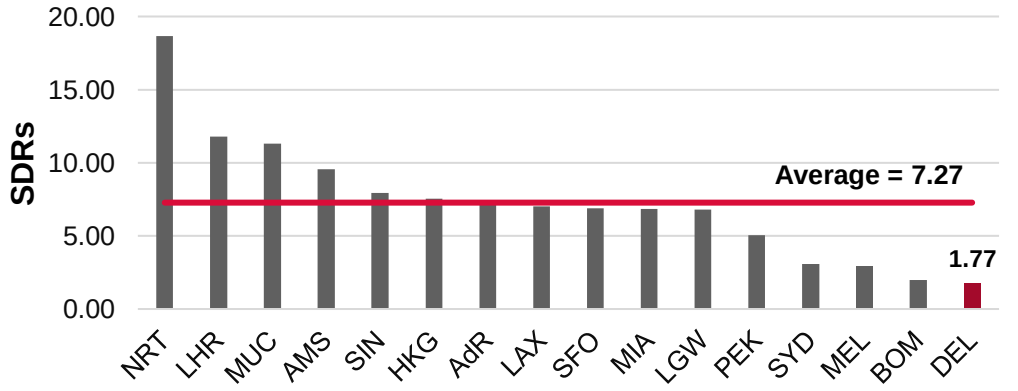


Figure 28: Staff Costs per Passenger Terminal Capacity (INRs)

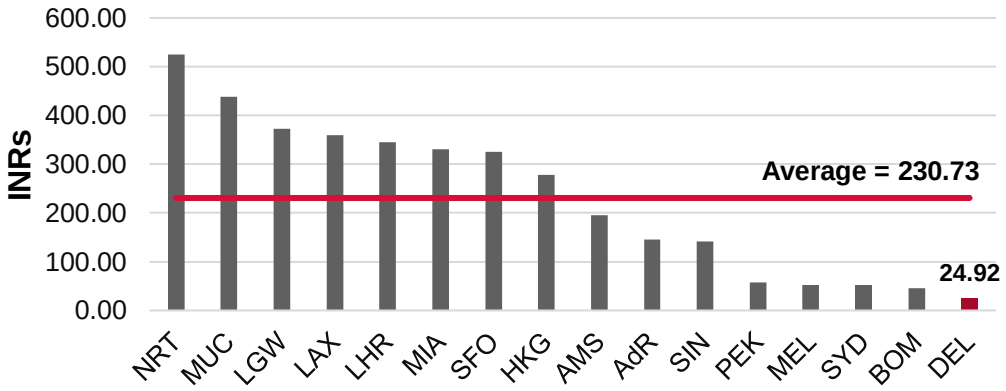


Figure 29: Staff Costs per Passenger Terminal Capacity (US$s)

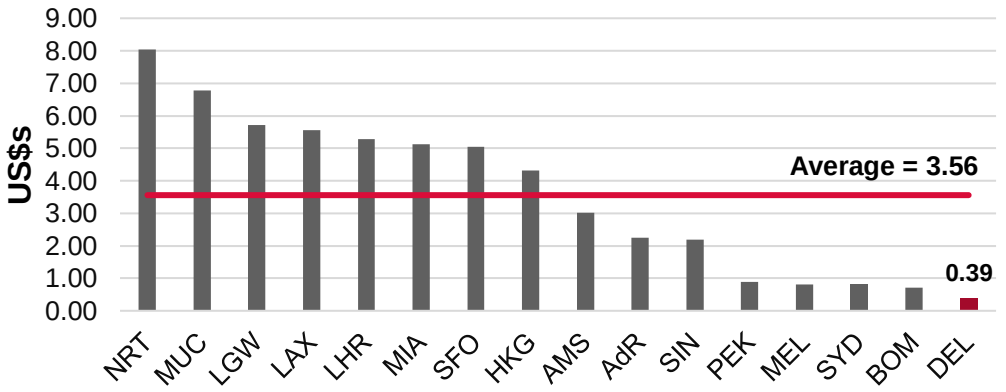


Figure 30: Staff Costs per Passenger Terminal Capacity (SDRs)

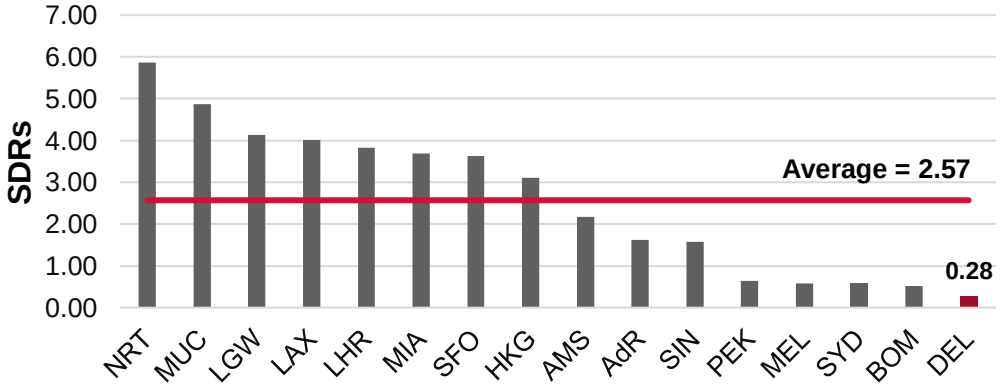


Figure 31: Non Staff Costs per Passenger Terminal Capacity (INRs)

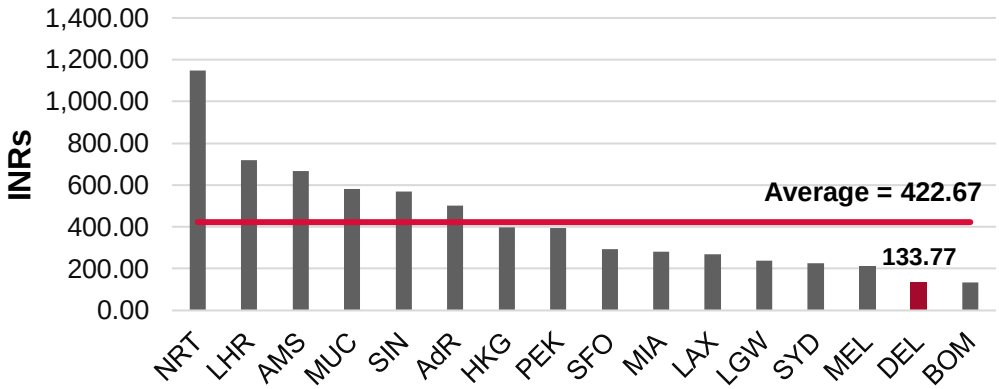


Figure 32: Non Staff Costs per Passenger Terminal Capacity (US$s)

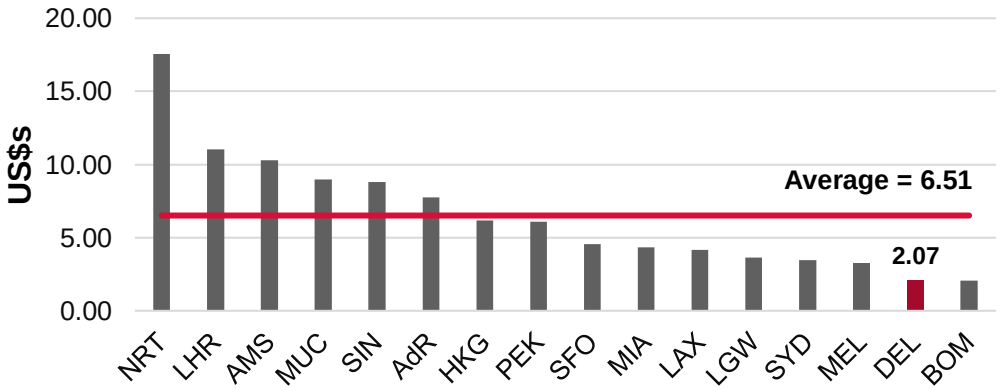


Figure 33: Non Staff Costs per Passenger Terminal Capacity (SDRs)

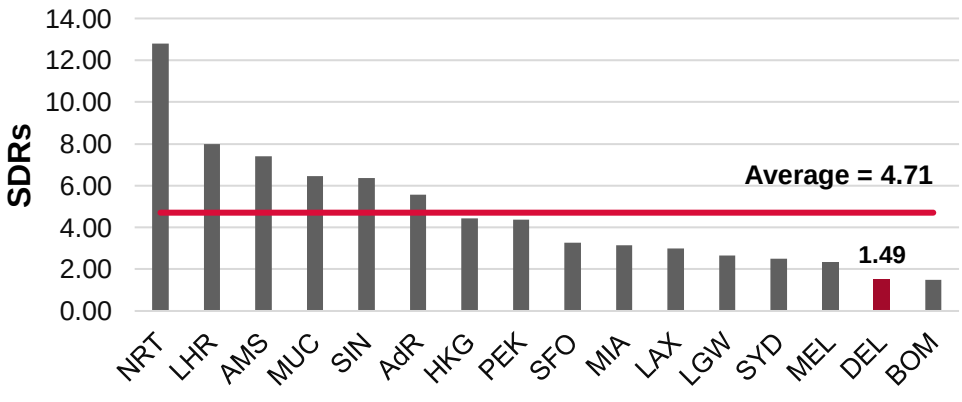


Figure 34: Maintenance Costs per Passenger Terminal Capacity (INRs)

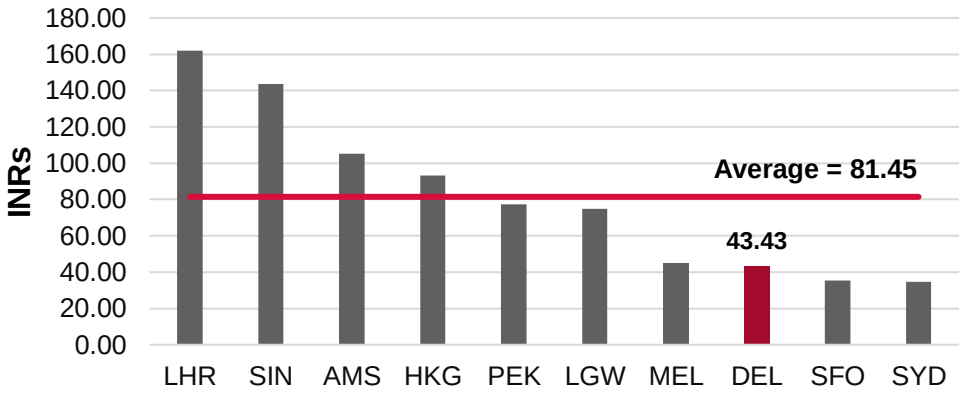


Figure 35: Maintenance Costs per Passenger Terminal Capacity (US$s)

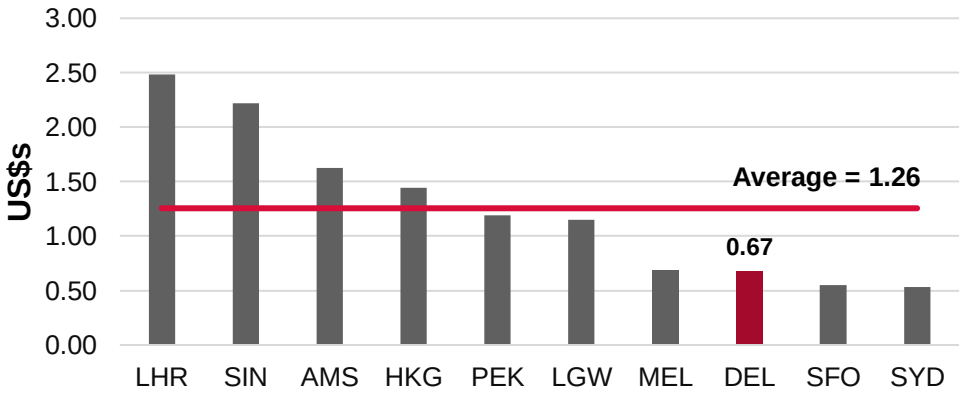
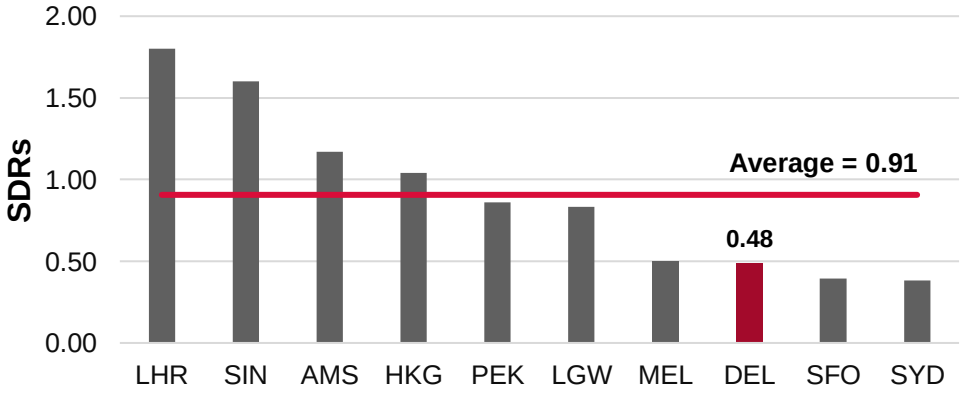


Figure 36: Maintenance Costs per Passenger Terminal Capacity (SDRs)



7 SUMMARY

Our analysis indicates that Delhi's costs are very low in relation to those of its peers in the sample. Table 4 below sets out Delhi's costs as a percentage of the average for the sample for each of the 36 metrics.

Table 4: Delhi's costs as a percentage of sample averages

Metrics	INRs	US$s	SDRs
Per passenger			
Total costs	20.8%	20.9%	20.8%
Staff costs	9.4%	9.5%	9.4%
Non-staff costs	26.8%	26.9%	26.9%
Maintenance costs	49.2%	49.4%	49.3%
Per ATM			
Total costs	20.3%	20.4%	20.3%
Staff costs	9.3%	9.4%	9.4%
Non-staff costs	26.0%	26.1%	26.1%
Maintenance costs	44.5%	44.7%	44.6%
Per terminal capacity			
Total costs	22.8%	22.9%	22.8%
Staff costs	10.3%	10.3%	10.3%
Non-staff costs	29.5%	29.6%	29.5%
Maintenance costs	53.3%	53.5%	53.4%

For Total Costs, Staff Costs and Non-staff costs Delhi's costs fall within a range of 9.3% and 29.6% of the average. In the case of maintenance costs, Delhi's costs fall within a range of 44.5% and 53.5% of the average. The scale of this difference (between the variation from the average for maintenance costs compared to the variation from the average for the other three metrics) reinforces our doubts relating to the comparability of maintenance costs on the grounds of differing approaches in allocating costs to the maintenance category at the various airports. A possible factor may also be that Delhi's terminal facilities are now around ten years old: because of this, Delhi's maintenance costs might reasonably be expected to be somewhat higher than those at airports with newer facilities.

Appendix 1 – Breakdown of total operating costs

BREAKDOWN OF TOTAL OPERATING COSTS				
	Before adjustment		**After adjustment**	
	Amount	% of total	Amount	% of total
Delhi (INR 000s)				
Staff costs	1,644,800		1,644,800	
Non-staff costs				
Administration	2,357,900	26.7%	2,357,900	26.7%
Maintenance	3,547,900	40.2%	2,866,200	32.5%
Other opex	2,922,800	33.1%	3,604,500	40.8%
Total non-staff costs	8,828,600	100.0%	8,828,600	100.0%
Total operating costs	10,473,400		10,473,400	
Amsterdam (€000s)				
Staff costs	212,528		198,472	
Non-staff costs				
Security	192,517	27.4%	192,517	28.4%
Subcontracted activities	125,029	17.8%	125,029	18.4%
Maintenance	107,189	15.2%	107,189	15.8%
Temporary staff	63,894	9.1%	63,894	9.4%
Cleaning	36,541	5.2%	36,541	5.4%
Insurance and government levies	21,790	3.1%	21,790	3.2%
Advisory and audit fees	21,192	3.0%	21,192	3.1%
Hotel activities	20,242	2.9%	-	-
Energy and water	18,030	2.6%	12,931	1.9%
Costs related to investments	15,267	2.2%	15,267	2.3%
Commercial expenses	14,544	2.1%	14,544	2.1%
Other expenses	66,837	9.5%	66,837	9.9%
Total non-staff costs	703,072	100.0%	677,631	100%
Total operating costs	915,600		876,103	
Beijing (RMB000s)				
Staff costs	600,364		581,799	
Non-staff costs				
Repairs and maintenance	774,775	19.3%	774,775	19.6%
Concession management fees	661,752	16.5%	661,752	16.8%
Aviation safety and security guard costs	640,874	15.9%	640,874	16.2%
Utilities and power	606,778	15.1%	606,778	15.4%
Operating contracted services	385,950	9.6%	385,950	9.8%
Real estate and other taxes	250,064	6.2%	250,064	6.3%
Greening and environmental	210,213	5.2%	210,213	5.3%
Rental expenses	123,085	3.1%	123,085	3.1%
Other expenses	367,937	9.1%	293,676	7.4%
Total non-staff costs	4,021,428	100.0%	3,947,167	100.0%
Total operating costs	4,621,792		4,528,966	

	Before adjustment		After adjustment	
	Amount	% of total	Amount	% of total
Hong Kong (HK$ m)				
Staff costs	2,492		2,492	
Non-staff costs				
Repairs and maintenance	834	23.4%	834	23.4%
Operational contracted services	767	21.5%	767	21.5%
Government services	788	22.1%	788	22.1%
Government rent and rates	154	4.3%	154	4.3%
Occupancy expenses	288	8.1%	288	8.1%
Other expenses	735	20.6%	735	20.6%
Total non-staff costs	3,566	100.0%	3,566	100.0%
Total operating costs	6,058		6,058	
London Gatwick (£000s)				
Staff costs	201,900		201,900	
Non-staff costs				
Maintenance and IT expenditure	40,600	31.4%	40,600	31.4%
Rent and Rates	30,300	23.5%	30,300	23.5%
Utility costs	21,100	16.3%	21,100	16.3%
Police costs	13,400	10.4%	13,400	10.4%
Aerodrome navigation service costs	11,600	8.9%	11,600	8.9%
Other operating costs	12,100	9.4%	12,100	9.4%
Total non-staff costs	129,100	100.0%	129,100	100.0%
Total operating costs	331,000		331,000	
London Heathrow (£000s)				
Staff costs	349,000		349,000	
Non-staff costs				
Operational expenses	241,000	33.1%	241,000	33.1%
Maintenance	164,000	22.6%	164,000	22.6%
Business rates	124,000	17.1%	124,000	17.1%
Utilities	86,000	11.8%	86,000	11.8%
Other expenses	112,000	15.4%	112,000	15.4%
Total non-staff costs	727,000	100.0%	727,000	100.0%
Total operating costs	1,076,000		1,076,000	
Los Angeles (US$000s)				
Staff costs	466,263		439,784	
Non-staff costs				
Contractual services	220,264	66.9%	220,264	66.9%
Materials and supplies	49,703	15.1%	49,703	15.1%
Utilities	39,433	12.0%	39,433	12.0%
Other operating expenses	19,818	6.0%	19,818	6.0%
Total non-staff costs	329,218	100.0%	329,218	100.0%
Total operating costs	795,481		769,002	

	Before adjustment		After adjustment	
	Amount	% of total	Amount	% of total
Melbourne (AU$000s)				
Staff costs	53,787		42,395	
Non-staff costs				
Service and utilities	150,561	67.3%	96,854	57.1%
Maintenance	36,196	16.2%	36,196	21.3%
Administration and marketing	13,759	6.2%	13,759	8.1%
Other expenses	22,903	10.3%	22,903	13.5%
Total non-staff costs	223,419	100.0%	169,712	100.0%
Total operating costs	277,206		212,106	
Miami (US$000s)				
Staff costs	236,342		236,342	
Non-staff costs				
Operating expenses	134,501	66.8%	134,501	66.8%
Environmental remediation	169	0.1%	169	0.1%
Opex under management agreements	7,337	3.7%	7,337	3.7%
Opex under operating agreements	18,667	9.3%	18,667	9.3%
General and administration	40,342	20.1%	40,342	20.1%
Total non-staff costs	201,016	100.0%	201,016	100.0%
Total operating costs	437,358		437,358	
Mumbai (INR000s)				
Staff costs	1,840,000		1,840,000	
Total non-staff costs (no breakdown available)	5,340,000		5,340,000	
Total operating costs	7,180,000		7,180,000	
Munich (€000s)				
Staff costs	482,081		362,891	
Non-staff costs				
Raw materials and supplies	171,868	33.7%	171,868	35.7%
Purchased services	227,120	44.5%	227,120	47.3%
Audit, consulting and project services	17,311	3.4%	17,311	3.6%
Advertising and PR	15,360	3.0%	15,360	3.2%
Lease expenses	14,003	2.7%	14,003	2.9%
Other expenses	65,062	12.7%	35,223	7.3%
Total non-staff costs	510,724	100.0%	480,885	100.0%
Total operating costs	992,805		843,776	
Rome Airports (€000s)				
Staff costs	93,075		93,075	
Non-staff costs				
Raw materials and consumables	30,072	6.9%	30,072	9.4%
Service costs	380,912	87.6%	266,203	83.1%
Other expenses	23,951	5.5%	23,951	7.5%
Total non-staff costs	434,935	100.0%	320,226	100.0%
Total operating costs	528,010		413,301	

	Before adjustment		After adjustment	
	Amount	% of total	Amount	% of total
San Francisco (US$000s)				
Staff costs	312,972		312,972	
Non-staff costs				
Contractual services	86,103	30.6%	86,103	30.6%
Light, heat and power	23,800	8.5%	23,800	8.5%
Services provided by other City departments	23,369	8.3%	23,369	8.3%
Repairs and maintenance	34,038	12.1%	34,038	12.1%
Materials and supplies	17,573	6.2%	17,573	6.2%
General and administration	2,535	0.9%	2,535	0.9%
Environmental remediation	4,627	1.6%	4,627	1.6%
Other expenses	89,254	31.8%	89,254	31.8%
Total non-staff costs	281,299	100.0%	281,299	100.0%
Total operating costs	594,271		594,271	
Singapore (SG$000s)				
Staff costs	256,593		256,593	
Non-staff costs				
Property tax	63,926	6.2%	63,926	6.2%
Maintenance	260,421	25.1%	260,421	25.1%
Services and security-related expenses	243,919	23.6%	243,919	23.6%
Annual ground rent and licence fees	79,810	7.7%	79,810	7.7%
CAAS services	220,458	21.3%	220,458	21.3%
Other expenses	166,523	16.1%	166,523	16.1%
Total non-staff costs	1,035,057	100.0%	1,035,057	100.0%
Total operating costs	1,291,650		1,291,650	
Sydney (AU$000s)				
Staff costs	57,500		47,550	
Non-staff costs				
Services and utilities	84,200	36.7%	60,320	29.3%
Property and maintenance	31,400	13.7%	31,400	15.3%
Security	83,600	36.4%	83,600	40.7%
Other expenses	30,300	13.2%	30,300	14.7%
Total non-staff costs	229,500	100.0%	205,620	100.0%
Total operating costs	287,000		253,170	
Tokyo Narita (¥000s)				
Staff costs	45,337,436		45,337,436	
Total non-staff costs (no breakdown available)	101,329,564		99,029,564	
Total operating costs	146,667,000		144,367,000	

Data sources
Delhi: data provided by GMR
Mumbai: data provided by GVK
Amsterdam, Beijing, Los Angeles, Melbourne, Miami, Munich, Rome airports, San Francisco, Singapore, Sydney: Annual Reports downloaded from airports' websites
London Gatwick, London Heathrow: Statutory Accounts downloaded from Companies House website
Tokyo Narita: data provided by Narita International Airport Corporation

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