APAO Response to AERA Consultation Paper No. 05/2014-15 in the Matter of Normative Approach to Building Blocks in Economic Regulation of Major Airports

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1 INTRODUCTION

This report has been produced by the ICFI on behalf of the Association of Private Airport Operators (APAO) in response to the Consultation Paper by the Airports Economic Regulatory Authority of India entitled 'In the Matter of Normative Approach to Building Blocks in Economic Regulation of Major Airports'. The report has been prepared by ICFI on behalf of APAO and incorporates APAO's conclusions and recommendations, together with the analysis and research by ICFI, on which those findings have been based.

The normative approach proposed by AERA has two main elements:-

- The use of fixed norms for certain characteristics in place of direct estimates based on individual airports;
- The introduction of 'truing up' processes for operational and maintenance costs and Non-Aeronautical Revenue (NAR) whereby differences between actual performance and forecast performance are wholly or partially clawed back in the next regulatory period.

The 8 proposals listed by APAO span these elements as shown below:

Table 1: AERA Proposals

	Area	Approach
Proposal 1	Debt: equity ratio for WACC	Fixed norm and True up
Proposal 2	Fair return on equity	Fixed norm
Proposal 3	Useful life of assets and depreciation	Fixed norms
Proposal 4	Operation and Maintenance expenditure	True up
Proposal 5	Capital expenditure	Fixed norm
Proposal 6	Aeronautical and non-aeronautical asset allocation	Fixed norm
Proposal 7	Operations and maintenance cost allocation	Fixed norm
Proposal 8	Non-aeronautical revenue	Partial true up

The two elements of fixed norms and truing up are not necessarily linked, and have different issues of principle for the application of a CPI-X formula, which will be discussed in this response.

The AERA paper is effectively divided into two parts: a general discussion of its approach to norms and the regulation more generally, followed by a consideration of the 8 specific proposals. This response paper reflects that structure by dealing first with general points made by AERA, and then dealing with the individual proposals in turn.

2 THE BASIS OF THE NORMATIVE APPROACH IN THE AIRPORTSECTOR

2.1 THE APPLICATION OF NORMS

The most straightforward approach to regulation is to base it upon the positions of individual companies, examining how they have evolved over time and how they are likely to develop in the future. This may use benchmarking information derived from other companies as a diagnostic tool in determining whether performance could be improved, and by how much: however it does not give the resulting benchmarks a direct involvement in the regulatory mechanism in the form of norms.

Some industries have found it possible to incorporate norms more formally. To work effectively, however, the use of norms in the regulation of a specific industry such as water or electricity generation requires:-

- A set of reasonably homogenous companies;
- Good understanding of the external drivers of performance so that the position of a company can properly be evaluated (e.g. costs per user for electricity distribution systems will differ between densely populated urban environment and sparsely populated rural one, input costs – especially for labour intensive activities - will differ between regions, and many industries have economies of scale – at least up to a point);
- A well-founded and extensively calibrated model based on these drivers which enable the regulator to control for differences;
- Allowance of a reasonable amount of time for catch up in performance to occur;
- Provision of a margin of head room to:-
  - Allow for any residual error due to differences not controlled for – even for models with a relatively high level of explanatory power;
  - Ensure that desired new investment is viable for all companies – not just the very best.

It is intrinsic to this approach that where there are genuine differences between the circumstances of companies which are likely to have a significant effect on that company's ability to meet a given norm, those differences are taken into account and allowed for. Best practice for regulators which do use norms, is to set them for individual companies based on statistically derived equations which correct for those differences. 'One size fits all' would only be appropriate for a very homogenous set of companies indeed.

As an example, when dealing with one aspect of costs at generating stations (auxiliary energy consumption) CERC in India comments:

'*The existing norms of auxiliary consumption of coal based generating stations varies from 6% for unit size of 500 MW and above to 8.5% for 200MW series with steam driven boiler feed pumps and electrically driven boiler feed pumps with relaxed norms for specific generating stations of smaller size. In respect of gas based generating station, auxiliary consumption varies from 1.0 to 3.0% depending on open or combined cycle operation. The existing norm of auxiliary consumption of lignite based generating station is 0.5% more than coal based generating station with electrically driven feed pump and 1.5% more if the lignite fired station is using CFBC technology.*

The auxiliary consumption does not include colony power consumption and construction power consumption.'

Source: Approach Paper for Control period 1.4.2014 to 31.3.2019. CERC 2013

So in this case norms have been built up based on extensive analysis of facilities, and flex according to features of individual stations including size and fuel type, open or combined cycle operation, and feed pumps. There is provision for specific calculations for smaller stations. This is a long way from 'one size fits all'.

In the specific case of airports - even in a single country – the sample of companies is not homogenous. Instead, it is widely recognized that performance in major areas is likely to depend on a range of factors as shown below:

Table 2: Factors Affecting Airport Costs and Performance

Factor	Comment
Airport size	Economies of scale exist, but as complexities grow, those economies of scale may reduce or be reversed
Type of development	Development of greenfield sites, where access and basic infrastructure must be provided but the site is relatively clear, will have different cost structures to those at existing airports.
Type of traffic	International traffic – especially long haul – tends to be significantly more expensive than domestic.
Activities undertaken and the way they are done;	Split of activities between airport, outsourced suppliers and third parties can vary. Some airports carry out non aeronautical in-house whereas others may outsource it with implications for costs.
Complexity of facilities required (e.g. multi runway, multi terminal, hubbing requirements)	More complex facilities and operations generate additional costs. Hubbing operations require separate processing pathways for transferring passengers
Service priorities of users and service levels achieved	High levels of service will tend to require higher levels of capital and operating expenditure
Climate pressures	Heating and cooling costs will vary with external conditions and facility design will also be affected. Internationally the presence of freezing conditions and snow will

Factor	Comment
	affect operations and costs. In Indian conditions the severe weather conditions in the North (with a range from 3° C to 45°C) differ from the more moderate climates of the West or South parts of India – which in their turn are subject to heavy monsoon rains
Peaking of traffic	Airports with very peaky traffic tend to have higher levels of fixed costs as facilities, staff and other costs are required to match peak period demands. Relatively flat schedules maximize the efficiency of use of assets. In contrast peaks – single or multiple – add to costs.
Local labour costs and Minimum Wages	Labour costs and minimum wages can vary sharply, even within the same country / state. Typically airports in capital cities and major commercial centres tend to have higher costs.
Indirect and local taxes	Airports are subject to a variety of taxation arrangements, which will affect overall costs
Extent and age of assets	Legacy assets are unlikely to be best tailored to new needs and may lead to significant inefficiencies – particularly if they are underused. The presence of legacy assets also hampers the smooth development of new infrastructure as the construction team needs to operate around the constraints imposed by the existing infrastructure already in place. Older assets are likely to require more maintenance and may not be energy efficient.
Specific contractual terms in concession	The airports privatized under the various concession processes have mandated quality requirements. The cost demands at such airports will differ from those which have no such mandate.
Specific Government requirements from the airport	Airports may be affected by specific guidance in terms of individual facilities (such as VIP units) and requirements in terms of quality (Some APAO members airports, for example are required to match the quality of top Asian airports – such as Incheon and Changi). Such stipulations will inevitably have an impact on costs.
Capacity utilization	Unit costs will vary with the degree of utilization of capacity as fixed costs are shared over more users.
Indexing	Costs are not static. Any benchmarked cost set by AERA would at least need to be indexed to ensure continuing validity.

When performance of airports is examined, APAO observes that:

- Costs and other factors do not necessarily converge even in markets (such as those in the UK) which are highly competitive;

- Even comparisons which attempt to correct for a differences in activities (such as those contained in the Leigh Fisher annual Airport Performance Indicators) show substantial differences between airports.

As a result any benchmarking exercise cannot be conclusive without demonstrating that the airports being benchmarked are similar in nature in terms of factors such as: culture, climate, demography of passengers, income level of passengers, availability of land, future requirements, and other issues, or at the very least, that all of these factors have been fully adjusted for.

In APAO's view, without this, the precise benchmarking of elements of capex and opex, needed for fair and effective regulation, is not possible.

Moreover, we are not aware of a general model controlling for these factors, which would credibly set norms (as distinct from general benchmarks) for operating or capital expenditure, ***and we are not aware of any airport regulator who has attempted to use this approach.***

In practice, even if sophisticated modeling were to be possible, the specific situation of India would make the establishment of stable norms very difficult. Many Indian airports – including the largest – are characterized by significant change in key areas and are affected by:-

- Transition into privatization;
- Very rapid growth;
- Significant developments in the airline industry;
- Substantial capital expenditure including the opening of major new facilities which are likely to have substantial impacts on the costs and operations of their associated airports.

As a result, any attempt to set norms would be plagued by the need to hit a rapidly moving target. Even if the setting of norms were generally applicable, there is not at this stage sufficient stability in India to make the use of credible uniform norms applicable across airports and over time.

In addition APAO believes that:

- The radical use of norms by AERA in the place of detailed examination of individual airport performance would represent a ***major change in regulation which was not foreseeable when current privatization took place, and would alter the economic balance of those concessions***. There is no reference to the use of norms for operating cost or capital expenditure in the description of regulation in the SSA's applying to Mumbai or Delhi (though naturally operating costs are expected to be 'efficient'). Similarly the use of norms is not mentioned in the ICAO guidelines applying to price setting and regulation at GHIAL and BIAL. Even if the use of norms were applicable to new airport privatizations, the approach should not be applied to existing privatized airports and this should be brought out clearly in pre-bidding for new privatizations;
- Major airport concessions are currently operated based on specific agreements. These include Operation, Management and Development Agreements (OMDAs) and State Support

Agreements (SSAs) in case of Delhi and Mumbai, and Concession Agreement and State Support Agreements in case of Hyderabad and Bangalore airport. The OMDAs make it mandatory for these airports to achieve the objective and subjective service quality requirements, which are higher than the IATA level C envisaged in the Inter Ministry Group (IMG) document cited. The resulting requirements of the concession agreements for larger and higher specification facilities conflict, in particular, with the space standards proposed by IMG. This may lead to the danger of the airport concerned being unfairly and unreasonably penalized for being forced to make disallowed expenditure for facilities which are "too good".

In practice the IMG Report (in paragraph G on page 9) itself, recognizes the limited applicability of any norms:

"Airports developed through Public Private Partnerships

In the case of airports developed through Public Private Partnerships, the project authorities may adopt a case by case approach with respect to norms relating to unit area and unit costs. Based on the judicious consideration of international best practices and financial viability, the norms may be specified ***in each case prior to inviting bids for private participation****."*

On the face of it, therefore, the IMG norms would not be appear to be applicable to APAO members.

Even where airports have not yet been privatized, an application of norms at a given airport or project, should not be implemented, until the financial consequence for that airport or project, have been evaluated. In particular, the potential impact on viability should be fully established and the methodology for compensating the airport for such loss should be finalized.

To the extent that issues associated with norms (including for example the cost of equity) are currently subject to judicial processes, APAO strongly believes that no decision should be reached by AERA until the results of those processes are known and AERA is able to reflect on the findings of the courts in reaching their decisions**.**

Worldwide the trend is towards deregulation of the airports, with regulators standing back from dictating the terms of regulatory price settings. In countries such as Australia, New Zealand and the United States, the regulator is not normally involved. In other countries such as Germany, France, Italy, Denmark, and Belgium, charges are negotiated, with the regulator only acting in a 'backstop'. Even in the UK, Gatwick and Stansted have been now been taken out of heavy handed regulation: Stansted is completely deregulated and Gatwick is subject to lighter touch regulation. This is seen as desirable to promote commercial relationships and avoid 'crowding out' airport innovation and management initiatives in response to customer needs. In the light of this trend, the current consultation paper of AERA appears to represent a retrogressive desire for to impose micro management and to put the regulators' judgments on key areas of the business above those of the airport itself and its customers.

Conclusions on the Application of Norms

- The effective and fair use of norms is dependent on the existence of a homogenous group of regulated operations and a well-established and credible model for adjusting for differences. Airports, however, do not meet these criteria and we are not aware of any major precedents for the use of compulsory norms for capital expenditure or unit operating costs directly in regulation of airports worldwide;
- Instead best practice in airport regulation is to base forecasts on the performance of individual companies, rather than to introduce hard targets based on transfer of the performance of airports elsewhere;
- This results from the widely accepted view in the industry, that airports are diverse entities with a wide range of factors determining their performance. Given these divergences, there is no basis for setting fixed norms on a simple 'one size fits all' approach. Moreover, there is no robust basis for deriving adjusted norms through the application of comprehensive and widely accepted models which can effectively explain differences in performance in areas such as capital and operating expenditure. In any case, the immature and rapidly changing nature of the Indian airport industry would mean that the norms would not hold good over a period of time;
- Even were a credible norm based model to be available, its use in regulation would represent a major departure from the regulation envisaged for currently privatized airports at the time at which concessions were let, and in APAO's view would be entirely unwarranted.
- The introductions of norms would represent a change to the basis of regulation included in current concession documents Norms are not referred to in the SSA's for Mumbai and Delhi and do not form part of the ICAO Policies on Charges for Airports and Air Navigation Services guidelines which are specified for the regulation of BIAL and GHIAL. They would appear to investors and potential investors to be an example of the 'hold up problem', which can present a major disincentive to infrastructure investment. Effectively investors are concerned about being entrapped into a long term commitment and then finding that the terms could be changed unilaterally to their disadvantage, in a situation where they have limited bargaining power
- The IMG Report confirms APAO's belief that no norms can reasonably be prescribed for Indian airport post privatization. Worldwide the trend is towards deregulation of the airports and reducing regulatory intervention. In contrast the current consultation paper of AERA represent, in APAO's view, a retrogressive attempt to micro-manage.

APAO Recommendation:

The IMG Report states explicitly in paragraph G on page 9 that:

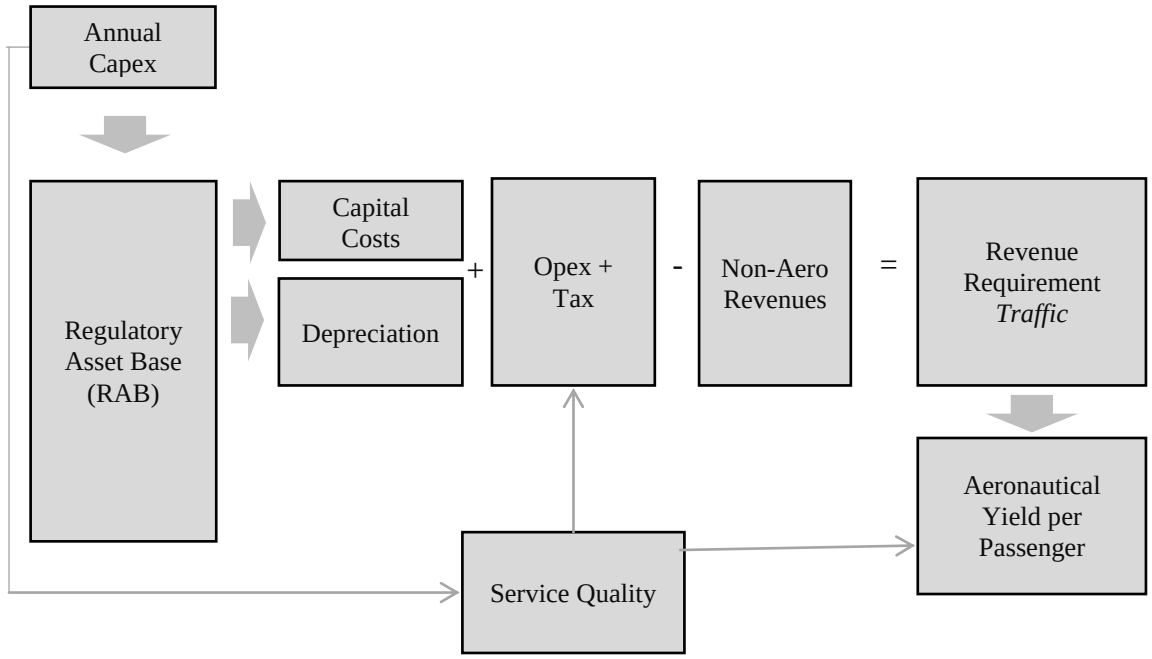
"Airports developed through Public Private Partnerships

In the case of airports developed through Public Private Partnerships, the project authorities may adopt a case by case approach with respect to norms relating to unit area and unit costs. Based on the judicious consideration of international best practices and financial viability, the norms may be specified in each case prior to inviting bids for private participation."

As such no norms derived from IMG in the current consultation paper should be applicable to privatized airports

2.2 THE IMPLICATIONS OF THE AERA APPROACH TO SETTING THE RAB

Chart 1 - AERA's Regulatory Methodology



Source: In the Matter of Normative Approach to Building Blocks in Economic Regulation of Major Airports, AERA 2014

AERA has set out its approach to determining the Regulatory Asset Base (RAB) in section 3.9 of its report, based on the diagram shown above. In explaining this, AERA quotes the UK CAA

'Under this approach, a Regulated Asset Base (RAB) is defined and valued. As time progresses, capital expenditure (capex) is added to the RAB. The RAB drives two of the fundamental building blocks that make up the company's revenue requirement: the cost of capital (the return on RAB) and the depreciation allowance (return of RAB). These two building blocks are then added to the projected level of operating expenditure (opex) to calculate the total revenue requirement for the business.'

Source: In the Matter of Normative Approach to Building Blocks in Economic regulation of Major Airports', AERA 2014

In this approach a rolling forward approach to RAB is adopted using the formula.

RAB year t = RAB year t-1 + capital expenditure – depreciation

This process is continued on an annual basis throughout and across regulatory periods. The UK CAA also applies an adjustment for inflation, and makes a compensating adjustment to the cost of capital. This is not an essential part of the process applied in India.

It is important to note that the RAB does not include accounting adjustments for, for example, prior year's gains or losses, or revaluations. It is fully accepted that it does not necessarily correspond to the balance sheet as shown in the statutory accounts. Instead the RAB used in this manner, is seen as directly reflecting the amount of the capex base which has not been returned to investors.

An important characteristic of this methodology is that there is no possibility of equity owners having their capital paid back twice or making a return once the investment has no value. Capital is returned through depreciation of the RAB and once removed from the RAB is not added back

It should also be noted that the model does not include the 'liability' side of the balance sheet. There is no requirement to model separately the returns to equity and debt, as there might, in regulation based on return on equity (as for example employed by CERC in its regulation of electricity generation and transmission). This will be discussed further at a later stage.

As the UK CAA states:

The RAB is the value of the amount that has been invested in the airport by the company which has not yet been passed back to the company by inclusion in the price cap. The price cap is set at a level which (if the airport prices up to the cap and matches all other price cap assumptions (including traffic)) enables the airport to recover the amounts it has invested in the RAB and a return on the RAB. In these specific circumstances the RAB is the expected net present value of future cash flows using the WACC as the discount rate.

***Source*: Mid-Quinquennium review – Stansted RAB UK CAA 2012**

More generally the CAA agrees with the Competition Commission that it is not appropriate to set the RAB equal to the value of its assets in its statutory accounts […]. The notion that the RAB acts as a unit of regulatory value and as such need not correspond to statutory asset values is widely accepted in UK regulation and is one that the CAA firmly endorses.

***Source*: Economic Regulation of BAA London Airports (Heathrow, Gatwick and Stansted) 2003 – 2008 CAA Decision February 2003**

In fact in the UK and Australia, the initial approach was to base airport regulation on statutory accounts. However in both countries problems were identified with applying this approach over a period of time and separate regulatory accounts were prepared.

Both regulators effectively recognized that the RAB is effectively a measure of the value to which investors are entitled. As a result, at the point of transition, the regulators in both the UK and Australia needed to take into account the problems of applying such a methodology retrospectively when investment and other decisions had already been made**.**

In Australia the regulator required airports to 'draw a line in the sand' at a 2006 date, and while revaluations to replacement cost prior to that point would be accepted, the regulator declared that no revaluations after that date should be taken into account for regulatory monitoring purposes**..**

In the UK the regulator moved to a roll forward system from its 1996 review. In order to ensure fairness, the base used was tested to ensure that it was compatible with both the original payment for the assets at the time of privatization in 1986, and the roll forward of accounting assets from the start of the previous review. Similarly regulation applied in Italy has had to take into account the position of airports already privatized at the time that new regulatory provisions were introduced (including the price paid by investors for assets at privatization) given the regulatory approach which was then intended to be put in place.

In the case of India, APAO believes that, subject to a similar pragmatic approach to the impact on investors of any future changes, the current system of roll forward of RAB is acceptable.

Conclusions on the AERA Approach to RAB Setting

- AERA has adopted a methodology to setting RAB which is based on a simple rolling forward approach, adding capital expenditure and subtracting depreciation. This follows the approach adopted by CAA in the UK, with the exception that the RAB there is indexed by inflation;
- Rolling forward in this way provides figures which directly reflect the value of the investment in the company which has not been returned to users. It avoids any possibility of double counting returns to equity or debt providers;
- The model does not include the liability side of the balance sheet other than in the setting of the cost of capital, and the use of a weighted average for this purpose, means that there is no need in the methodology for separating the returns to debt and equity;
- Subject, as in other countries, to pragmatic measure to protect investors from the impact of future changes, APAO supports AERA's approach to the roll forward of assets.

3 SPECIFIC AERA PROPOSALS

3.1 PROPOSAL 1 - REGARDING THE DEBT-EQUITY RATIO AND WACC

a) The Authority proposes to follow a normative debt to equity ratio of 70:30 for the purposes of calculation of the Weighted Average Cost of Capital with 30% as ceiling and true up of WACC at the end of the control period depending on the actual proportion of equity (net worth) in the capital structure (based on the capital structure from year to year)

b) The authority notes that in this approach, truing up is required for (i) debt: equity ratio and (ii) cost of debt.

Although this is not always clear in the text, the proposal by AERA has two separate elements, with quite different properties and justification:-

- The adoption of a debt: equity for the calculation of the cost of capital; and
- The effective prescription of the adopted ratio in actual use with penalties for not observing it.

The Use of Debt: equity Ratio for the Cost of Capital

In APAO's view the most practicable approach to adopting debt: an equity ratio, for the cost of capital or any other purpose is to base them on the actual debt equity ratios of the companies themselves. This allows the regulatory decisions to align with the actual financial positions of the regulated airports on the ground, and avoids the danger of the regulator making decisions on the basis of assumptions which could in practice be entirely impractical and potentially imprudent.

In APAO's view, therefore, the use of a norm for this purpose is best avoided. However, where a norm is to be adopted, the point chosen by the regulator should be intended to be prudent and efficient. In other words it is expected that neither the users nor the owners would gain by a significant shift. If, for example, more debt is adopted, then shareholders face: a higher degree of risk, a higher cost of debt, and the likelihood of more exacting covenants and other terms. Most regulators believe that, within reason, it is for the owners to make decisions in this area, with the regulatory concern being primarily that the company should not encounter financial distress during the period concerned, which might impact the interests of users. ***In general an important test would be whether lenders will agree to finance the entity at the proposed debt equity ratio without imposing exceptional restrictive conditions.***

In the case of India, any norm would have to take into account the existing debt: equity ratios of the existing concessionaires. Any move to the new norm now proposed would be difficult in practice, as this would potentially lead to huge restructuring costs. The regulator would also need to consider whether the cash flows are sufficient to support the debt: equity levels proposed. Some APAO members, for example, are constrained in the debt they can finance by the high revenue shares in their concessions agreements (which were, of course, entered into before the norms proposed by AERA were envisaged). Finally the definitions used by the regulators may need to reflect the practicalities of

the lender's views of financing. For example, lenders may treat real estate deposits as quasi equity, and respond accordingly, while the regulator views them as zero cost debt (this issue is currently the subject of appeal).

This position is aligned with that of NIPFP in its view of the desirability of moving away from normative debt equity ratios in the case of CERC. CERC's summary of NIPFP's comments is shown in Box A below. NIPFP's comments make clear that:-

- Actual debt: equity ratios should be used rather than norms to avoid distorting the market;
- It may be necessary to continue to use normative debt equity ratios for the next review;
- However, CERC should be looking for ways to migrate to an actual debt: equity based system.

In the case of airports, of course, the normative debt equity ratio has not been established and hence there would be no need for their temporary use followed by a migration to actual levels.

Box A- CERC Summary of NIFPF's Advice on Normative Debt: Equity Ratios

Ideally, actual DER [Debt Equity Ratio] should be considered in such decisions. Each project is unique and the level of leverage it carries should be determined by the markets. In the same sector, there are different levels of leverage that are optimal for different projects. A regulator determining a normative DER creates distortions in the market.

But, in the present context, there are problems in using the actual DER. The actual DER can be gamed quite easily, and the market value of equity is not available for many unlisted firms. The Commission should publish a white paper on this issue.

The existing approach may be continued in the upcoming cycle, but the Commission should be cognizant of the consequences of taking normative DER, and create a road map for a move towards using the actual DER.

Source: Summary of the comments and suggestions received on Approach Paper on Terms and Conditions of Tariff Regulations for the tariff period 1.4.2014 to 31.3.2019,June 2013

The application of a norm provides particular problems given AERA's assumption that the cost of equity does not vary. It should be noted that it is impossible to determine the 'sweet spot' for debt and equity if the value of equity is artificially fixed. According to financial theory, and in particular the CAPM model cited by AERA, as the level of debt increases, the cost of equity and debt also increase. By fixing the cost of capital for the purposes of simplification, AERA makes it appear that the cost of capital must go down indefinitely as debt increases. This would clearly be an incorrect and dangerous conclusion.

The amount of debt which can be appropriately taken on, in practice, is dependent on the level of operational risk, as lenders seek to ensure there are sufficient margins to secure repayment. Broadly speaking, the higher the level of operational risk, the lower the level of debt which can be justified. In line with this, the BAA regulator assumed different debt/equity ratios for Heathrow, Gatwick and Stansted:

Box B - Heathrow Gatwick and Stansted Debt: equity ratios

Heathrow, Gatwick and Stansted - three airports serving London and the South East of the UK, and each formerly owned and operated by BAA Plc, were each given a separate notional debt: equity ratio by PWC acting as advisors to CAA. These notional gearing ratios were subsequently adopted by the UK CAA.

Airport	Notional Gearing
Heathrow	60%
Gatwick	55%
Stansted	50%

The structures were intended to be consistent with investment grade ratings for debt at a level A-/BBB+.

The key issues were:-

- To represent efficient structures in terms of the resulting cost of capital;
- To reflect relative operational risk
- To ensure that the resulting debt was fully financeable

No truing up process is adopted in UK regulation.

Source: Estimating the Cost of Capital in Q6 for Heathrow, Gatwick and Stansted. Report Prepared for the Civil Aviation Authority PWC 2013

The fixation of a single debt: equity ratio in addition to being theoretically incorrect is also inappropriate in practice. As noted previously, quite apart from other practical issues, lenders will be reluctant to issue high levels of debt to high risk projects, and indeed may simply refuse to lend at all.

If a norm is adopted, this has an effect on other regulatory decisions. For example, having set the debt: equity ratio, it is important that the other assumptions made are consistent with this:-

- Clearly the cost of equity should be consistent with the debt level assumed, and an adjustment should be made through the beta re-leveraging formula. As discussed later, this can be done relatively straightforwardly, but may have a major effect on the outcome. For the cost of equity to be justifiable under a CAPM approach, this leveraging adjustment must be performed to the 16% cost of equity specified by AERA on the basis of advice provided by its advisers NIPFP (who had recommended a debt: equity ratio of 1.2).
- While specifying the debt: equity ratio, the regulator would be expected to look into the credit rating and the riskiness of the project consistent with this rating (which would have originally been set based on a specific assumption on the debt burden). This in turn would determine the interest levels implied by the regulator's decision. It is this, effectively regulator determined, interest rate, which would then be used for forward looking debt in the WACC, rather than the

borrowing rate to be anticipated by the company at the gearing level it actually applies. This does leave some potential problems with the existing 'embedded' debt of the company which also needs to be taken into account.

While normative debt: equity ratios have been applied for some airports therefore, this has not been regarded as necessarily a simple 'one size fits all' process and has required a number of other assumptions to be developed**,** including the impacts on the costs of equity and debt.

AERA appears to have transplanted a number of elements of its thinking on items extracted from the Central Electricity Regulatory Commission (CERC) findings for setting appropriate charges for power stations, electricity transmission and similar projects. However, in actuality, CERC has followed a very different overall approach to that adopted by AERA and the elements are designed to address a different problem (for example, as discussed later CERC's methodology is intended to be applied to a return on equity in isolation – not a return on overall capital).

It is important to note, also, that the regulator in that case (CERC) is dealing with an approach to a relatively homogenous set of projects in a very different industry. As a result the application of a single normative debt: equity ratio which may be defensible in that situation may not be appropriate to the very different circumstances applying to Indian airports. The norm adopted by CERC is also quite clearly not intended to be applied retrospectively, and CERC is careful to avoid this**.**

The norms of CERC in the case of electricity generation are shown below:-

"19. Debt-Equity Ratio:

1) *For a project declared under commercial operation on or after 1.4.2014, the debt-equity ratio would be considered as 70:30 as on COD.*

[...]

(3) In case of ... commercial operation prior to 1.4.2014, debt: equity ratio allowed by the Commission for determination of tariff for the period ending 31.3.2014 shall be considered.

(4) In case of ... commercial operation prior to 1.4.2014, but where debt: equity ratio has not been determined by the Commission for determination of tariff for the period ending 31.3.2014, the Commission shall approve the debt: equity ratio based on actual information provided by the generating company or the transmission licensee as the case may be

Source: Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014

Finally we should note that the ratio of 70% debt 30% equity (apparently derived from the CERC) while possibly may be appropriate for new power station projects, is not appropriate for all airports, and at higher risk airports may not be achievable. It is notable that even Heathrow, widely regarded as an example of a very low risk (by airport industry standards) the privatized airport only has a debt: equity ratio of 60:40. As we note elsewhere, APAO regards AERA as ill-advised in appearing to endorse or even impose levels of debt which may ultimately be associated with financial failure. It should be noted that NIPFP in its advice to AERA recommended a debt: equity ratio for Delhi of 1.2 – (equivalent to 55% debt: 45% equity)

Overall APAO believes that:-

- Unlike CERC with its relative homogenous set of assets, AERA faces very different airports with different levels of risk. These differences have been recognized in the regulation of airports elsewhere and mean once again that a 'one size fits all' approach is unlikely to be correct for airport usage. Instead debt levels should reflect the specific circumstances of individual airports – including factors such as the constraints on lending provided by risk and the restricted cash flows at some APAO members' airports following major revenue share payments to government/ AAI;
- The imposition of normalized debt levels at an airport will require the imposition of assumptions consistent with that norm in areas such as notional interest costs, and cost of equity. These are likely to generate a number of problems for AERA, for example in determining the appropriate debt rating at individual airports.

In the circumstances, APAO believes that it would normally be more appropriate to retain the existing position of using actual levels of the debt: equity ratios at airports, and as a result the actual costs of debt.

The Prescription of a Debt: Equity Ratio With Penalties if it is Not Met

In the discussion so far we have been making the assumption that the regulator has used the prescribed debt: equity ratio effectively as a computational device to simplify the calculation of the appropriate WACC. However the AERA proposal goes far beyond this to attempt to penalize companies which have actual gearing level different from the prescribed level

Internationally, in building blocks calculations, the weighted average cost of capital is simply applied to the totality of the RAB without any consideration of how it is split up. It is assumed that any notional gearing is at or close to the optimal level which minimizes the overall cost of capital so that the user has nothing to lose if the operator's equity level is higher or lower than that assumed by the regulator - any resulting inefficiency loss from a sub-optimal debt: equity ratio will accrue to the company itself. The return of capital is handled by the calculation of depreciation so that with appropriate regulatory oversight, there is no possibility of the either debt or equity being paid twice for their investment. This approach is intrinsic to the standard regulatory building blocks return on RAB approach which AERA describes and illustrates in its paper

As a result internationally regulators see no need for any true up. .Despite this, AERA envisages a truing up process where the debt: equity ratio is treated effectively as a target which the company should achieve in practice, with potential punishments if it is not achieved

- Where a company's equity is higher than the norm, it should make no more than the return attributable to debt;
- Where the company's equity is lower than the norm it should make no more than a return on the lower actual equity employed.

In other words a company's returns can go down – but they cannot go up.

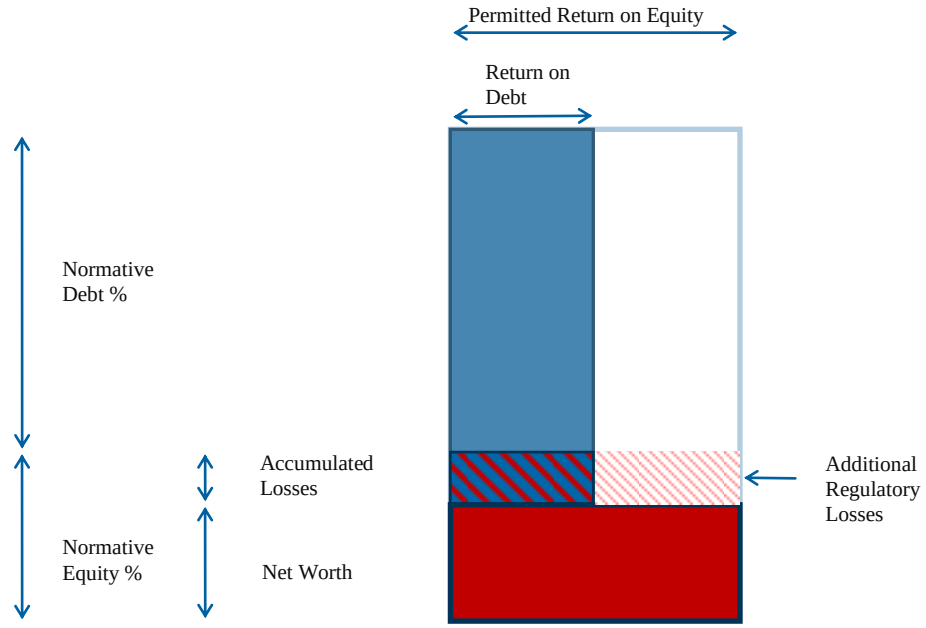
In APAO's view, this approach arises from an error in principle on the part of the regulator. The underlying cost of capital will not necessarily fall as the amount of equity falls. In practice, as the proportion of debt rises, both the cost of debt and the cost of equity also rise (as is indicated by the application of the CAPM model). The overall WACC (i.e. the total required by both debt and equity) is generally seen as falling until an optimal point is reached and rising thereafter. Hence, assuming that the debt: equity norm is set at close to the optimal level, the total returns required will not lower as debt increases, and thus a truing up process is not required. Effectively the truing up process is built on the implicit assumption that the fixed cost of equity is a reality in practice – rather than, as it actually must be, a 'second best' simplifying assumption made by AERA – and leads to the apparent result that the cost of capital falls indefinitely with debt levels.

On the other side of the scale, where companies are constrained in their ability to take on high levels of debt by the risks associated with the project, this is not a signal that the higher than norm equity, should not make a full return. A need for high levels of equity would normally be regarded as arising from perceptions of high levels of risks suggesting a higher overall cost of capital. Other things being equal, this would be an indicator that the average cost of equity, should be higher not lower.

As a result, the processes proposed by AERA introduce a further complication to regulation where there is no need to do so, and effectively punishes airports where no offence has been committed.

There are also practical problems with the approach applied by AERA. The net worth, which is proposed as the measure of equity in the debt: equity ratio, includes the effects of retained earnings and past losses. If a company makes losses, these may themselves reduce the net worth to below the 30% level over the period. In such a circumstance not only has the company lost money in the past, but it faces the prospect of this compounding in the future since its returns will be adjusted downwards in the true up process.

Chart 2 - Compounding Effect of Accumulated Losses



As APAO understands it – the details are not entirely clear –in the truing up process, for each year that an airport's losses move the net worth below the prescribed gearing level, only the 'actual' level of the equity will be taken into account.

This will lower further the company's returns. This arises from the fact that the proportion of returns below the prescribed level will be rewarded at the debt level with only the equity proportion which remains earning the prescribed 16%.

Put another way, following the true up, the company's return the following five year period will be reduced by the product of the extent to which accumulated additional losses have reduced net worth below 30% in each year and the difference between the cost of equity estimated at 16% and the cost of debt (having allowed for tax).

This double punishment seems to us entirely inappropriate. AERA should remove accumulated losses from the net worth measure (or, better still, not true up at all).

Finally At any established airport, the debt: equity ratio also needs to take into account existing arrangements, including the covenants made to existing lenders and the practicality of moving to a position of more, or less, debt as required. Amongst the issues are:

- Level not achievable: as noted previously at higher risk airports, the levels of debt required by AERA may simply not be attainable;
- Existing covenants: lenders lay down strict restrictions on distributing accumulated surplus to equity shareholders, therefore assuming it as normative debt would be incorrect and unjust to shareholders;
- Financial prudence concerns: APAO's proposal goes against the financial prudence of any business wherein reserves are accumulated to fund future expansion. By adoption of this norm some APAO members may be forced to distribute dividends where they would have regarded it as more advisable to retain earnings to meet the needs of the company, or to keep the debt on a perpetuity basis, when they would have thought it more appropriate to become less indebted;
- Companies Act constraints: the Companies Act lays down certain restriction on distributing surplus to equity shareholders. These may not allow the company to distribute sufficient amounts to keep net worth down to the levels required by AERA. In other words the company will be penalized for adhering (as it must) to Companies Act requirements. The Companies Act and AERA would be working at cross purposes;
- Viability of the Airport: The impact of this norm on existing privatized companies may well be that as debt is repaid over the course of the concession, and equity goes progressively further above the norm, more and more of the equity will be treated as debt as proposed by AERA. This could mean that over the lifetime of the business the level of return on equity would no longer be sufficient to justify the investment;

- From the proposal set out by AERA, it is not evident how the Authority is going to treat other means of finances such, government grants, interest free loans from infrastructure development institutions, and Refundable Security Deposits (RSDs) from real estate developments. These are specifically intended to assist the investors and not to subsidize users/customers. The current approach by AERA makes no provision for how these should be treated and how the intended assistance can be maintained;

- There are a number of sources of finance (such as the RSDs mentioned above and shareholder loans) where the classifications into debt and equity have proved difficult. In the case of RSDs, these are a source of capital with opportunity costs since they have alternative uses by deploying them in other lines of business. APAO believes these should attract a full cost of equity (the status of RSD's is currently subject to appeal).

Given these problems with applying the approach to existing airports, (and consistent with the findings in other areas in the IMG Report) APAO believes that privatized airports should be exempted, with the arrangements applying only to future privatizations (where investors can assess the likely risks and returns).

In fact, it is not surprising that the application of these provisions would cause a wide range of problems for APAO members, not seen at regulated airports elsewhere. The approach suggested by AERA has no precedent in normal RAB based airport regulation and appears to have been drawn from the approach of CERC to electricity regulation.

However, it is crucial to note that CERC's whole approach to regulation is based on a completely different regulatory paradigm, and is applied to individual power projects/assets rather than a power company as a whole.

As CERC itself notes '*There are two options available for return on investment namely(i) Return on Capital Employed (ROCE) ;and (ii) Return on Equity (ROE) with pass through of cost of debt.'*(see 'In matter of Electricity Tariff Regulation for Period starting Apr'2014 to Mar'2019 Chapter 4 – Computation of Capital Cost and Capital Structure CERC February 2014).

In practice, AERA –like almost all airports internationally has adopted what CERC would describe as an ROCE approach. CERC itself, in contrast, adopts a methodology based on a return on equity approach with a pass through of interest cost - where, as a result, the building blocks do not include a return on RAB component. This is a very different approach from that described by AERA in its paper. Moreover, in practice CERC:

- Adopts a project by project approach;

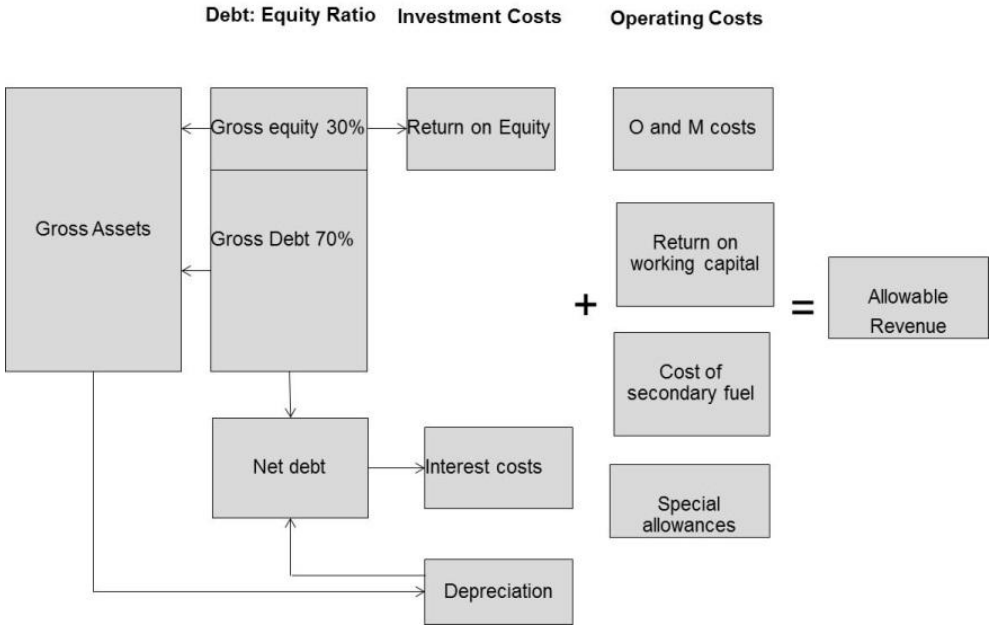
- Uses a gross fixed assets approach (i.e. based on the original investment);

- Does not vary equity levels unless additional capital is expended.

As a result measures employed in one approach may not be applicable to the other.

In fact, truing up against the norm, as the project develops, is not a problem to CERC. The 70:30 debt: equity level is simply an assumption made at the outset of the project. The equity levels do not normally vary and certainly do not respond to accounting net worth calculations (if it were to respond to past profits and losses it would be expected to do so in the reverse way to accounting treatments – accumulated losses would be expected to add to the equity that needed to be repaid while retained profits would reduce it). At the same time, although the notional net debt reduces with depreciation, this is not taken account of in the regulatory process, except through lower interest charges. As a result, there is no requirement for any truing up. Our understanding of the overall approach is shown below:

Chart 3 - Outline of CERC Approach



Some of the issues with introducing concepts from CERC's approach into AERA's methodology are discussed in the table below:

Table 3 - Return on Equity Concepts and AERA's Methodology

AERA Concept	Comment
Return on investment	CERC applies a return on equity process with a pass through of interest costs -though it regards return on assets as in some ways theoretically better. AERA applies a return on capital employed using a weighted average cost of capital.
Calculation of allowable costs	For CERC the cost is the return on gross equity plus passed through interest costs plus depreciation plus opex plus adjustments. There is no direct role for a regulatory assets base.

AERA Concept	Comment
	AERA on the other hand applies return on net RAB.
Application of debt: equity norms with truing up on a company wide basis	CERC explicitly applies its norms on an asset by asset basis rather than the company wide basis applied by AERA.
Use of statutory accounts	AERA tries to bring a number of concepts back to statutory accounts. CERC's approach is independent from company accounts.
Truing up of debt: equity ratio	Proposed by AERA Not relevant in conventional RAB based regulation since rate of return covers all assets irrespective of financing. Does not represent a problem in CERC regulation of individual power stations since the debt: equity ratio is assigned at the start of the project and the gross equity is used thereafter (note the reduced debt after the application of depreciation to reduce levels for the calculation of interest is not used to determine debt: equity ratios). CERC explicitly rules out applying the normative debt: equity retrospectively to projects commenced under another regulatory regime.
Truing up of interest costs	In CERC's return on equity type regulation, interest costs on normative debt passed through with interest rates equal to those experienced by the company. Not relevant in conventional RAB based regulation since interest costs are included in the WACC and are not specified separately.
Use of net worth in truing up process	In CERC the normative debt equity ratio is used to set the gross debt and gross equity at the outset (see above).Net worth calculations not required for truing up process in CERC's return on equity based regulation. AERA intends to apply its debt: equity ratios continuously and to true up on a net worth basis.
Application of norms	Although its industry is relative homogenous, CERC applies norms which are adjusted across a number of dimensions and where required applied on an asset by assets basis. AERA's norms are largely on a 'one size fits all' basis.
Revised depreciation rates	AERA is contemplating a substantial review of depreciation rates. For CERC depreciation reflects the need to assist in meeting debt service requirement.
Normative capital costs	AERA is proposing normative capital costs on a 'one size fits all' basis. CERC is proposing only benchmark capital costs to be taken account of in prudence checks with the company required to explain and justify any spend above the benchmark levels. In case of competitive bidding no fixed norms applicable.

Overall the application of superfluous return on equity concepts into a return on capital employed methodology artificially adds complexity and unnecessary constraints into the process. It would also be likely over time to create arbitrary and unjust results, without achieving any positive objective. APAO strongly believes that these proposed elements of the AERA approach borrowed from CERC should be abandoned. In particular the effective sanctions for not applying the normative cost of capital should be dropped in their entirety. They are not intended as penalties in the CERC approach and should not be used as such in AERA's.

Overall Conclusions

Our overall conclusions on Proposal 1 are that:-

- APAO believes that the simplest and most defensible approach to the debt: equity ratio would be to reflect the actual position of regulated companies. This ensures that the regulatory decisions are consistent with the constraints facing the company, and avoids the danger of the regulator basing decisions on assumptions which were not practical and could, if applied inflexibly, be unacceptably imprudent;
- The general principle of adopting a normative debt: equity ratio needs to be treated with considerable care, and the regulator will need to ensure that other regulatory assumptions – such as those covering cost of equity and assumed credit rating (and the associated cost of debt) are consistent with the ratio adopted;
- If a norm is to be applied, at a given airport, it should reflect a view of the efficient debt: equity ratio in cost of capital terms, combined with reasonable prudence. APAO believes that the appropriate level will vary with the level of risk faced by individual airports;
- Even if a normative approach were adopted, the universal assumption of 70% debt transferred from the electricity generation and transmission, is not appropriate to the airport industry, and may not be achievable at a number of airports;
- For existing privatized airports with financing arrangements which are already in place, the debt: equity ratio applied should reflect those arrangements. They should also take into account specific regulatory provisions. For example the State Support Agreements which describe regulatory arrangements for concessions do not refer to norms and may specify only that price setting should follow ICAO principles;
- The proposal for adjusting returns if the specified debt: equity ratio is not met does not have any precedent under airport regulation elsewhere;
- Overall the approach appears to add to the complexity of airport regulation without achieving any clear objective;
- The approach appears to have been adopted by AERA to reflect that of CERC in regulating electricity. However, CERC's approach is based on a return on equity concept, which is very different form the return on capital paradigm which AERA has explicitly adopted, and where the size of equity is fixed at the start at the outset and not varied. The introduction of

individual elements of a project return on equity approach into AERA's return on capital approach, introduces the likelihood of arbitrary and unfair regulatory results without any real gain. Put simply, instead of improving regulation, it is likely to make it significantly worse**.**

APAO Recommendation

APAO believes that the simplest and most defensible approach to the debt: equity ratio would be to reflect the actual position of regulated companies.

3.2 PROPOSAL 2 - REGARDING FAIR RETURN ON EQUITY

a) The Authority proposes to consider fair rate of return on equity (Shareholders funds, sometimes called Net Worth) at 16% as reasonable and on a normative basis

The first point to make on this issue is that the AERA estimate of the cost of equity at airports is currently subject to judicial processes. APAO believes therefore that it is inappropriate to raise the issue at this stage. APAO believes that on this issue in particular AERA would be wise to await the findings of the court/ appellate tribunal and to reach decisions in the light of those findings.

To the extent that it is appropriate to discuss the issue, APAO members believe that the cost of equity and the resulting cost of capital are too low in the context of emerging country airports operating in conditions where retail inflation is currently 7.31% (having previously been higher) and the current 10 year interest rate on Government debt is 8.5%.

A number of consultants have estimated significantly higher costs of capital. This is not surprising given Indian inflation rates and the risks associated with investing in Indian infrastructure. Indeed CERC, which appears to have been used as a model by AERA would have out-turn results from its notional cost of equity of 16% of over 19% over the lifetime of the concession, reflecting the fact the notional equity is not depreciated.

Table 4 - Consultant Estimates of Cost of Equity at Indian Airports

	Name of Consultant	Cost of Equity
1	Crisil Infrastructure Advisory	18.16-20.44%
2	KPMG India Private Limited*	20-25%
3	SBI Capital Markets Limited	18.5%-20.5%
4	Jacobs Consultancy (now Leigh Fisher)	25.1%
5	NIPFP	11.64 – 13.84 %

Source: APAO

*Note, KPMG India Private Limited was also appointed by BIAL to estimate the fair rate of return and it has estimated the cost of equity for the first control period to be in the range of 23.5%-27.9% for BIAL

AERA states that it has derived its cost of capital from the Capital Asset Pricing Model (see for example P8 of the AERA report 'For calculating fair rate of return on equity, Authority has adopted Capital Asset Pricing Model'). Putting aside the issue that APAO's members believe the cost of equity is too low; any cost of equity derived from the CAPM model must vary with the level of debt.

Box C below provides illustrative figures for the cost of equity using the recommended debt: equity norms originally proposed by NIPFP in its advice to AERA on the cost of capital, and the 70:30 debt:

equity ratio now proposed by AERA. It should be stressed that the figures used are selected entirely to illustrate the effect of leverage: this is not a new proposed derivation of the cost of equity.

Box C - The Effect of Leverage on the Cost of Equity

The Table below shows two cost of equity determinations for illustrative purposes, differing only in the debt: equity ratio.

In the left hand column is a cost of equity with assumptions adjusted to produce a cost of equity of 16% under the normative debt: equity ratio of 1.2 proposed by NIPFP.

In the central column the assumptions are identical but an adjustment has been made to equity beta to reflect the new debt proportion of 70%. The formula for this adjustment is given on Page 21 of the 2012 NIPFP report 'Cost of Equity for Private Airports in India Comments on DIAL's response to AERA Consultation Paper No. 32, and the report by SBI Caps'.

Finally in the right hand column the effect is illustrated of moving from asset beta estimates restricted to mature economies (principally European, Australasian and Japanese) to betas drawn from the full range of quoted airport companies. There is a strong case for using betas based on emerging economies, (0.82) however this has not been incorporated into these illustrative figures.

Factor	**Equation**	**Debt 54.5%**	**Debt 70%**	**Debt 70% plus higher beta**
Tax		34%	34%	34%
Risk Free Rate	R	7.50%	7.50%	7.50%
Risk premium	ERP	8.60%	8.60%	8.60%
Asset Beta	Ba	0.55	0.55	0.72
Debt	D	54.5%	70%	70%
Equity	E	45.5%	30%	30%
D/E	D/E	1.20	2.33	2.33
Leverage Factor	L = 1+D/e x (1-t)	1.79	2.54	2.54
Equity beta	Be = Ba X L	0.98	1.40	1.83
Cost of Equity	**R+Be X ERP**	**16.0%**	**19.5%**	**23.2%**

As can be seen, the change in the debt: equity ratio raises a cost of equity of 16% to one of 19.5%. Moving to betas representative of all airports – rather than those of mature economies – increases the cost of equity by a further 3.7%. There would be a strong case for increasing this further by using betas typical of emerging economies.

APAO believes that the original cost of equity determined by AERA should be substantially above 16%, and that once adjustment is made for the new debt: equity ratio it should be higher still. However, even if the specific level of the cost of equity for the purpose of the AERA proposals, were

at a significantly higher level, APAO would still be concerned with the principle of setting any single cost of equity as a normative figure across all airports for an indefinite period

AERA has reached its estimate of the cost of capital using the Capital Asset Pricing Model (CAPM). The CAPM formula can be expressed as:-

Cost of Equity = (real risk free rate + inflation rate) + (mature market risk premium + country risk premium) X equity beta

This can be seen as being derived from 8 components:

- Inflation;
- Real risk free interest rates (combined with inflation to give nominal risk free rate);
- Mature market equity risk premium;
- Country risk premium (which must be added to the mature market equity risk premium to produce the country specific equity risk premium);
- Debt: equity ratio;
- Asset beta (relative risk of company compared to overall market if there were no debt);
- Tax (used in adjusting asset beta to reflect debt: equity ratio);
- Equity beta (asset beta adjusted to allow for beta using debt: equity ratio and tax).

None of these are static numbers. Most vary at the very least with time, and the CAPM methodology adopted by AERA implies directly that these variations impact the cost of equity. Regulators in other countries would expect AERA to state different costs of capital for different companies.

There is a practical case for keeping the regulator determined values for components which vary over time consistent, for at least a period, in the interests of overall stability. However, it is also necessary to reflect the level of risk faced by individual airports. These should be dealt with through the equity betas which vary with the market related risk faced by the company, together with the adjustments necessary under CAPM to reflect the debt: equity ratio.

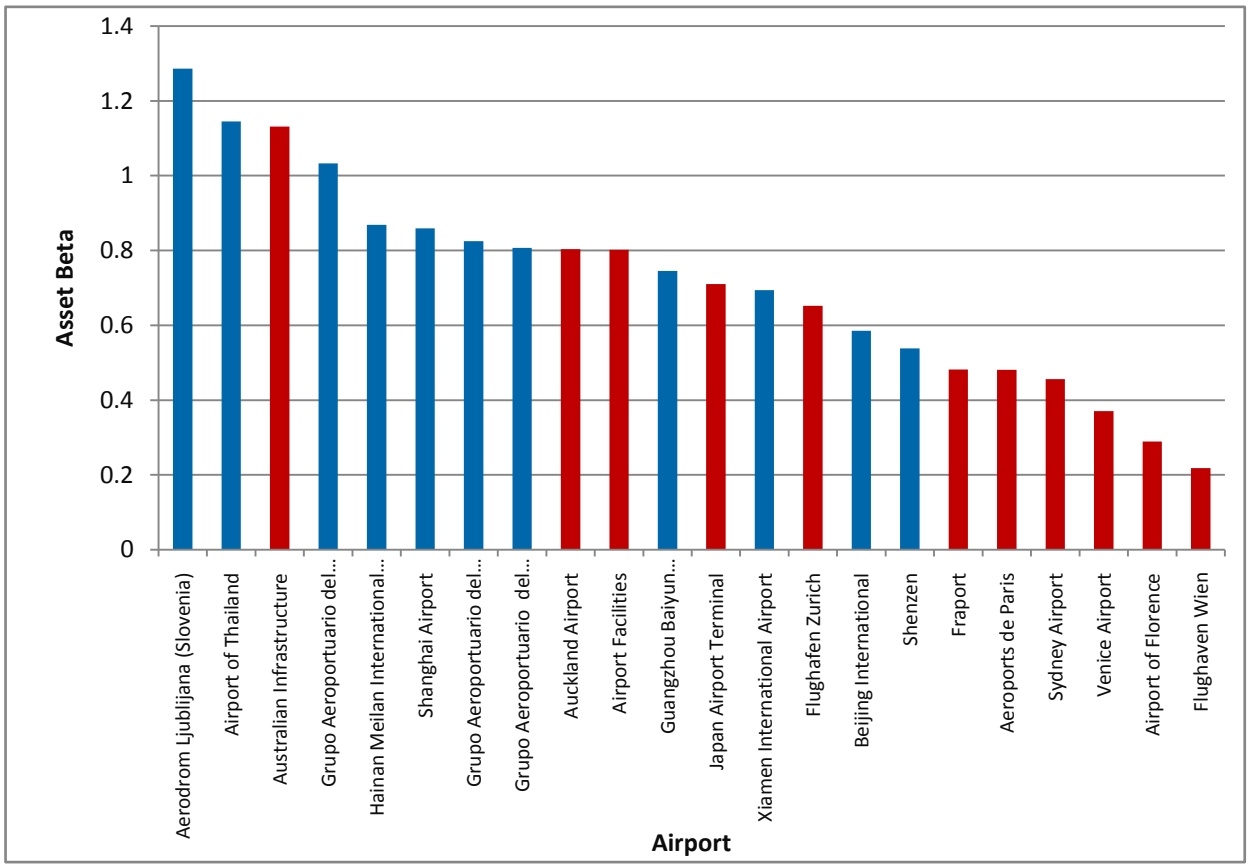
It is self-evident fact that not all airports face the same level of risk, and this is reflected in the investment market. A continuation of operations at (say) Amsterdam is not the same in investment terms as a speculative greenfield project in (say) Columbia.

UK CAA has adopted different levels of geared and ungeared beta levels for Heathrow, Gatwick and Stansted which arguably have significant amount in common as large capital city airports serving broadly the same market.

More generally airport risk would be expected to vary with a wide range of factors such as airport size, traffic mix (with different traffic components varying in their responses to changes in economic growth) and the extent to which the airport developments require substantial growth for their justification or are based on well-established existing traffic bases. These differences are reflected in

asset betas which span a wide range of values, and for example, have different average levels for airports in emerging and mature economies.

Chart 4 - Asset Betas for Quoted Airport



Source: Bloomberg, ICFI analysis

In APAO's view, AERA's implicit assumption of constant risk across all airports appears inherently highly improbable and counter to the evidence available. APAO notes that AERA has produced no evidence for its assumptions. Once again, it appears that AERA has drawn its assumption of a single cost of capital of 16% directly from that of CERC in a very different industry where the components elements are comparatively homogenous and financing is generally seen as lower risk.

Our overall conclusions on Proposal 2 are that:-

- APAO continues to believe that the cost of equity proposed by AERA at 16% is too low and would make airport businesses non-viable;
- Even if the initial cost of equity were correct, it would need, under the CAPM methodology, to rise significantly to reflect the new assumption about the debt equity ratio. Our illustrative example demonstrates that this could increase the cost of equity by 3% or more;

- The suggestion that the cost of equity should be constant across all airports is clearly unreasonable: asset and equity betas will also vary between companies in the same business depending on their levels of risk;
- The final cost of equity capital derived from these parameters at individual airports should be calculated on the basis of their equity betas which properly reflect the combination of the relative risk of the airport and its debt: equity ratio**.**

APAO Recommendation:

1) The return on equity is subject to judicial proceedings of the member airports and as such there is an urgent need of upward revision. APAO members strongly believe that the 16% provided for by AERA is too low and would make the airports unviable.
2) Even if the base cost of equity were correct, it would need to be adjusted under its normative approach for the higher assumed debt: equity ratio
3) The final cost of equity capital derived from these parameters at individual airports should be calculated on the basis of equity betas which properly reflect the combination of the relative risk of the airport and its debt: equity ratio**.**

3.3 PROPOSAL 3 - REGARDING USEFUL LIFE OF ASSETS AND DEPRECIATION

a) The Authority proposes to lay down, to the extent required, the depreciation rates for airport assets, taking into account the provisions of the useful life of assets given in Schedule II of the Companies Act (Act 18 of 2013) assets that have not been clearly mentioned in the Schedule II of the Companies Act, 2013 or may have a useful life justifiably different than what is indicated in the Companies Act 2013 in the specific context of the airport sector. The Authority has initiated the process to enable it to issue a notification as appropriate, pursuant to the provisions of Part B of schedule II of the Companies Act for this purpose.

The overall approach to the Regulatory Asset Base adopted by AERA implies that the RAB is dependent, not on statutory accounts, but on a roll forward principle. Under this approach assets in a given year are calculated from assets in the previous year plus new investment and minus depreciation.

It is possible to demonstrate that under this system, (and provided that the company consistently earns its cost of capital on its asset base) the rate of depreciation does not significantly affect the long term net present value of returns (depreciation plus return on capital) and therefore the extent to which investments are remunerated without the company making excess or insufficient profits. Higher depreciation leads (over time) to lower net capital and therefore lower allowable profits at a later stage. The application of the cost of capital to the RAB means that time value of advancing or delaying depreciation is fully represented and the net present value is broadly unchanged. However while the profile of depreciation does not affect the overall fairness of regulation, it can have an important impact on APAO members in terms of the profile of returns and therefore ultimately on their ability to secure financing for investment.

While APAO members responsibly wish to apply appropriately realistic asset lives, the levels chosen also need to be prudent, which in the case of Indian airports requires generating sufficient cash flows to match the requirements of lenders.

As a practical matter, APAO members are comfortable with the depreciation rates included in the revised Companies Act and believe that these should provide the basis for AERA's considerations going forward. Accordingly:

- APAO members would support the use of current Companies Act depreciation rates where these apply to non-specialist assets;
- For specialist assets, such as runways, APAO would support the prudent use of asset lives which take into account financing needs as is done, for example, by CERC;
- APAO and its members would be keen to work in cooperation with AERA, and other stakeholders, to establish a consensus on practical and prudent asset lives in the Indian context.

When applying these to regulatory accounts, AERA should accept that there may be some circumstances where airport owners will wish to apply different lives for specific reasons.

These could include:-

- Climate – for example exposure to Monsoon related damage;
- Maintenance approaches – which may be employed to lengthen asset lives – though possibly requiring higher operating costs;
- Finance packages: the need to meet specific financing requirements may need to be taken into account when determining the depreciation profile.

However APAO believes that the use of Companies Act lives, together with prudent and practical lives for any specialist assets, should make the requirement for these exceptions less likely.

Conclusions

- In principle, depreciation rates do not impact the present values of returns to investors or of costs to users, since higher depreciation rates lead in the long run to lower net assets and allowable profits;
- However depreciation rates do affect airport's ability to fund assets, with prudently high depreciation rates assisting in matching the needs of lenders at early stages in projects;
- APAO members are generally comfortable with the revised Companies Act depreciation rates. Specialist assets such as runways should reflect both the need for prudence for financing purposes and the specific characteristics of the airport business;
- APAO and its members would welcome the opportunity to work with AERA and other stakeholders on realistic airport asset lives having regard both to international good practice and the specific situation of airports in India;
- When used for regulatory accounts, there should be provision for a degree of flexibility on the part of airports to vary asset lives to reflect for example: financing profiles, climatic conditions, or maintenance approaches adopted.

APAO Recommendation:

Currently, APAO supports the current rates as given in the new Companies Act 2013. As regards to Specialist Assets APAO look forward to working with Authority on the same.

3.4 PROPOSAL 4 - REGARDING OPERATIONS AND MAINTENANCE EXPENDITURE

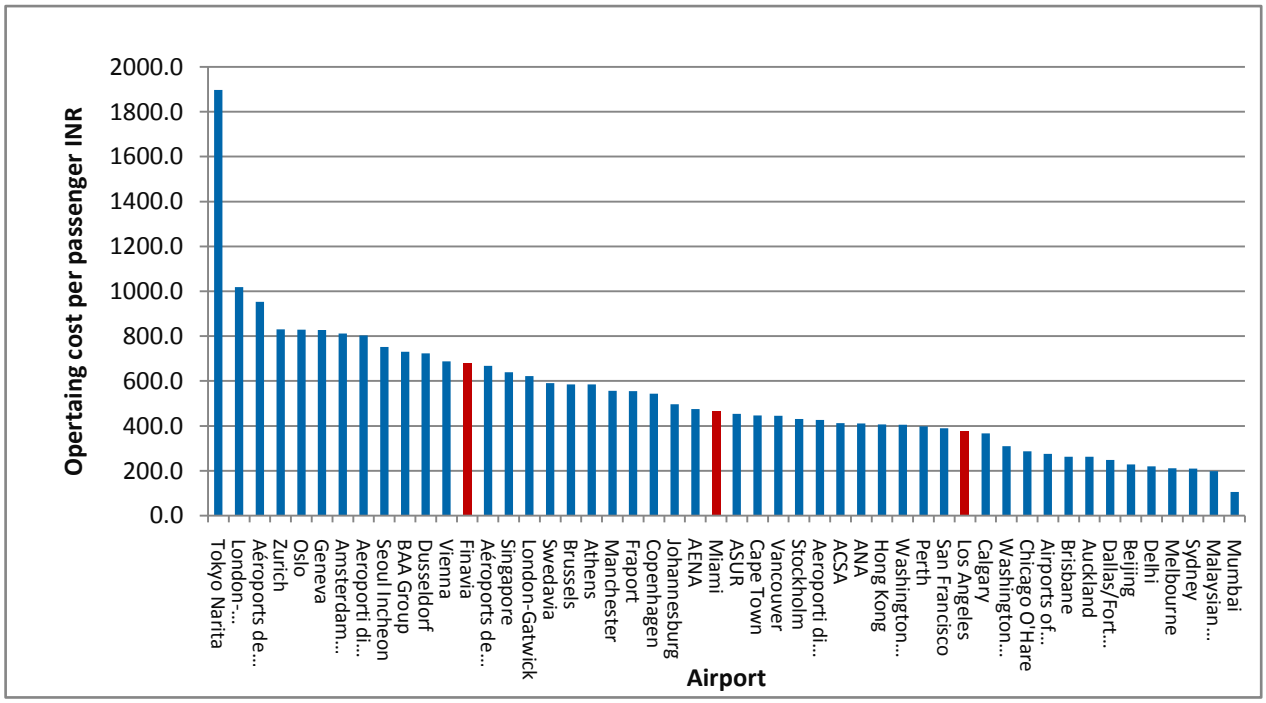
a) The Authority proposes to true up O & M expenditure in respect of major airports in the process of its tariff determination

AERA is correct to observe that efficient expenditure per passenger at airports would be expected to vary between airports. This would reflect a number of factors including:-

- Activities undertaken, and in particular whether key areas are performed directly, outsourced, or left to third parties;
- Traffic levels;
- Differences in types of traffic – such as domestic/international, long haul/short haul, Peakiness of operations;
- Extent of facilities (one runway or two, terminal size);
- Age and efficiency of existing facilities;
- Level of local costs in the area – especially for manpower.

The variations in resulting costs can be seen internationally. The chart below shows operating costs per passenger taken from the most recent Leigh Fisher study (Airport Performance Indicators 2013). In this case the inter-quartile range extends from IRs 377per passenger (Los Angeles) to IRs 678 (Finavia). This represents a range round the median (Miami) of +44% to –19%. It should be noted that, by definition, half of all the airports in the sample are outside the inter-quartile range.

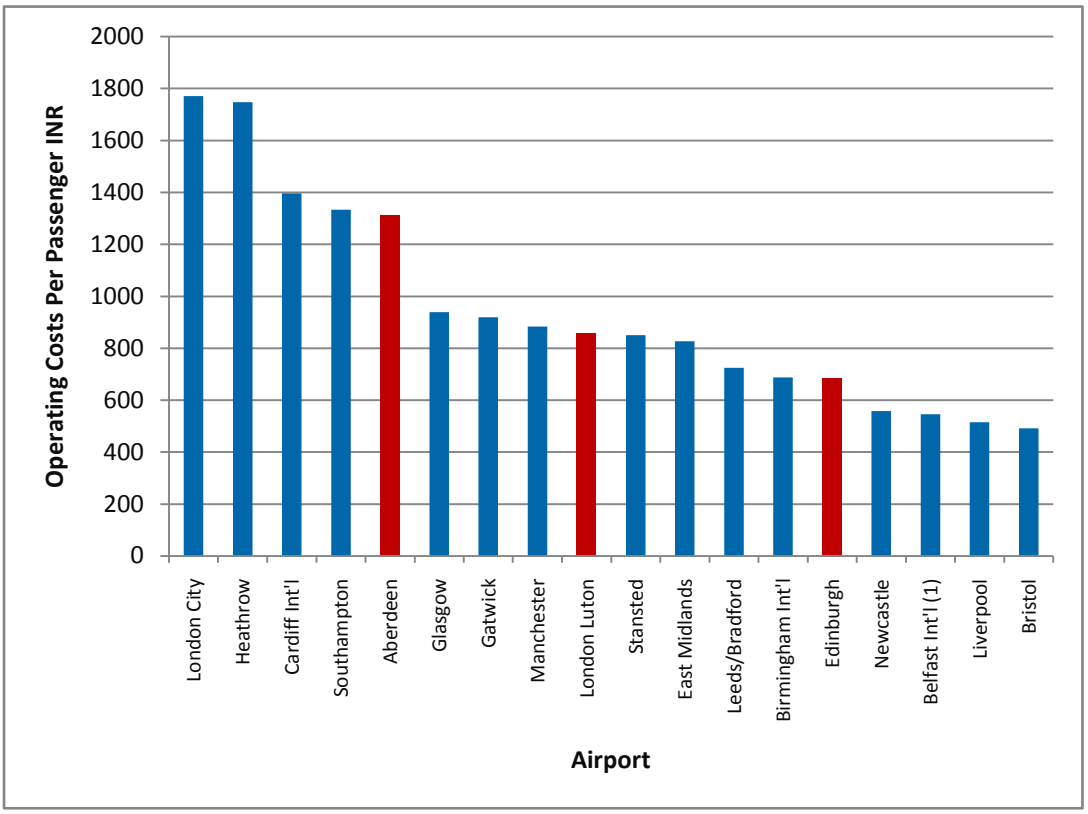
Chart 5 - International Comparison of Operating Cost per Passenger



Source: Airport Performance Indicators 2013 Leigh Fisher

Major variations also occur within countries, such as the UK with its highly competitive airport industry supplemented by tight regulation for Heathrow – and until recently Gatwick and Stansted.. The table below shows the range of operating costs per passenger at all airports with more than 1m passengers. In this case the Inter quartile range was from £6.33 per passenger (Leeds Bradford) to £11.62 (Aberdeen).

Chart 6 - Operating Costs per Passenger at UK Airports With More Than 1m Pax



Source: UK Airports Performance Indicators 2013 Leigh Fisher

While a range of partial efficiency measures are possible, APAO is not aware of a fully adjusted model for comparing efficiency and costs which would be suitable for use in regulation. As a result APAO would fully agree with the implication of AERA's approach that the most appropriate basis is to start with individual airports and to set those reasonable and achievable targets for growth rates over the following 5 years.

However in APAO's views, the targets set should not be mechanistic but should take into account: the airport's start position, the presence of major developments, known changes in external conditions, likely traffic development and the extent to which major cost saving exercises have already been undertaken.

AERA recognises that - while the principles of CPI-X regulation support the airport retaining any gains or losses - the Indian airport industry is currently an immature one undergoing a wide range of changes with results which cannot be precisely estimated, at this stage. As a result, the difficulty in forecasting costs, and the negative impact of the uncertainty which results will significantly outweigh

any positive benefits from incentives at this stage. APAO therefore supports AERA's suggestion that initial charges should be set based on a reasonable cost forecasts and that there should be a truing up process.

Clearly it would be desirable for all parties, that the financial incentives for efficiency are ultimately restored when it is reasonable to do so. In APAO's view as the Indian airport system becomes more mature and costs more stable and predictable, cost forecasting will become more straightforward and the 100% true up process can be phased out, allowing the proper functioning of the CPI-X process in driving improved performance to come back into play.

In the AERA document it is proposed that the airport should be offered a target such as WPI+1% in the short term. Although the AERA proposal is designed to ensure that any windfall gains or losses are ultimately compensated through the true up process, APAO believes that carrying through of costs into future time periods should be avoided to the extent possible**.** It is therefore suggested that the AERA target is linked more closely to cost drivers, and in particular to traffic growth along with CPI/WPI.

There should also be provision to adjust the norm at the request of the operators to reflect known areas where there are likely to be major costs changes. These could include:-

- Higher cost of operating the existing old worn out assets;
- Likely changes in airline use;
- New Government legislation;
- Changes to services provided requested by the airlines or the regulator;
- Opening of major new facilities.

AERA does not discuss which costs should be trued up. However, given the uncertainties faced, by Indian airports in their financing activities, APAO believes that the truing up process should reasonably include all costs including the impact of foreign exchange on debt principal and interest repayments.

Conclusions

- APAO agrees with AERA that there is no clear basis for setting normative costs at airports given the wide range of circumstances which they face;
- APAO also believes that the current situation of airports in India is one of immaturity in which there are considerable uncertainties characterized, for example, by rapid traffic growth and major construction projects. APAO therefore supports AERA's proposal for a truing up of costs at this stage;
- It would be generally desirable for cost targets to be realistic in order to minimize the burden on the truing up system and as a result the impact on users in the following regulatory period. APAO therefore believes that costs should be driven by passenger numbers and inflation;

- There should additionally be provision for adjusting the forecasts for known changes, which might include forthcoming Government measures or the opening of major new facilities;
- APAO believes that given the uncertainties faced, by Indian airports in their financing activities, the truing up process should reasonably include all associated costs, including the impact of foreign exchange on debt principal and interest repayments.

APAO Recommendation :

Currently, APAO is agreeable to truing up of Operating cost.

3.5 PROPOSAL 5 - REGARDING NORMS FOR CAPITAL COSTS

a. The Authority expects that while finalising the scope of future capital works, the Airport Operator would abide by the indicated norms. As illustration
   i. IMG Norms for Terminal Building (for e.g., 25 m² per passenger for integrated Terminal Building)
   ii. Design criteria for Runway/taxiway/Apron (Airside works) as may be available in published literature on the subject (ICAO Documents, DG CARs as may be applicable)

b. The Authority proposes to consider capital costs of terminal building at a ceiling costs of Rs 65,000 per square meter or actuals whichever is lower.

c. The Authority Proposes to consider capital costs of Runway/Taxiway/Apron at a ceiling cost of Rs 7,000 per square meter or actuals whichever is lower (excluding earthwork up to the sub grade level). The expenditure on the earthwork will be carried out as per the CPWD methodology.

d. The Authority proposes to consider the capital costs of other works based on publicly available standard like the CPWD methodology (for Scheduled items CPWD schedule rates and for Market Items proper market rate analysis in line with CPWD framework and methodology)

APAO has three separate but related concerns with the proposals made by AERA on capital expenditure norms:-

- The applicability of IMG benchmarks to PPP concessions where the intention is quite explicitly to set standards only for AAI projects, with privatized PPP projects to be examined on a case by case basis;
- The difficulty in any case of applying 'one size fits all' standards to airports which have very different characteristics;
- References to alleged gold plating.

These are treated in turn below:

Applicability of IMG Benchmarks to PPP Concessions

AERA has stated that the 'Proposal No 5 of the Consultation Paper on Normative approach' is based on the Inter Ministerial Group (IMG) report on Norms and Standards for Capacity of Airport Terminals. However it appears clear that the report was not intended to be applied to airports on PPP concessions – which were to be treated separately on a case by case basis.

In the Preface section of the IMG Report, the aim of the report is stated succinctly.

The norms and standards specified in the Report of the IMG are expected to serve as a guideline for formulation and implementation of projects by AAI with a view to ensuring a judicious use of resources…

Source: Report of the Inter Ministerial Group Norms and Standards for Determining the Capacity of Airport Terminals Ministry of Civil Aviation 2009 .(http://www.infrastructure.gov.in/pdf/FinalAirport_Terminal.pdf) (hereafter referred to as the IMG Report)

In contrast to the role of IMG for AAI airports, IMG refers to a quite different approach to those operating under PPP concessions.

"[Page 9] G. Airports developed through Public Private Partnerships

In the case of airports developed through Public Private Partnerships, the project authorities may adopt a case by case approach with respect to norms relating to unit area and unit costs. Based on the judicious consideration of international best practices and financial viability, the norms may be specified in each case prior to inviting bids for private participation."

Source: IMG Report

The need for a separate consideration of airports on PPP concessions, as recommended by IMG, is emphasized by the fact that airports on concessions are in most cases instructed to observe a series of international standards and to follow specified planning guidelines including those of ICAO and IATA. Delhi and Mumbai are further required to match the prevailing quality standards of the top five international airports in the Asian region.

In comparison, IMG in specifying its standards for area norms in its report employs relatively restricted information.It can be seen from the table below:-

- For domestic terminals IMG standards are below the (limited) information examined on international standards;
- For international terminals IMG standards reflect AAI standards with no international benchmarks mentioned.

Table 5 - Sources of IMG Benchmark Figures

	Horonjeff and McKelvey	IATA	AAI	IMG
Domestic (over 1000php)	25	25	22.5	20
Charter		30		
International			27.5	27.5
Integrated			24.5	25.0

Source IMG Report

While these may be appropriate for AAI they do not reflect any extended analysis of the world class standards expected for at least some PPPs - and IMG 's proposal that PPPs should be treated on a case by case basis makes clear that they are not intended to. It is important to note that unlike AAI airports with a single operator, all PPP airports have different operators, each bound by specific development conditions and service performance standards and could not observe a 'one size fits all' approach of the type proposed by the AERA without potentially breaching their PPP agreements.

APAO also notes that the Authority is recommending a ceiling cost of Rs. 65000/m2 for all airport developments, while the IMG Report referred by the Authority specifically mentions that it may not be possible to lay down any general norm with regard to the unit cost of construction. IMG notes that cost of construction is driven by 'facilities' and 'finishes' of an airport terminal and can vary within India due to locational factors. IMG also recommends an in house appraisal mechanism (not the imposition of norms) to determine indicative benchmark unit costs in a process which is certainly not hard line and 'one size fits all'.

The point is made in Page 9 Paragraph F of the IMG Report cited below:

"F Unit Cost of Construction

In an airport terminal, the cost of construction is driven by 'facilities' and 'finishes'. It is, therefore, imperative for planners to achieve a judicious balance between design specifications and costs associated with each element. 'Value for the Money should be the motto'. Since the architects, project engineers and contractors of a project may have the tendency to overdesign and use expensive finishes, there should be some institutional check and balance for specifying an indicative/benchmark unit cost within which an airport should be designed and constructed. The cost of construction is, however, dependent upon various variables. It is easily impacted by locational factors. *Therefore, it may not be possible to lay down any general norms in this regard.*

Source: IMG Report

In APAO's view, the strong doubts expressed by IMG on laying down any hard and fast benchmarks, should give AERA considerable pause in its efforts to impose its own norms in this area.

APAO would also like to highlight that the IMG benchmarks are not intended to have the status of full planning guidelines. IATA's Airport Design Reference Manual referred to in concession agreements, provides detailed methodologies and formulas for specifying the requirements of each of the facilities at the airport. IATA's planning methodology is to determine the required area for each passenger processing facility, based on the characteristics of the traffic it is dealing with, and other factors affecting local requirements, and from this to determine the total passenger processing area required by summing the areas required for the individual processes. In contrast, IMG simply defines a top down benchmark for the size of building without providing any detailed planning parameters. Inevitably, in a case where the two give differing results, the more detailed bottom up IATA approach – widely applied and based on substantial international expertise and research, - is likely to be more reliable. We are confident that IMG would accept that for the detailed planning of individual terminals, and determining from that their required areas, the IATA approach is to be preferred.

Finally, as noted previously, most of the PPP airports are mandated with development standards based on IATA and others and it would not be practical or appropriate to attempt adopt IMG's indicative benchmarks where they conflict with meeting the IATA standards.

APAO would therefore conclude that while IMG can be used at PPP airports as one of a number of indicative benchmarks for terminals, it is not an appropriate basis for establishing hard and fast 'norms' – especially for airports privatized with the requirement to meet other, and more stringent, standards.

To summarize the APAO position:

a) IMG norms established in 2009 were intended for use at AAI operated airports;

b) The IMG Report is accordingly based on the application of AAI standards rather than any analysis of what would be required at 'world class' terminals;

c) IMG Report specifically proposes that PPP airports should be approached on a case by case basis;

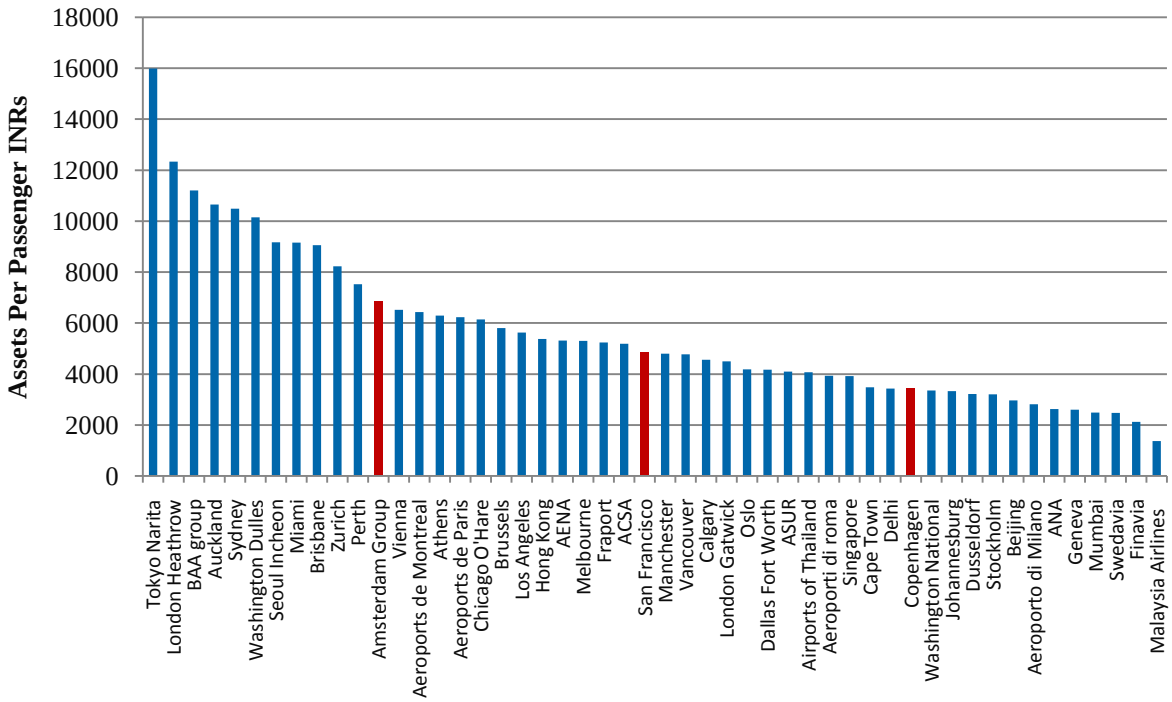
d) For terminals constructed by IMG top down indicative benchmarks should be regarded as subsidiary to detailed planning through the IATA planning methodology (or its equivalent).

Problems With the 'One Size Fits All Approach

As the IMG Report suggests, in practice there are very major differences in the costs of the runways, taxiways, terminals and other assets required to handle a passenger between airports.

Chart 7 below shows total asset costs per passenger across a range of major airports worldwide**.** The interpretation of such a comparison must be undertaken with appropriate care.Net assets will be affected by the average age of assets and the extent to which they are depreciated. Nevertheless the range in assets per passenger across airports is striking, with the airport at the lower quartile (Copenhagen) having assets per passenger about half those of the airport at the upper quartile (Amsterdam Group) despite the fact that both are North European hubs.

Chart 7 - Total Airport Assets per Passenger



Source: Airport Performance Indicators 2013 Leigh Fisher, ICFI

Internationally these differences in costs are matched by very significant differences between the levels of annual passengers per square meter (the annualized equivalent of meters per busy hour passenger) achieved at terminals. For example Air Transport Research Society (ATRS) information shown in Table 6 below suggests that in each of the major regions the upper quartile airports have approximately twice the usage per square meter of the lower quartile. Once again by definition 50% of airports fall outside this range.

Table 6- Ranges in Annual Passengers per m^2

	Median	Lower Quartile	Upper Quartile	Inter Quartile Range	Highest	Highest Airport
Asia Pacific	100.7	68.8	148.5	79.7	277.4	Hat Yai
North America	96.5	76.2	120.5	44.4	266.2	Charlotte
Europe	97.0	68.1	143.9	75.8	392.3	Hamburg

Source Airport Benchmarking Report 2014 ATRS, ICFI

Clearly some airports will be operating at higher levels of capacity utilization than others. Nevertheless the figures do not suggest that there is any clear single benchmark for intensity of use of space.

YRM the airport architects has undertaken a study of how floor areas of UK terminals at capacity vary with airport throughput. This shows areas required per busy hour passenger (the planning hour used for terminal design) increasing consistently as the number of passengers using the terminal annually rises.

Table 7 - Area per Busy Hour Passengers

Annual Pax M	Example Airports	Area per Busy Hour Pax in m^2
0.6	Inverness	12-15
4.5	Bristol	17-18
7	BAA Scotland	25-30
12.5	BAA South East	45-50
30	Heathrow T5	85-90

Source: Defining for Conflicting Business Models – Lessons from Benchmarking YRM 2006

In the IMG Report adopted by AERA the suggested benchmarks are 25 m2 per passenger for an integrated domestic/international terminal and 27.5m2 for an international terminal. The approach would be broadly consistent to YRM's figures for terminals of around 7m passengers p.a., though, of course, YRM's results are indicative only and are not intended to provide norms.

Beyond that range, however, YRM figures taken from BAA's terminal performance in practice – which have been extensively monitored by its regulators – are significantly higher. Moreover, the 45-50m2 average for major South East airports suggested by YRM are borne out by figures for major

Asia – Pacific airports at design capacity shown below. The table makes use of terminal floor areas and capacity derived from the IATA Airport Design Reference Manual, together with figures on peak out to annual ratios from individual Asian airports. Where information from the airport itself was not available, we have used an overall average. As can be seen the overall average is 47.8 m2 per peak hour passengers with airports with a high proportion of international pax having averages which are significantly higher.

Table 8- Space per Peak Hour Passenger at Asia Pacific Airports

	PHP as % Annual	Evidence Source	Floor Area m^2	Annual Pax M	Estimated PHP	Space per PHPm^2
Sydney (international)	0.0285%	Average	204,000	15	4,281	47.7
Narita T2	0.0285%	Average	254,000	17	4,851	52.4
Tai Pei T2	0.0285%	Average	308,000	17	4,851	63.5
Shanghai Pudong	0.0285%	Average	280,000	20	5,708	49.1
Nagoya	0.0285%	Average	220,000	20	5,708	38.5
Singapore T3	0.0324%	Direct	350,000	20	6,480	54.0
Singapore T1	0.0324%	Direct	276,100	21	6,804	40.6
Singapore T2	0.0324%	Direct	358,000	23	7,452	48.0
Kansai	0.0285%	Average	293,000	27	7,705	38.0
Beijing T2	0.0334%	Direct	320,000	27	9,018	35.5
Incheon	0.0213%	Direct	495,000	27	5,751	86.1
Kuala Lumpur	0.0349%	Direct	480,000	35	12,215	39.3
Bangkok	0.0244%	Direct	560,000	45	10,980	51.0
Hong Kong	0.0237%	Direct	550,000	47	11,139	49.4
Beijing 2010	0.0334%	Direct	730,000	55	18,370	39.7
Beijing 2013	0.0334%	Direct	900,000	68	22,712	39.6
Beijing 2015	0.0334%	Direct	1,000,000	80	26,720	37.4
Hong Kong	0.0237%	Direct	1,035,700	87	20,619	50.2

Sources IATA Design Reference Manual, Leigh Fisher, ICFI analysis

YRM's analysis of the ways in which the complexity and sophistication demanded of larger terminals increases the area required, explains why this may occur. Table 9 below, illustrates how a basic benchmark of close to 50m2 per passenger at major international airport terminals should increase, or

decrease, with additional requirements placed on the building. This has led to a need for 90m2 per passenger at a 'world class' facility at Terminal 5 Heathrow with an annual capacity of more than 30m passengers and particularly complex requirements. It also shows how such a benchmark could be significantly reduced as the requirements placed upon the terminal decrease.

Table 9 - Increase in Area per Busy Hour Passenger (BHP) as Terminal Becomes More Complex

Modification		Change in Area Per BHP	Area per BHPm^2	Comp to benchmark
Decentralized Baggage	Plus	20	90	40%
Rapid Transit to Satellites	Plus	5	70	10%
Rail Interchange	Plus	6	65	12%
Enhanced Retail	Plus	3	59	6%
Multi-Level Circulation	Plus	6.5	56	13%
BAA benchmark			**49.5**	
Piers and Jetty Service	Minus	20	29.5	40%
Baggage Sort Hall	Minus	4	25.5	8%
Transfers Infrastructure	Minus	5	20.5	10%
Single Level Solution	Minus	2.5	18	5%
Front Line Offices Only	Minus	3	15	6%

Source: Defining for Conflicting Business Models – Lessons from Benchmarking YRM 2006

The differences in the requirements for space, which have been accepted in a highly regulated environment such as the UK (where nearly 30 years of capital expenditure has now been closely scrutinized by regulators) support APAO's view that norms cannot be enforced on terminal size, without taking into account the demands placed on it and its resulting complexity of design.

Differences in the relative complexity of terminal designs and the demands placed on them, also impact the cost per m2 of their development. As IMG, itself, says for AAI airports:

The cost of construction is, however, dependent upon various variables. It is easily impacted by locational factors. Therefore, it may not be possible to lay down general norms in this regard.

Source: IMG Report.

The inappropriateness of applying AAI benchmarks on a 'one size fits all' basis to APOA members is emphasized by IMG's comments on the variability of airport costs. There is a range of issues which could legitimately drive differences between efficiently constructed airports. These include the factors summarized in Table 10 below – some of which have been referred to previously in the context of generalized costs, and some of which are more specific to terminal capital expenditure.

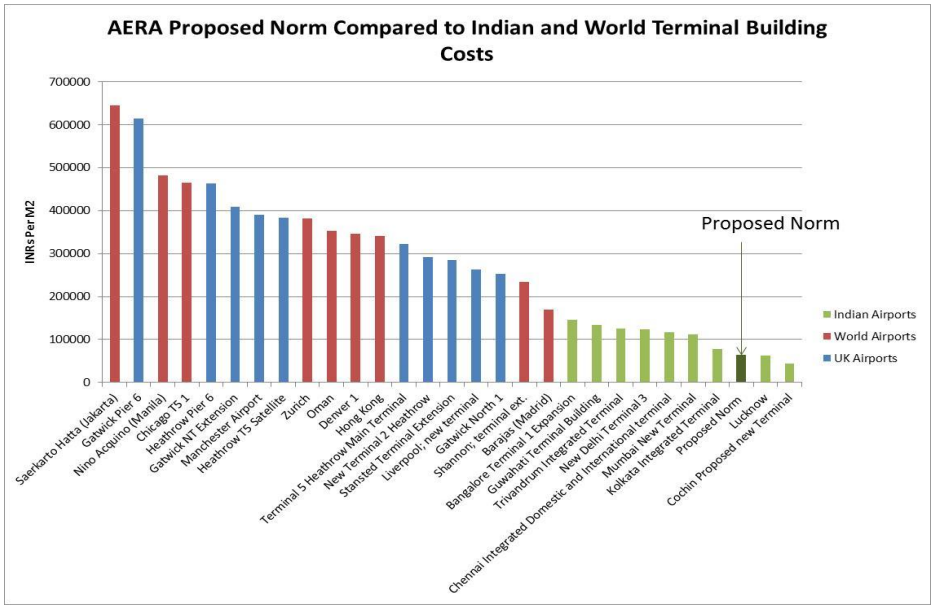
Table 10 - Factors Affecting Terminal Costs

Issue	Effects
Size and configuration of Terminal (including layout and number of floors)	There may be some initial economies of scale but larger terminals suffer from diseconomies as facilities need to be linked and coordinated, and at the same time airlines and passengers require more complex and sophisticated systems Examples of additional requirements include demonstrable energy efficiency (with LEED Certification), baggage handlings systems incorporating baggage reconciliation systems, and space for secondary services and systems
Nature of the traffic	For example whether the traffic is domestic or international and whether there is significant transfer traffic.
Type of Airport Development (Greenfield / Brownfield)	In a brownfield project, the cost of overall development eventually escalates primarily due to sustaining a complex construction process which includes relocation of facilities, enabling works etc. while maintaining continuity in ongoing operations.
Accommodating the requirements of airlines and passengers	The types of flights and airlines served will determine many of the principal design features of a terminal, including airport wide services, baggage handling, and gate design, and retail etc. Terminals dealing primarily with low cost or regional passengers may, for example, have different facility requirements and different demands for check in desks, gates or aerobridges
Location (and local costs)	While some items of equipment are purchased in national or international markets, labour and material costs may differ considerably between areas with commercial and political capitals frequently having higher costs than provincial areas. Amongst the issues at individual locations may be disposal area, and availability of raw material for construction such as sand, Murom etc. access to port for bulk imports, construction water availability, and local construction costs. There will also be local design requirements which may include making provisions for seismic zones, coastal areas, cyclone prone areas, soil quality and other factors.
Tax burden	Airport construction is also subject to a range of indirect taxes and levies, in an environment where there is no tax uniformity across India. Mumbai, for example, is subject to additional burden of octroi ranging from 5.5% to 7%; likewise Bangalore is subject to entry tax.
Presence of already operational facilities	Development of facilities in the near vicinity of already operating ones often leads to cramped and constrained sites and limitations to access with costs rising accordingly
Development standards required by Concession Agreements	Clearly the development standards included in concession agreements will have an important bearing on terminal design and therefore costs
The extent of any specific needs of Government	These may include, for example for prestige facilities in capital city locations. In the case of major Indian airport concessions the airports were specifically required to be amongst the best airports in Asia with inevitable consequences for costs. Requirements for developments to be completed within a given time

Issue	Effects
	or to meet an externally imposed deadline will also increase costs Cost is also subject to requirements of other Government departments which may change over time. This may include variations in codes, laws, and taxation, together with new directives from airport authorities, ICAO, DGCA, BCAS, Home Ministry, Aviation Ministry and other applicable authorities.
Use of life-cycle perspective / Use of standard construction materials	Using a life-cycle perspective takes into account the total cost of ownership of every element of the building. Building components that use significantly less energy or have a higher life expectancy may well result in lower total costs for users to bear, when compared to products which are initially lower cost. Life-cycle cost studies are essential to compare the initial costs, and the repair, maintenance and replacement costs of alternative specifications. Specification of components with shorter life-spans, such as services and finishes, must be carefully considered, not only in terms of cost effectiveness but also to reduce maintenance that might obstruct airport operations. With operations and maintenance (O&M) costs being one of the largest elements in every airport's budget, it is critical to consider the long-term implications of making short-term cost reduction decisions.
Construction Period And Escalation during construction period	Over the last few years the cost of construction materials has been rising, this trend will continue in future. The overall duration of large airport capital programmes (often lasting five or more years after initial concept development until beneficial operation) exposes these projects to the impacts of rising construction material costs.

Given this range of factors contributing to differences in terminal cost, it is not surprising that there are substantial variations both internationally and in India itself, as is shown in Chart 8.

Chart 8 - Terminal Costs for Major Developments in the UK and Elsewhere



Source ICFI, AERA

Even in the case of the Indian benchmarks, AERA's figure of INR 65,000 is very much at the lower end of the scale, compared with the costs associated with most of the Indian developments 75% or more above it, and international development costs significantly above that. It is not clear why AERA has picked the level it has, but it does not appear to have reflected on the factors which we have raised, or indeed on IMG's advice. We would note that the lowest cost terminal in the list – that proposed for Cochin – uniquely is not required to reflect IATA planning guidelines or provide 'world class' infrastructure. It is as example where a case by case approach might lead to relatively low construction costs: it is not an indicator of what could be achieved at other airports with more stringent quality requirements.

In APAO's own view there are significant differences in terminal costs per planned busy hour passenger and annual passengers per m2, but good reasons why these should occur. A one-size fits all approach therefore is not appropriate.

Moreover, the AERA norm:-

- Is too-severe when compared with actual performance to date;
- Is not based on adequate research into terminals and other capital expenditure at the standards required within concession agreements;
- Takes inadequate/ no account of the legitimate differences between terminals – which APAO believes may account for most, if not all, of the variation in out-turn unit cost observed in India;
- Is inappropriately inflexible in its proposed application. Given the differences it may be reasonable to set benchmark guidelines: but it is at best premature to set 'norms' which cannot be varied to reflect differences in circumstances.

Although some of the issues affecting costs are most apparent in the case of terminals, a number of them – such as: local labour and materials costs, local taxes and the difference between developments at green field sites and those relating to live airports - also affect other facilities. Even for facilities such as runways, taxiways and aprons, where there are industry norms for technical specifications, there are therefore likely to be significant differences in terms of underlying costs. We would also note, in passing, that, contrary to the proposals of the AERA document, we would expect the costs per m2 for runways, taxiways and aprons to be different from each other, reflecting the different technical specifications they operate under.

At this stage, therefore we believe that it would be premature to set fixed costs per square meter for facilities in general, and for terminals in particular. In addition to the unfairness of such a system and its possible long term impact on investors, there are two additional dangers for users:-

- Facilities which are designed down to the costs, irrespective of the circumstances of the airport and its users, and of the long term costs (capital and operating) which might result from lower initial capital costs which did not reflect the impact on the full cost cycle;

- Facilities which are 'designed up' to the cost yardstick set by AERA in the view that this effectively represents a 'safe haven'.

In both cases the use of a single invariant benchmark would be likely to promote inefficient construction. We are not aware of such benchmarks being used inflexibly for regulatory purposes at airports internationally. APAO's members' experience at other airports is that costs of facilities are examined on their own merits by experts who take a range of benchmarks into account. There are a number of international and domestic consultant engineers and quantity surveyors capable of commenting in detail on costs of facilities and their comparison with those of other similar developments

There is already a process in India for scrutinizing investments reflecting international best practice, based on a combination of:-

- Extensive consultation with stakeholders in advance – undertaken by individual airports in their own interest;
- A right of audit by AERA once developments are completed.

These complement requirements for competitive tendering which in itself promotes cost effective construction (CERC believes that a fully competitive price determination may not need review). The approach has parallels with that proposed for AAI airports by IMG.

IMG is of the opinion that for appropriate benchmarking, an in-house appraisal mechanism could be established in the Ministry of Civil Aviation. The Appraisal Committee established by MoCA should assess the reasonableness of the proposed unit cost of Airport Terminals costing more than Rs. 150 crore. The Appraisal Committee should specify the ceiling unit cost and the architects/engineers of AAI should plan and implement the project within the ceiling, subject to revision on account of increase in WPI."

Source: IMG Report

At this stage in India, AERA (assisted by consultants such as KPMG and EIL) has already undertaken audits on a number of projects, and there are others which await AERA's future attention. Over time, in India, we would expect a body of 'case law' decisions to build up covering expectations for capital expenditure from which AERA could draw - though this is unlikely to come up with the sort of 'one size fits all' approach which AERA appears to be seeking. In APAO's view the review mechanism provides a major and effective challenge to airports. We believe that this system should be given more time to establish itself and demonstrate its effectiveness.

References to Alleged Gold Plating

The AERA document mentions that

The Authority has come across comments from certain stakeholders that the investments that have gone into the airport facilities have been of a much larger magnitude (for example in Delhi and Mumbai airports). The Authority has also received comments that the final costs in respect of Delhi

and Mumbai airports have been much higher than what was initially contemplated. The Authority has given its detailed analysis on these points in its respective orders. There have been reports in some of the newspapers alleging high investment in airports, cost escalations in respect of Delhi International Airport and that higher investments by the airport operator will entitle him to higher profits (Indian Express, Dec 13, 2013).

APAO would of course, expect AERA to have appropriate scepticism on the expertise of the Indian Express in this area.

AERA also comments that

As far as the procedure for additional capital expenditure is concerned, the Authority believes that the only effective method to minimize the possibility of the so called "gold plating" is to engage stakeholders' in an effective, meaningful and constructive engagement

APAO would broadly agree with this, were gold plating to be a concern. However, in practice, in the case of airports (notably Mumbai and Delhi) where there are significant concession payments applied to all income (which are not taken into account in regulation) the possibility of gold plating disappears. This is because, once the concession payments are applied, the airport cannot reach their cost of capital on their regulated aeronautical investments (indeed they might even make a direct loss after interest has been taken into account) and therefore any attempt at gold plating would be likely to lose rather than gain them money. The point is illustrated in Box D below for Mumbai and Delhi though it is applicable more widely

Box D Impact of Concession Charges on Incentives for Gold Plating

Case 1 – Capital Expenditure Undertaken by the Company

Capital Expenditure	100	
Return over RAB @ WACC	13.2*	
	MIAL	**DIAL**
Income of the Company	13.2	13.2
Less: Revenue Share	5.1	6.1
Less: Interest paid	8.4	8.4
Net profit / (loss)	**(0.3)**	**(1.3)**

***Note Calculation of WA**

	Weights	**Rate**	**Return**
Debt	70	12%	8.4%
Equity	30	16%	4.8%
Resulting WACC			13.2%

Scenario when 100% aeronautical capital expenditure is incurred by the Company in a single year. Loss will further increase in case duration of the project is more than 1 year (as financing allowance is not provided in the concession agreement) and in case any non-aeronautical expenditure is incurred as no return is provided on the

same.

Case 2 Operating Expenditure Undertaken by the Company

Operating expenditure incurred	100	
	MIAL	**DIAL**
Income of the Company	100.0	100.0
Less: Revenue Share	38.7	46.0
Less: Operating expenses	100.0	100.0
Net profit / (loss)	**(38.7)**	**(46.0)**

In practice to the extent to which concession terminals might appear expensive by some Indian (though not by world) standards, this is because of the specifications of the concession agreements which are based on meeting international quality and service targets at a high level, not on defining floor areas or costs.

Conclusions

- The benchmarks contained in the IMG study are clearly intended to be applied flexibly to AAI airports. They are explicitly not intended to provide hard and fast norms for PPP airports which should be dealt with on a case by case basis in advance of privatisation;
- The IMG benchmarks are primarily based on AAI standards. There has not been any substantial analysis of the requirements needed to match 'world class' airports as specified for PPP airports;
- For PPP concessions in particular, IMG benchmarks should be subsidiary to the service standards and planning guidelines specified in concession agreements;
- As suggested by IMG airport facilities can reasonably vary in specification and price for a number of compelling reasons including traffic type, degree of peaking, facility specifications, the needs of users, and local costs and conditions;
- Both international and Indian evidence demonstrate that there are very wide ranges of levels for passengers per square meter and for cost per square meter even in conditions where there are clearly strong pressures for cost efficiency;
- As the YRM study indicates, for example, larger terminals often require more complex facilities leading to greater considerable diseconomies of scale. A range of other factors mean that what is cost effective at one terminal may not be at another;
- As a result, APAO does not believe that any 'one-size fits all' benchmark- with sanctions if it is exceeded - can provide a suitable approach for privatized Indian facilities. Furthermore, we are not aware of any study which can provide well established and convincing model which can take into account the factors which would drive facility construction;

- The regulatory system in India includes a comprehensive system for consulting on and auditing capital expenditure projects. This is complemented by competitive tendering. APAO believes that this system is an effective one and that over time it will produce a body of 'case law' on anticipated costs of developments creating shared expectations for both airport operators and AERA will be able to draw APAO believes that the current system should be left to operate – developing over time with modifications to enable it to work more efficiently and cost effectively;
- Finally AERA has cited opinions that there may have been 'gold plating' at Delhi and Mumbai. APAO notes that the arrangements for concession payments outside regulation at those and similar airports would make any attempt at gold plating non-viable.

APAO Recommendation

APAO believes that, as stated by the IMG Report there should not be any hard and fast cost norms for capital expenditure at Indian airports.

The existing process of:-

1. User consultation;
2. Independent examination and audit;
3. Review of the project cost by AERA;

is the best approach for the Indian airport industry.

Therefore it is submitted that AERA should continue with the above process

3.6 PROPOSAL 6 - REGARDING AERONAUTICAL AND NON-AERONAUTICALASSET ALLOCATION

a. The Authority proposes to make the aeronautical and non-aeronautical in 80:20 ratio for the Terminal Building and common use assets
b. The Authority proposes to consider the cost of Airside operational assets (including boundary wall and roads) that are meant for aeronautical services

Within this section AERA, refers to the use of a normative allocation where the Authority is assigning costs to enable the calculation of the "shared revenue till". However presumably, AERA will also have to make allocations if it is to pass through the costs of non-aeronautical activities as suggested in Proposal 8**.**

Firstly we would note that a number of airports, where the tariff fixation has been undertaken on a single till basis, have challenged the order of AERA in various legal forums, and the conclusions of this process may have implications for cost allocations more widely. As in other areas, we believe that AERA should delay their decisions in this area until the courts have reached their conclusion and AERA can have the benefit of their reasoning and guidance in this area.

APAO notes that one motivation which AERA has referred to in discussing normative allocations in this case, is that there were 'different comments from stakeholders like IATA, FIA, Airport Operators, etc.' in Delhi, Mumbai and Bangalore where it has been undertaking tariff determinations. AERA points out at a later stage that this experience is not unique to Indian Airports and comments that 'the Competition Commission UK did not accept the dual till proposal of the Civil Aviation Authority (CAA) of UK on more or less similar considerations**.'**

APAO does not believe that these points should stand in the way of undertaking stand alone cost allocation processes in the cases where this would have material effect on charges**.** Many airports throughout the world – including a large number in the US (where what is known as compensatory charges systems are well established - see for example Airport Financing in the United states Stettler 2010)- have charges based on cost allocations which include aeronautical/non-aeronautical splits. These are subject to scrutiny and comment by users as part of the normal cut and thrust of charges consultation. While there are discussions and differences of view – as there have been on many aspects of regulation in India and elsewhere- the systems appear to have worked robustly and well. It is possible to request accounting firms to examine and certify cost allocation processes, and AERA may consider requiring airports to do this.

In contrast, we understand that the UK Competition Commission's comments were not based on any actual experience in the field

Moreover, some system of working cost allocation system should in any case be in place at airports regulated by AERA to promote informed decisions on the structure of charges. The aeronautical/non aeronautical split is arguably conceptually simpler, than the split of costs relating to elements of charges.

Against this background, the simple normative approach proposed by AERA has in APAO's views major weaknesses in practice. In APAO's experience – and that of airports worldwide, the extent of non-aeronautical operations and therefore division of costs would be expected to differ substantially between terminals.

Some of the factors influencing the extent of non-aeronautical activities are shown below.

Table 11 - Factors Affecting Extent of Non-Aeronautical Activities

Factor	Comment
Traffic levels	A number of non-aeronautical activities will require a 'critical mass' of passengers/traffic for them to be viable. A small terminal will only be able to justify a very limited range of shops and catering often open for limited periods, while a large terminal can support a wide range of choice with full time opening.
Type of traffic	International traffic will normally support more retail than domestic traffic. Routes to countries – such as China or Japan - support high sales based on a 'gift culture'. Business passengers normally have lower retail demand than leisure. Requirements of low cost traffic may be different from those of full fare.
Activities financed and undertaken by different parties	Third party financing of activities such as shops, retail, food and beverage and car parks will reduce the airport's own level of assets and costs related to these activities
Siting of offices and back-up activities	Many of these can, in principle be sited outside main terminal buildings or even off airport altogether. To the extent that this is done, this will reduce the level to which airport assets should be attributed to these activities.

The differences are referred in the IMG Report. The Report's suggestion is suggestion is that:

'*Commercial or Retail area providing amenities like food & beverages, book shops, counters for car rental, vending machines, public rest rooms etc., normally require 8-12 percent of the overall area, and should be planned and provided accordingly. In bigger airports i.e. with annual passenger traffic exceeding 10 million, commercial area could be up to 20 per cent of overall area'*

Norms and Standards for Capacity of Airport Terminals Inter Ministerial Group 2009

As noted previously, the IMG Report states explicitly that these indicators are intended for AAI airports rather than for privatized PPP airports where standards should be set prior to the assigning of concessions on a case by case basis. However, a number of other issues emerge from this:-

- The Inter Ministerial Group is not suggesting that 'one size fits all'. Indeed the total range is from 8% to 20%;

- Even for airports with over 10m passengers, the proportion is 'up to' 20%. By definition this is an aspirational maximum. There is no suggestion that most airports – even large ones – should actually be at this level other than in exceptional circumstances and indeed IMG's proposal is quite clearly that non-aeronautical areas in terminals **'normally require 8-12 per cent of the overall area and should be planned and provided accordingly';**
- In APAO's view there would be very real concerns that this level of supply in the Indian context would be counterproductive, and could lead to diminishing returns as the airport will face with the choice of bringing in weaker concessionaires or leaving the space empty;
- The approach is intended to be used for planning purposes. It is not intended to refer to existing facilities**.**

The actual experience of APAO members which have undertaken work for AERA in the course of charges settings suggest allocations which are significantly lower than the 20% suggested by AERA. The terminal area figures are shown below**:**

Table 12 - Non Aeronautical Proportion of Floor Area inIndia

Airport	Aeronautical	Non-Aeronautical
Delhi	84%	16%
Mumbai	84%	16%
Bangalore	86%	14%

Source: APAO

AERA itself acknowledges that the level of space it has observed is around 85% aeronautical: 15% non-aeronautical.

These figures are also fully consistent with the suggestions of the IMG, though lower than highest 'aspirational' end of IMG's range. Smaller airports – in line with IMG - would be expected to have area ratios significantly lower than this**.**

However, this is only one part of the story: the observations only cover floor areas. A large proportion of terminal costs are related to plant and equipment in areas such as outbound and inbound baggage and aerobridges. The vast majority of these costs will refer to aeronautical activities. Once the full assets are taken into account, we would expect the proportion of non-aeronautical assets to drop below the levels indicated by area in isolation.

In our view the use of the AERA norms would appear to be inappropriate for airports subject to shared till regulation, where allocation plays a central part in regulation. Regulation of major airports has made use of direct allocation processes effectively and this should continue. Once again we would expect processes to be refined over time and for a body of decisions to be built up, making the allocation process increasingly more straightforward. As noted earlier, it would be possible to in principle require airports to have their allocation processes certified by accounting firms – as is done in other countries.

In any case the application of the rate proposed is inappropriate at this stage, based on the very limited evidence which AERA appears to have used**.**

On three final points:-

- APAO agrees with AERA that the overall allocation of assets will be affected by the level of investment by the airport itself. Clearly to the extent that retail, food and beverage, car parks or other non-aeronautical assets have been partly financed by a third party, these would not contribute to the non-aeronautical share of assets. Moreover, some airports may be undertaking non-aeronautical activities in-house whereas others may be outsourcing them. The same allocation ratio cannot be appropriate to the two circumstances;
- Some assets, such as main access roads, are absolutely required by the airport and would need to be in place at essentially the same level, even if there were no non-aeronautical activities. In such cases the assets should be allocated 100% to the aeronautical side. The presence of non-aeronautical activities has not driven or contributed to their costs;
- As in other proposals, even in circumstances where the use of a norm was regarded as appropriate, there should be provision for an airport to be able to bring forward compelling evidence that the norm proposed was not suitable in their case.

Conclusions

- APAO believes that, contrary to comments made by AERA, robust approaches to direct allocation of assets at individual airports are relatively straightforward to construct. This is confirmed by practical experience both internationally and in India itself;
- The norm on non-aeronautical activity allocations proposed by AERA is based on work by the Inter Ministerial Group on Norms and Standards for Capacity of Airport Terminals. This work explicitly excludes airports operated under PPPs which should be considered on a case by case basis with standards set prior to the assignment of the concession;
- Moreover, the IMG Report covers only areas and not asset allocations. It also proposes a range which is intended to vary with airport size. IMG's full range is 8-20%. The figure proposed by AERA is very much at the highest point of the scale;
- A large proportion of terminal costs are related to plant and equipment in areas such as outbound and inbound baggage and aerobridges. Such costs are not related to area and are predominantly aeronautical in nature. Once the full assets are taken into account, we would expect the proportion of non-aeronautical assets to drop below the levels indicated by area in isolation - which appear to have formed the sole basis of AERA's allocations;
- Where an asset, such as an approach road, is essential to the operation of the airport, and its cost or design would be essentially the same irrespective of the presence of non-aeronautical revenues, APAO believes that those asset costs should be allocated in full to aeronautical assets;

- APAO therefore believes that AERA has no basis on which to establish a norm and that direct allocation exercises should continue at airports where asset allocation plays a central regulatory role. Certainly, the ratio currently proposed does not appear to be supported by adequate evidence at this stage**.**
- Finally the allocation process is not generally relevant to single till airports, while in hybrid till airports there is a strong incentive for the airport operator to optimize the size of the non-aeronautical area. There does not appear to be any reason for the regulator to be attempting to micro-manage by setting a fixed norm in this area.

APAO Recommendation :

Concession agreements of the private operators do not contain any provision for the normative allocation of assets.

AERA has appointed, or is in the process of appointing consultants. In our view, AERA should await their reports.

The allocation should be based on actuals of individual airports. The current process of allocation by independent experts and its review by AERA is an effective approach and should continue.

3.7 PROPOSAL 7 - REGARDING ALLOCATION OF O&M EXPENDITURE BETWEEN AERONAUTICAL AND NON-AERONAUTICAL SERVICES

a. The Authority proposes to make the allocation of O&M expenditure between aeronautical and non-aeronautical services in 80:20 ratio.

The points made above with regard to asset allocation hold, with, if anything even more force, when applied to the division of aeronautical and non-aeronautical costs. In this case the allocation appears to be made across the totality of activities – not just the terminal, and there is not even an aspirational floor area split to be referred to.

AERA refers to the fact that a 'proper separation of operating activities into aeronautical and non-aeronautical activities is relevant, particularly if the Authority were to make computations of aeronautical tariffs (including User Development Fees) on shared revenue till.' APAO agrees with this but believes that the normative approach proposed by AERA, and in particular the figure used is entirely inappropriate for this.

The consequences would be significant in some cases. At Delhi Airport the aeronautical: non-aeronautical costs have been allocated after systematic study at 89% aeronautical: 11% non-aeronautical. In Bangalore the allocation is 90% aeronautical 10% non-aeronautical. An 80:20 allocation could mean that 10% of costs (or possibly more) were effectively disallowed**.**

APAO therefore believes that direct tailored cost allocations should certainly be used at airports where regulation is based on a shared revenue approach. Such allocations have been applied robustly at airports such as Mumbai and Delhi. APAO believes that this should continue with all parties gaining over time from experience and a body of 'case law' from previous decisions. We would expect this to make allocations increasingly more straightforward and less contentious. In other countries airports are required to have their allocation processes certified. APAO would not, in principle, oppose this in India.

Conclusions

- The points made on the use of norms to asset splits apply with even more force to the allocation of costs – especially since in this case AERA has not cited any evidence.
- As AERA suggests, the proper allocation of costs is of particular importance in the case of airports regulated on a shared revenue basis. APAO agrees and believes that, the current process for systematic allocation of costs at such airports should continue to apply**,** being refined over time as airports and AERA develop their experience in the area.

APAO Recommendation :

Concession agreements of the private operators do not contain any provision for the normative allocation of assets.

AERA has appointed, or is in the process of appointing consultants. In our view, AERA should await their reports.

The allocation should be based on actuals of individual airports. The current process of allocation by independent experts and its review by AERA is an effective approach and should continue.

PROPOSAL 8 - REGARDING INCENTIVISING AIRPORT OPERATOR TO INCREASE NAR AND TRUING UP

a. The Authority proposes to true up the NAR
b. The Authority proposes to incentivise (disincentives) the airport operator only for his "efforts" (or lack of efforts to increase (or fail to increase) the non-aeronautical revenues at the airport
c. The Authority proposes to operationalize Proposal No. 8 (b) by taking half the difference between the growth rate of increase of NAR and the growth rate of passengers, calculated each year, with carrying costs calculated at the WACC as applicable and the cumulative incentive (disincentive) amount to the ARR of the first year of the next control period
d. The Authority proposes to adopt the proposal of incentivisation from the next control period viz 1st April 2016 to 31 March 2021 based on the results of growth in NAR and growth in passengers as obtained in the Current Control period. Therefore the incentive amount will be added to the ARR of the FY 2016-17
e. The Authority under this approach proposes to take into account the costs of generating the NAR and treat this as a pass-through
f. The Authority also proposes that it may need to ring fence the airport assets
g. The proposal of incentivisation of airport operators to increase non-aeronautical revenues will not apply to Delhi and Mumbai Airports.
h. In the case of CIAL, the Authority has issued a Consultation Paper proposing continuation of existing tariffs for the current control period. Hence, the question of any incentive pertaining to the current control period in respect of CIAL does not arise.

A number of APAO's views on Proposal 8 are related to its views on the pass through of operation and maintenance costs discussed in Proposal 4.

It should firstly be noted that at Bangalore and Hyderabad, in particular, there are legal cases pending relating to the method to be used to address commercial revenues, and centrally whether a single till should be applied. As in the case of the cost of equity, APAO believes strongly that decisions by AERA in this area should await the conclusions of those cases and should reflect issues raised in their final judgment.

Subject to the final conclusions reached in those cases, the normal approach under single till CPI-X regulation is that the airport should retain the benefits of outperformance in-non-aeronautical revenue for the duration of the regulatory period, and that users should thereafter receive the benefits, in the form of higher base non-aeronautical revenues per passenger at the next review. However, for non-aeronautical revenue, as for costs discussed earlier, the Indian airport system is relatively immature and it may be difficult to forecast non aeronautical revenue with confidence in times of significant instability.

APAO therefore believes like AERA that, at least for an interim period, there should be a degree of protection on both sides for forecasting errors. The proposal by AERA in this case, under which it is intended that50% of commercial outperformance is trued up with 50% of the effects being felt by the operator, reduces the incentives compared to classical CPI-X, but not as much as a full true up would have done. APAO accepts this in current circumstances. However APAO would expect the need for

this system to reduce over time as the airports industry matures. APAO therefore believes that the system should move over time towards classical CPI-X without pass through.

At this stage there are a number of elements of the process of truing up and passing through commercial costs which are not yet clear, such as: the way in which truing up and incentivisation are to be combined, the treatment of inflation, and dealing with commercial improvements which lead to a one-off enhancement in performance maintained over a number of years (rather than continuing year by year growth). APAO's final view of the system will depend on the detailed way in which the system operates**.** If AERA is to continue with this proposal there should be detailed consultation on the actual operation of the system, as well as the general principles outlined in AERA's documents.

Finally APAO would note in order to minimize the need for truing up, with its related move of revenues and costs between periods, the best possible forecast of commercial revenue should be used from the outset. Although it is sometimes suggested that commercial income should be expected to grow faster than passengers, it is by no means clear that this will always be the case – particularly at mature airports. A number of the components may grow at lower rates or not be driven by passengers at all – as illustrated in the table below**.**

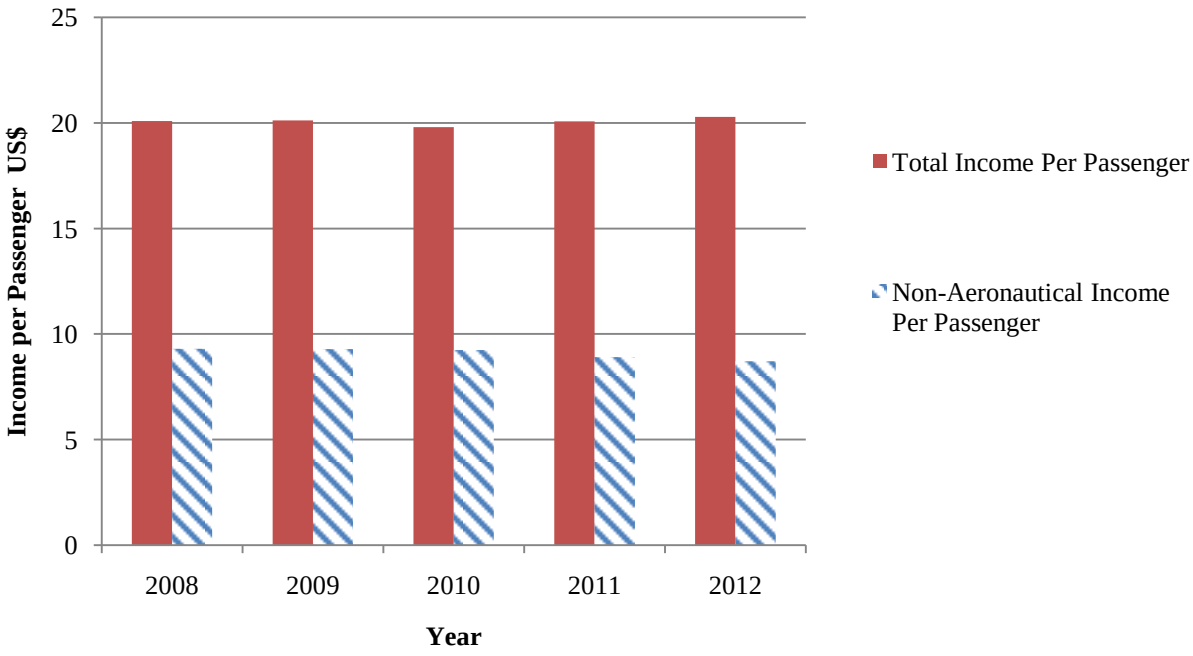
Table 13 -Drivers of Non Aeronautical Income

Area	Proportion of Revenue at Asia-Pacific Airports	Comment on Drivers of Performance
Shops	44.5%	Driven by passengers but may face diminishing returns as commercial developments become well established and have less novelty/ lower appeal for repeat passengers
Food and Beverage	3.9%	Driven by passengers. Upside constrained as demand for food and drink is not unlimited.
Car parking	10.6%	Will grow with outbound passengers. Resistance to charges increases. Congestion and new airport public transport links may reduce demand.
Car rental	1.8%	Will in principle grow with inbound traffic. However, congestion and new airport public transport links may constrain scope for increase in demand.
Rents	23.1%	May rise with general airport activity, but demand not directly driven by passengers. Airlines and others may benefit from economies of scale.
Advertising	4.9%	Driven in part by availability of sites. Not directly passenger related
Other	11.2%	Variety of services to airlines and others as well as passengers. May well rise at a lower than passenger growth.

Source for numbers: ACI Airport Economics Report 2013

Though considerable care must be taken with such comparisons, international figures suggest that, if anything, non-aeronautical income per passenger (as distinct from the retail income referred to by AERA) been falling over the past few years – even before inflation has been taken into account (see Chart 9 below).

Chart 9 -Non Aeronautical Revenue per Passenger



Source: 2013 ACI Airport Economics Report

It should also be noted that the forecasting approaches appropriate for airports with low performance but corresponding major opportunities for improvement (which include some of those operated by AAI) may be very different from that suitable for airports which have already undergone significant improvements – as have those operated by a number of APAO's members.

On other issues raised by AERA, APAO believes that:-

- APAO supports the proposal to ring fence airport activities, and not include activities which are not airport related. However it is concerned that this is done on a consistent basis and that AERA does not face pressures to 'cherry pick' non-aeronautical activities which appear to be profitable while excluding those which are not;
- Having moved an activity outside the airport boundary it would not be appropriate to bring it back in without strong reasons for doing so. Once again there may be concerns that AERA might face pressures to reject investments such as hotels in their initial period while they were becoming established, and insist on bringing them in at a later stage when they start making profits;
- APAO accepts and supports the suggestion that it would be inappropriate to bring Delhi, Mumbai and Cochin international airports into this system, given their specific circumstances.

Conclusions

- APAO notes that at Bangalore and Hyderabad, in particular, there are legal cases pending on the method to be used to address commercial revenues, and whether a single till should be

applied. APAO believes strongly that decisions by AERA in this area should await the conclusions of those cases and should take into account issues discussed in their final judgment;

- Given the current immaturity of the Indian airport industry and the associated uncertainties, APAO supports a degree of truing up for a temporary period: APAO believes that, as with costs, such a truing up of non-aeronautical revenue should be phased out over time;
- There remain potential questions about a number of specific features in the AERA scheme. APAO believes if the proposal goes forward, there needs to be further consultation about the details of its application;
- The assumption that real non-aeronautical income is likely to grow faster than traffic growth may well not hold as India's airports grow beyond the impact of their initial investments. Non-aeronautical (as distinct from retail) revenues per passenger at airports worldwide have, if anything, been falling;
- In this context APAO believes that appropriate forecasting for airports with low performance and consequently major scope for improvement may be different from that at airports which have already achieved significant growth on non-aeronautical income;
- APAO appreciates the benefits of clear ring-fencing of airport activities. However it is important that clear principles are established to avoid cherry picking of profitable activities, either immediately or overtime;
- APAO supports the exclusion of Mumbai, Delhi and Cochin from this scheme.

APAO Recommendation:

APAO notes that at Bangalore and Hyderabad, there are legal cases pending on the method to be used to address commercial revenues (whether a single till should be applied).

APAO strongly believes that decisions by AERA in this area should await the conclusions of those cases and should take into account issues discussed in their final judgment before proceeding in the matter.

4 OVERALL CONCLUSIONS

Although a number of points have been raised by us on the Consultation Paper in the course of this report, APAO's main views on individual proposals are summarized below**:**

Table 14 -Summarized APAO Views on the Consulation Paper Issued by AERA

Issue	APAO View in Brief
Application of norms	APAO believes that Indian airports are not sufficiently homogenous to permit the application of fixed norms on a one size fits all basis. There is also a lack of well accepted and robust models for controlling of differences. APAO therefore believes that performance should continue to be assessed on an airport by airport basis. The introductions of norms would represent a change to the basis of regulation included in current concession documents Norms are not referred to in the OMDAs and SSAs for Mumbai and Delhi and do not form part of the ICAO Policies on Charges for Airports and Air Navigation Services guidelines which are specified for the regulation of BIAL and GHIAL. The IMG Report makes clear that the benchmarks it discusses are applicable only to AAI airports. Airports operated on a PPP basis should be dealt with on a case by case basis required norms or standards established in advance of privatisation. If norms were to be introduced, they should not be applied retrospectively to already privatized airports – particularly those such as Mumbai and Delhi where the concession agreements (OMDAs and SSAs) already impose specific standards on the airport.
The AERA approach to setting RAB	The rolling forward process adopted by AERA is based on a concept used by UK CAA and a number of other regulators worldwide. Under this concept, the RAB represents a store of past investment for which the equity and debt providers are entitled to remuneration. A system of this sort avoids any possibility of double payments on investment, or of equity making a return when the RAB is exhausted. Such models do not include the liability side of the balance sheet and there is no consideration of separating the returns to debt and equity – and no requirement to do so. Subject, as in other countries, to the adoption of pragmatic measure to protect investors in the event of any future changes, APAO supports AERA's approach to the roll forward of assets.
Proposal 1- Truing up of the Debt: equity Ratio	APAO believes that debt equity ratios are best based on the actual position of individual airports. This ensures that regulatory decisions are consistent with the financial and other constraints facing the company concerned The general principle of setting a normative debt: equity needs to be

Issue	APAO View in Brief
	handled with care. Other regulatory assumptions – including the cost of debt and equity – need to be consistent with the assumption made. APAO believes that setting a single normative debt: equity ratio for all Indian airports -irrespective of their circumstances and degree of risk - is entirely inappropriate. The requirements for fixed debt: equity ratios in practice with effective sanctions if they are not achieved would cause significant problems if applied to airports. AERA's proposals for this are derived from CERC's regulatory processes. However, CERC's regulation is based on return on equity with pass through of lending costs rather than return on capital as AERA's is. The importing of return on equity concepts is an entirely unnecessary complication which could lead to unfair and damaging results in the airports case if, for example, an airport's equity dropped below 30% as a result of events outside its control – which may include accumulated losses. At the very least these concepts should not be applied to already privatized airports.
Proposal 2- Cost of Equity	The cost of equity proposed by AERA is currently the subject of legal action APAO believes that it is inappropriate for AERA to reach a definitive view at this stage. In APAO's belief the cost of equity for all airports is too low and would make existing airports unviable. Moreover it has not been corrected for the new norms of the debt: equity ratio proposed by AERA. If AERA now intends to propose a higher than originally assumed (at the time that the cost of equity determination was made) 70:30 split of debt and equity, the cost of equity should rise significantly as a response. Moreover the suggestion that the cost of equity should be constant across all airports and into the indefinite future is clearly unreasonable, and incompatible with the CAPM model which AERA uses to justify its findings. The final cost of equity capital derived from these parameters at individual airports, should be calculated on the basis of their individual equity betas, which properly reflect the combination of the relative risk of the airport and are consistent with its debt: equity ratio.
Proposal 3 - Depreciation Rates	In principle, depreciation rates do not impact the present value of returns to investors or costs to users and hence the overall fairness of regulation. However depreciation rates do affect the airport's ability to fund assets, with prudently high depreciation rates assisting in matching the needs of lenders at early stages in projects. APAO members are generally comfortable with the revised Companies Act 2013 depreciation rates. Specialist assets such as runways should reflect both the need for prudence for financing purposes and the specific characteristics of the airport business; APAO and its members would welcome the opportunity to work with AERA and other stakeholders on realistic airport asset lives having

Issue	APAO View in Brief
	regard both to international good practice and the specific situation of airports in India.
Proposal 4- Truing up operating costs	APAO agrees with AERA that there is no clear basis for setting normative costs at airports given the wide range of circumstances which they face. APAO also believes that the current status of airports in India is one of immaturity in which there are considerable uncertainties characterised by change in ownership, rapid traffic growth and major construction projects. As a result, APAO supports the truing up of costs in the short and medium term. It would be generally desirable for cost targets to be realistic in order to minimize the burden on the truing up system and as a result the impact on users in the following regulatory period. APAO therefore believes that costs should be driven by passenger numbers and inflation. Given the uncertainties facing airports in India, all costs, including the impact of foreign exchange movements should be taken into account.
Proposal 5- Construction Costs	The benchmarks contained in the IMG Report are intended to be applied to AAI airports. The IMG Report states clearly that airports operating under PPP agreements should be dealt with on a case by case basis with benchmarks set prior to the letting of the concession. The IMG benchmarks are primarily based on AAI standards. There has not been any substantial analysis of the requirements needed to match 'world class' airports as specified for PPP airports For PPP concessions in particular, IMG benchmarks should be subsidiary to the service standards and planning guidelines specified in concession agreements As suggested by IMG, airport facilities can reasonably vary in specification and price for a number of compelling reasons including traffic type, degree of peaking, facility specifications, the needs of users, local costs and conditions. Both international and Indian evidence demonstrate that there are very wide ranges of levels for passengers per square meter and for cost per square meter even in conditions where there are clearly strong pressures for cost efficiency. As a result, APAO does not believe that any 'one-size fits all' benchmark- with sanctions, if it is exceeded - can provide a suitable approach for Indian facilities. Furthermore, APAO is not aware of any study which can provide well established and convincing model which can take into account the factors which would drive facility construction. The regulatory system in India includes a comprehensive system for consulting and auditing capital expenditure projects. APAO believes that the current system should be left to operate – developing over time with modifications to enable it to work more efficiently and cost

Issue	APAO View in Brief
	effectively. AERA has cited opinions that there may have been gold plating at Delhi and Mumbai. However the arrangements for making concession payments, which are not taken into account in regulation, would make any attempt at gold plating non-viable.
Proposal 6- Allocation of Assets to Non Aeronautical	APAO believes that, robust approaches to direct allocation of assets at individual airports are relatively straightforward to construct. This is confirmed by practical experience both internationally and in India itself. The norm for non-aeronautical allocations proposed by AERA is based on the IMG Report. However this only covers areas and not asset allocations. It also covers a range which is intended to vary with airport size. IMG's full range spans 8-20%, with the suggested rate for planning and provision being 8-12%. The figure proposed by AERA is very much at the highest end of the scale. A large proportion of terminal costs are related to plant and equipment Such costs are not related to area and predominately aeronautical in nature. As a result we would expect the true allocation of costs to aeronautical should be higher than indicated by AERA in isolation Where an asset, such as an approach road, is essential to the operation of an airport, and would be provided at the same level irrespective of the presence of non-aeronautical revenue, that asset should be allocated to aeronautical. APAO believes that AERA has no basis on which to establish a norm and that direct allocation exercises should continue at airports where asset allocation plays a central regulatory role.
Proposal 7- Allocation of Costs to Non-Aeronautical	The points made on the inappropriate use of norms to asset splits apply with even more force to the allocation of costs – especially since in this case AERA has not cited any evidence. As AERA suggests, the proper allocation of costs is of particular importance in the case of airports regulated on a Shared Till. APAO agrees and believes that, the current process for systematic allocation of costs at such airports should continue to apply, being refined over time as airports and AERA develop in their experience of the area.
Proposal 8 - Incentivising Growth in NAR	AERA notes that at Bangalore and Hyderabad, in particular, there are legal cases outstanding on the method to be used to address commercial income. APAO believes that decisions by AERA in this area should await the conclusions of those cases. Given the current immaturity of the Indian airport industry and the uncertainties which result, APAO supports the principle of truing up. There remain potential questions about a number of areas of the scheme. However, APAO believes if the proposal goes forward, there needs to be further consultation about the details of its application. The suggestion that non aeronautical revenue per passenger is likely to

Issue	APAO View in Brief
	grow faster than inflation may well not hold good. Revenues per passenger at airports worldwide have been falling – even before the effects of inflation have been taken into account. In this context forecasts for airports with poor performance and correspondingly high opportunities for growth should be different from those airports which have already achieved significant improvements in non-aeronautical revenue. APAO appreciates the benefits of clear ring-fencing of airport activities. However it is concerned that clear principles should be established to avoid cherry picking of profitable activities, either immediately or over time. APAO supports the exclusion of Mumbai and Delhi from this scheme.

Overall APAO agrees with AERA that its paper should be regarded as the start of a process rather than a set of definitive findings. There: are some areas with which APAO disagrees in principle: in others the principle may be acceptable but proposals for its application need refinement or may be premature given the evidence currently available.

Now that AERA has set the agenda, APAO would welcome the opportunity to work with the Authority further to reach a considered consensus on issues such as appropriate depreciation rates for airports, and the truing up proposals for non-aeronautical revenue. These could then be implemented with support from both sides**.**

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