Action Plan for Civil Aviation

Overview

Introduction

The Action Plan for Civil Aviation comprises:

- 7 consultation and policy papers (see Background Document)
- An Investment Plan for urgent investments at Afghan airports.

The Consultation and Policy Papers are attached to this Overview. The Investment Plan, entitled Airport Development is in an annex to this Overview document.

The Investment Plan does not include Kabul International Airport (investments are already ongoing) and Kandahar (the airport is under military control). The Plan does not include investments in the air traffic management (ATM) system either as the government must first decide on the concept of operations.

Summary of Policy and Consultation Papers

The Policy and Consultation Papers elaborate on, and make practical proposals for the implementation of, the policy recommendations made in the civil aviation section of the Background Document to the Policy Statement for the Transport Sector.

Consultation Paper 3.1: Support for MCAT in the Negotiation of Bilaterals

This proposal stems from the following policy recommendation:

International civil aviation markets are governed by bilateral agreements based on the sovereignty of a government over its airspace. The Afghan government should use the facility provided by this system and the valuable traffic rights created under it to afford Ariana on international routes the means necessary for it to re-establish itself and build up its competitive position. The objective is thus to enable the government to take a rational decision in due course on its privatisation and to facilitate the international connections necessary for the reestablishment of the economy.

In consequence a second Afghan airline should be authorised by the licensing authority (see next Paper) only on routes where its competition would not significantly detract from the above objective.

To support the implementation of this policy, MCAT should be temporarily strengthened by the addition of expertise from abroad on bilateral negotiations and route analysis.

Consultation Paper 3.2: Principles of a System of Route Licensing for Aviation Traffic

This proposal stems from the following policy recommendation:
At least for a number of years, the provision of domestic services should be separate from the provision of international services. For domestic services the overriding criteria should be the re-development of the economy, the needs of the regions and accessibility for the people. Some services should be commercially viable, but many will not, at least initially. A licensing system to cover both eventualities will be necessary.

A licensing system should be created with the two-fold function:

- On domestic routes:
  - To approve, or to choose between, applications to operate commercial services.
  - To invite tenders, and to decide the allocation of contracts, for services on which commercial services are not viable.
- On international routes:
  - To decide on applications from airlines other than Ariana to operate on international routes.

Applications to operate both commercial and non-commercial services on domestic routes should be invited from Ariana, Afghan private sector operators and non-Afghan operators established in Afghanistan.

Consultation Paper 3.2 discusses options for the sort of system that a licensing authority might seek to develop. It also makes recommendations for how to take the proposed route licensing system forward and how it should be implemented.

Policy Paper 3.3: The Relationship between Ariana and the Government of Afghanistan

In terms of the recommendations of this Policy Paper, the relationship between Ariana and the government should be clarified to give the government adequate control over substantive financial issues and Ariana freedom to decide on commercial and operational issues. This will involve changes to Ariana’s Articles of Incorporation and a contract between it and the government.

Consultation Paper 3.4: Approaches to Corporatisation of Airports Management

This Paper argues that airports should be managed by a single corporate entity analogous to a private sector company for a number of years until they have been brought up to operational fitness and the traffic has built up enough to create the potential of profitable operation.

The structure of the company and its relationship with the government should be similar to that proposed for Ariana. The regions should be fully represented on the Board of the company; and as many as possible of the operational functions should be devolved to the regions. Possible approaches and the outline of a proposed contract between the company and the government are presented in the Consultation Paper.

A decision on whether to devolve policy and financial responsibility to five separate companies at regional centres should be taken when the potential of profitable operation exists.
There should be no regulation of the charges made by the airports but the government should have a power to intervene in the case of an abuse of a monopoly position.

Consultation Paper 3.5: The Modernisation of the Air Traffic Management System

The ATM system should be modernised as rapidly as possible. As a first step a decision should be taken on the concept of operations which the government wishes to follow. To achieve this, an external expert should be recruited to provide rapidly an analysis of the costs and benefits of the various concepts of operations which are possible and a recommendation of that which Afghanistan should adopt for its future ATM system.

This could then lead quite rapidly to a second stage which would comprise the implementation of this recommendation. Proposals for implementing this are at Paper 3.5. It would be keeping with NDT objectives if at some point, the system were transferred to an independent agency or corporate entity. This should follow on the achievement of the primary objective of modernisation.

Consultation Paper 3.6: The Regulation of Aviation Safety

The government should begin urgently the re-building of the aviation safety regulatory system. This should be done by a two-stage approach:

- The first designed to bring about immediate improvements and assess the longer-term needs. This would involve training for 20 people.
- The second designed to bring the system up to a condition which will enable it, without outside help, to pass an ICAO audit.

Proposals for achieving the first stage, and thus setting out the plan for the second are in the Consultation Paper. As with ATM, the primary objectives should be the improvement of the system; but it would be in keeping with NDF objectives in due course to transfer the ATM system to an independent agency.

Consultation Paper 3.7: Reform, Restructuring and Strengthening of the Ministry of Civil Aviation and Tourism

The Ministry of Civil Aviation and Tourism is facing a number of fundamental challenges in the coming years. First, as for other parts of the government, MCAT’s functions have been significantly disrupted in recent years. Second, the MCAT is envisaged to undergo organisational change in response to suggestions made in the other Papers forming part of the Action Plan for Civil Aviation. And third, the MCAT will be involved in a number of projects to upgrade the airports and the Air Traffic Management system (ATM) of the country.

This Paper proposes a strategy for how to move forward to overcome these challenges, consisting of:

- A proposal for how the MCAT should be organised during the process and at the end of its reform and restructuring.
- An approach for how to drive the reform and restructuring process
The provision of capacity to manage the reform and restructuring process, but also to provide project management support for the implementation of capital and TA projects.

To be able to manage the reform and restructuring process, it is proposed that MCAT decides on the implementation of a new organisational structure in the coming years. This would not be the final organisational arrangements in the civil aviation sector, but should be put in place to facilitate the later transformation of the sector in terms of the proposals made in the Policy Statement and elsewhere in the Action Plan.

The approach proposed to be used to reform and restructure MCAT is based on the one outlined in Information Paper 4.1. It is repeated in this Paper and adapted to the needs of MCAT.

**Airports Investment Plan**

Practical proposals to improve the infrastructure at airports other than Kabul and Kandahar are at the Annex (Airport Development). These are divided into two consecutive stages, each of three years, the total cost of which is USD 22 million.

The detail is as follows:

<table>
<thead>
<tr>
<th>Airport</th>
<th>Stage 1 (USD)</th>
<th>Stage (USD)</th>
<th>Total (USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mazar-I-Sharif</td>
<td>2,910,798</td>
<td>2,330,000</td>
<td>5,240,798</td>
</tr>
<tr>
<td>Kunduz</td>
<td>2,177,418</td>
<td>1,680,000</td>
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</tr>
<tr>
<td>Heart</td>
<td>3,420,990</td>
<td>1,930,000</td>
<td>5,350,990</td>
</tr>
<tr>
<td>Jalalabad</td>
<td>2,160,898</td>
<td>1,830,000</td>
<td>3,990,898</td>
</tr>
<tr>
<td>Faizabad</td>
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<td>50,000</td>
<td>1,201,375</td>
</tr>
<tr>
<td>Bamyan</td>
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<td>728,000</td>
<td>1,082,395</td>
</tr>
<tr>
<td>Chaghcharan</td>
<td>653,250</td>
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<td>793,250</td>
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<tr>
<td>Lal</td>
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<td>Not available</td>
<td>Not available</td>
</tr>
<tr>
<td>Yakawlang</td>
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<td>239,000</td>
<td>822,500</td>
</tr>
<tr>
<td>Maymana</td>
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<td>Not available</td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Total</strong></td>
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<td><strong>8,927,000</strong></td>
<td><strong>22,339,624</strong></td>
</tr>
</tbody>
</table>

In due course, provision should be made for the modernisation of the ATM system but the costs of this will depend on the concept of operations selected.
Consultation Paper 3.1

Support for MCAT in the Negotiation of Bilaterals

Executive Summary

The bilateral system was designed to enable governments to correct any unacceptable imbalances in the effect of competition and thus to protect weaker, or infant, industries.

The system creates traffic rights which have a value, which should not be thrown away.

To facilitate the recovery of Ariana, it should select carefully the routes likely to bring in the greatest revenue most quickly; and the bilaterals should be geared to enable them to do this.

This will require expertise in the techniques possible under the bilateral system; and in route analysis.

TSR recommends the recruitment of two outside experts to help in this process, for one or possibly two years. The cost would be between USD 400,000 and USD 600,000. For this purpose, the government should approach the ICAO Technical Assistance Bureau for suggestions of suitable people and approach donors to see whether funding would be available for which a case might be made.

Recommendations:

Recruitment of two outside experts to support MCAT in the negotiations of bilaterals for one or possibly two years.

Action:

Approach ICAO Technical Assistance Bureau for suitable people, and approach donors for possible funding.
Introduction

The draft policy produced by TSR at the end of Phase 1 recommends that Afghanistan use the opportunities afforded by the system of bilateral agreements which underlies the international aviation system to protect and support Ariana until it is firmly established. This paper makes proposals to help MCAT to do this.

The Impact of the Bilateral System

The bilateral system creates traffic rights. That is to say that before any airline situated in country A can operate between A and country B it needs traffic rights to be granted by B. Its own government negotiates these rights on behalf of the airline; and it is possible, and normal, for either government to insist on conditions before the traffic rights are granted. These can range from obligations to settle fares and conditions, to agree schedules, to control capacity, to enter into code-sharing arrangements, to provide facilities and so on. The traffic rights thus have a value and the art of the bilateral negotiator is to realise as much of that value as possible.

At the other end of the scale are the open skies agreements negotiated in the main by the USA. It is instructive to understand how these make use of the principle of traffic rights. In effect the US open skies agreements are an exchange of traffic rights without any restrictions (except of course that the huge U.S. domestic market remains closed). In the case of the U.S., with its large and attractive market, the agreements sacrifice the power to impose restrictions (at least under the bilaterals; its use of the anti-trust rules is a separate issue) in return for:

- A reciprocal sacrifice on the part of the other party. This gives complete freedom to the powerful American airline industry on the routes between the two countries (and sometimes on other routes).
- This usually leads in turn to a highly competitive market with the economic advantages that would normally be expected to derive from it.

In the case of Afghanistan, the freedom to operate without restrictions to other countries would at present be largely academic.

The other countries would provide services as it suited them (and their government) and the consequence would probably be a series of route monopolies operated by third country airlines (assuming of course that they found the Afghan market sufficiently attractive to operate at all). This would not help to re-establish the general Afghan economy. It is very likely that Ariana could not at present compete in such a market. The consequence would be either large and increasing governmental subsidies or more likely, the collapse of Ariana.

The Possibilities Open to Afghanistan

It is necessary therefore to consider the sort of conditions which Afghanistan might seek to obtain in its bilaterals and the sort of policy it should adopt in its negotiations with a view to minimising (or ending) its requirements for government money.
The sort of things that might be considered include the following:

- Agreements to regulate capacity to avoid over-supply. This would be intended to keep fares at a remunerative rate and prevent Afghan services from being swamped.
- Agreements to schedule services to avoid bunching. This would mean some sort of pooling agreement to compensate for services run out of the peak.
- Agreements on fares and interlining. This would be linked to (ii) above and enable passengers to use a ticket on either airline.
- Agreements to code share. This would, for example, allow Ariana to take seats on the other airline and retail them itself, at a profit. It is sometimes the case that each airline has its own cabin crew on board; sometimes that one airline acts for both. This would enable Ariana to derive revenues at minimal cost (and at no capital cost).
- Agreements to handle each other's passengers. This is a normal commercial arrangement. But as competition intensifies airlines tend to want to build-up their brand by handling their own passengers. This would be expensive for a small airline like Ariana and the bilateral negotiations could be used to obviate the risk.
- Agreements, for example for long-haul routes, that Ariana would feed its passengers to longer-haul routes operated by the reciprocal airline (e.g. westwards from the Gulf, eastwards from Pakistan, India, Malaysia or Singapore) in return for a share of the revenue derived. This again would provide revenues without capital expenditure.

Most important of all is the choice of routes. Ariana should give priority to those routes which would bring it the most revenues most rapidly. This assessment is a mixture of political feasibility and commercial assessment. At the moment Ariana is - for understandable reasons - operating with aircraft which were not necessarily those they would have chosen to run the routes they wanted to run. If Ariana is to succeed, it is essential to reach a situation in which it can have at its disposal the aircraft most suitable for the routes it regards as to its advantage to run.

Whether its commercial policy accords, for example, with the sort of arrangements suggested in para 5 above is a matter for its own and the government’s assessment of the possibilities.

To do this job properly, TSR considers that it would help if the MCAT were strengthened temporarily by the addition of expertise from abroad. TSR therefore recommends that two people be made available to MCAT with the following expertise:

- One to study the route structure of the airline and propose modifications in the light of actual and forecast traffic, - assess the commercial suitability of the aircraft used on the various routes and propose options, - consider the possibility and benefit of entering into commercial cooperative agreements with other airlines, - enhance the management capabilities and efficiency of the airline’s commercial department and its personnel, - provide on the job training, and help in the implementation of aviation policy and in the conduct of bilateral negotiations.
- One to assist in the implementation of the policy proposed by TSR in the conduct of bilateral negotiations. His / her function would be to work with Ariana to review the existing and future route structure and as necessary propose new bilaterals in the light of the objectives proposed by TSR and to assess the commercial and political feasibility of the various options; generally to advise MCAT on all aspects related to air transport, and to provide on the job training.
The experts should operate as a team and should work closely with the MCAT Capacity Building Unit. The negotiation of bilaterals is very much a joint operation between government and airline; and it is common that inter-governmental negotiations on the formal text go on simultaneously with inter-airline negotiations on the commercial arrangements which would underpin the text and which would, normally, be the subject of annexes or memoranda of understanding accompanying the governmental text. Their period of appointment should be coordinated; TSR suggests an initial period of one year, though it may well turn out that two year appointments are necessary.

The cost would depend to some extent on where the experts came from. TSR suggests a budget of between USD 400,000 and 600,000.

**Recommendations**

Recruitment of two outside experts to support MCAT in the negotiations of bilaterals for one or possibly two years.

**Actions**

TSR recommends that the Afghan government takes the following steps:

- Consult the ICAO Technical Assistance Bureau, which has considerable experience of Afghanistan and maintains rosters of airline and government consultants. ICAO also has experience of supporting people in the field.
- Ask a donor to provide financing to enable recruitment of the two experts.
Consultation Paper 3.2

Principles of a System of Route Licensing for Aviation Traffic

Executive Summary

A licensing system is necessary to:

- Assess on which international routes it is possible to envisage competition to Ariana without undermining the overall policy of building up Ariana.
- Assess which domestic routes are likely to be commercially viable and which will require subsidy.
- Decide on applicants for commercial routes and to invite tenders and decide which to accept for routes considered necessary but not commercial.

The principles of the licensing system should be written into legislation. The government should have the power to determine from time to time the weight to be given to each objective.

Operators selected should satisfy financial and safety criteria. They should be established in Afghanistan but, following the terms of the National and Foreign Investment Law, those selected for domestic routes need not be owned or controlled by Afghan nationals.

On commercially viable domestic routes, operators selected should be given a licence for, say, five years and a period of, say, three years to develop their product before competing applicants are considered.

The selection of domestic routes considered necessary for social or wider economic reasons should be made in consultation between central and provincial government; and should conform with criteria setting out the social considerations to be met.

In seeking tenders, the licensing authority should specify the service to be provided, and invite operators to submit proposals indicating how much they would charge to provide such a service. The licensing authority should invite the tenderer to specify what fares he would charge and take a judgment on the totality of factors (quality of service, fares or charges for freight, the amount of subsidy required).

The system should be built up in house before being transferred to an independent agency. For this purpose MCAT should set up a Project Management Unit in the Reform and Restructuring Office (see Consultation Paper 3.7) to develop the system in the light of the geographical circumstances of Afghanistan and to discuss with provincial councils how best to start the process for the selection of non-commercial routes to be subsidised and to work out procedures suitable to the Afghan system for the receipt and handling of applications. This work should be done by Afghans or by people with a detailed knowledge of Afghanistan.

Recommendations:

Continue to prepare a system for route licensing of air traffic.
Actions:

The next step is for MCAT to set up a Project Management Unit to develop further the above principles, and to work out procedures suitable to Afghanistan. TSR suggests that although much of this work will have to be done by Afghans (or by people with a detailed knowledge of Afghanistan), it would be an advantage to seek outside assistance from a country with experience of dealing with the provision of subsidised services to remote areas. TSR therefore suggests the recruitment of one specialist for one year, at an estimated cost of USD 250,000.
**Introduction**

The TSR Phase 1 report proposed differential regulatory regimes for international and domestic aviation traffic. Both - but in particular the domestic aviation regime - envisage that some sort of route licensing system will be necessary. The issue is in essence to find a licensing system for Afghanistan which allows Ariana on international routes to develop an appropriate network of services and to help create a domestic airline system which can compensate for the lack of road infrastructure and develop a network of services which allows the country’s economy to develop and sufficient mobility to be provided for its citizens.

**The Rationale behind the Licensing System**

This paper deals with the principles of aviation route licensing and how the system would work including the selection of routes and the rules for tendering and choice of carriers. However it deliberately does not deal in any way with the issue of where the licensing authority should be situated. It is argued elsewhere in these papers that the best way of organising the licensing process would be to have it administered by an agency outside central government but responsible to it. However the system should be built up within government and subsequently transferred as a working operation to a separate agency. The basic reasons for this are the urgency of getting the system working; and the administrative difficulty of doing it at the same time as creating a new organisation.

The TSR Phase 1 paper suggests the factors which the Government of Afghanistan should take into account in establishing a route licensing system as follows:

- Developing a healthy / profitable / competitive aviation industry.
- Meeting the needs of the consumer.
- Increasing the maximum feasible degree of competition.
- Meeting the need of the economy as a whole.
- Increasing employment or improving the conditions of employment in the industry.
- Meeting the needs of the regions.
- Meeting the government’s environmental objectives.

In the present circumstances of Afghanistan, two extra principles might be added:

- The revenue which the Afghan government might derive from the service.
- Meeting the objectives of the government’s gender policy.

These principles should be set out in legislation, with a provision which allows the government to decide the priority, or weight, which the licensing system should accord to each of them. These weights might vary depending on the types of operation to which they are applied. Below is set out more detailed policy directions and the legislation should give effect to these as appropriate.

In Phase 1 of the TSR an in depth analysis was made as to what aviation policy would on balance be of the greatest benefit to Afghanistan and its people. These policy directions make a clear distinction between domestic and international aviation services. With respect to international services TSR recommends that the government should provide protection and
support for Ariana until it is firmly re-established. This will involve licensing competing Afghan airlines only on routes where competition from a second Afghan airline will not damage the viability of Ariana on that route.

TSR therefore expects that at least initially the possibilities for a competing Afghan airline to operate will be mainly, if not entirely, limited to the routes to the neighbouring countries. The policy will also involve negotiating bilaterals with other states which encourage cooperation rather than competition. Such policy is necessary in order to:

- Give Ariana a reasonable opportunity to rebuild its network and facilitate any arrangements with third countries’ airlines which are thought necessary to help in its reorganisation and re-establishment.
- Give the government a genuine option in due course of whether, and to what extent, to privatise Ariana.

With respect to domestic routes the equation is somewhat different. The TSR Phase 1 paper suggests a much more pro competitive approach. It seemed to TSR that the overriding principle should be to meet the needs of the Afghanistan economy as a whole and that anyone, even non Afghan companies, should be able to bid to provide services on domestic routes. However TSR recognises that the needs of the regions and in particular isolated and rural communities would not be met by total reliance on commercial services. Therefore the liberal regulatory aviation policy on domestic routes must be coupled with a robust essential air services programme to ensure regions and peripheral communities are served. This issue is dealt with more fully later in this paper.

Basic Requirements for Operating Licences

There are a number of requirements which should be applicable to all operators wishing to get a route licence. These should include the following:

- The operator should be established in Afghanistan. This need not mean that the operator should be owned or controlled by Afghan nationals if the civil aviation law currently in draft form reflects the terms of the National and Foreign Investment Law (808 of 2002). But it does mean that the management of the services which it proposes to run should be based in Afghanistan.
- The operator is sufficiently well organised and dependable. This means (and the rule is common in the aviation world) that it must meet the following criteria:
  - It can meet at any time its actual and potential obligations for 24 months from the start of operations.
  - It can meet its fixed and operational costs incurred from its operations (including proposed operations) for a period of three months from the start of its operations without taking into account any income from its operations.
  - It should have a business plan covering the first two years of its operations in Afghanistan; it should detail all financial links under any other commercial activities in which the applicant is engaged either directly or through related partnerships.
  - Proof or equivalent that those in charge of the management of operations are of good repute, that they have not been declared bankrupt and that they have not committed serious acts of professional misconduct or a criminal offence.
- It has adequate insurance to cover liability in case of accidents in particular in respect of passengers, luggage, cargo, mail and third parties.
- Insolvency or similar proceedings against an air carrier would immediately result the loss of the licence.

- The operator should also be required - as again is normal elsewhere in the world - to provide information on its financial soundness. At Annex 1 is a list of the sort of things that the licensing system might require, based on the Swedish system. In the case of Afghanistan it might be sensible, at least initially, for the legislation (or government policy) to allow the licensing authority to waive the need for the operator to supply the information which it considers too onerous, or unnecessary, in the circumstances.

Ariana for example, should be assumed to satisfy the requirements on the basis of its contract with the government (proposed in other papers). Gradually, by this means, the licensing authority would build up knowledge of the economics of air operations in Afghanistan which would be useful both in assessing whether fares were reasonable and, perhaps more important, assessing what would be a reasonable level of subsidy for a non-commercial service.

- The operator possesses the appropriate safety certification. Since under this proposal operators have to be established in Afghanistan this means satisfying Afghan safety rules.

There should be a requirement that those in MCAT responsible for safety regulation coordinate closely with the officials in charge of the licensing system. There is always the risk that financial aspects might have a bearing on safety although nothing to do with technical safety aspects. The need for this coordination will exist whether the licensing system is carried out inside government or (in due course) in a separate agency.

Requirements for Commercial Services

There may well be some domestic routes which are already being operated commercially when the licensing system comes into operation. The operators of these routes should be given route licences automatically, and the licensing authority should have the power to waive as many of the basic requirements (except those on safety) as is thought reasonable.

Although at any particular time the aviation experts in the Afghan government will be able to make a good assessment of which routes might be expected to support (new) commercial services, the only way to check its assessment will be to invite potential operators to apply. This invitation should include Ariana, Afghan private sector operators and non-Afghan owned operators established in Afghanistan.

There are two possible approaches to the handling of application:

- The first is that to ensure stability the licensing authority should decide what level of service a route can support and license a single carrier to provide it. The licence should be for a reasonable period - say five years - and the operator should have a reasonable period - say three years - to get himself established and develop his
product. A second operator would not be allowed on that route within those three years.

- The second is to allow any applicant to run the services he applies for (provided of course that he satisfies the basic requirements set out above). The disadvantage of such a system is that it may entail a risk that an applicant for a route already being served by an existing operator may be too optimistic in his assessment of the market potential and that as a result one or other of the services may be forced to close. The advantage is that it will increase the pressure on the operator, by way of competition or the threat of it and thus help to ensure that the services provided are run economically and efficiently. Nevertheless, in some cases choices may have to be made since some applicants may be willing to run services on routes where they are the only operator, or possibly one of two operators, but not willing to take the commercial risk as a third or fourth operator.

On the whole, TSR is inclined to recommend (i) above, on the grounds that the greater stability which it provides will be important in the present state of the re-development of the Afghan economy.

On international routes, however, the primary principle should be that new operators should be licensed only if the service was judged to be unlikely to undermine the viability of Ariana on that route. In making that judgement the licensing authority should take into account the provisions of the relevant bilateral and of the possibility that to license a second Afghan service on a route may also entail either a second operator or increased services by an existing operator from the other party to the bilateral.

**Requirements for Non-commercial Services**

This part of the licensing authority’s work should be confined to domestic services. It is, in TSR’s view, likely to constitute the greater part of its work, at least initially.

**The methodology and criteria for the choice of routes**

This involves two issues:

- The mechanism for selecting routes for the operation of which tenders are to be invited.
- The criteria which would have to be satisfied for a route to qualify.

In TSR’s view provincial councils should in principle make recommendations to central government regarding which routes they considered qualified for subsidy in the light of criteria agreed between them. This process should in time produce a country-wide plan of essential services which should be regularly reviewed as the economy grows and the road network is re-established. It may well be, however, that initially the provincial councils might feel they lacked the administrative capacity to nominate routes and negotiate assessment criteria. TSR does not have the knowledge of provincial councils to assess whether this is in fact so. If it is, however, there might be an initial phase under which the licensing authority took the initiative. This might be as follows:
Step 1: The licensing authority undertakes the work on the routes to be established - probably under a TA of some kind. That would take about 6 to 12 months and it would be done and implemented province by province.

Step 2: The proposed routes are sent to the provinces for review and comments.

Step 3: The routes are then offered for service provision after the government has agreed to provide a level of subsidy.

The routes would be in place for three years and then the provincial Councils would be able to recommend the review, replacement or alteration of the routes.

The choice of routes to be subsidised should be made by central government after discussion with the provincial councils, and of course in the light of the money available. On the one side they must obviously be services that the workings of the market will not produce; on the other side it will be necessary to develop criteria which would limit the services to those areas which would draw most benefit from them. These might include the following:

- The community has an aerodrome that meets safety standards and the community is capable and committed to maintaining it.
- The permanent population of the catchment area likely to be served by the service must be of a certain minimum size. Proposals for these minimum numbers will be part of the process of negotiation between the government and the provincial councils.
- There must be a demonstrated need for at least a minimum level of air service (say weekly, though this too will require a political judgement by the Afghan authorities); and a minimum potential use (say 15 passengers per flight (75% of the capacity of a 20 seater aircraft)). This criterion might in due course made more sophisticated and expressed as a minimum percentage of originations per capita per year.
- The community to be served should be sufficiently remote in terms of surface travel time to a population centre or neighbouring community which does have at least a weekly air service to a larger community. One possible rule of thumb might be to deny a subsidised air service to any destination that is within, say, half of day’s surface journey to somewhere that does have at least a weekly air service.

Whilst some of the criteria are there to ensure guaranteed minimum air connections some should also be there to ensure that sufficient connections are there to link citizens in the provinces to Kabul and also that isolated provinces have access to developed hospital services, specialist schools and universities, and ensure the possibility of delivering equipment, mail and other necessities. Each such route should be considered vital for the economic development of the region in which the airport is located, to the extent necessary to ensure on the route the adequate provision of air services satisfying fixed standards of continuity, regularity, capacity and pricing which air carriers would not assume if they were solely considering their commercial interest.

These criteria will, of course, need further elaboration in the light of the density of the Afghan population, and the political need that they should be fair to all parts of the country. These other criteria would again be for the provincial councils to suggest in their submissions to the government on essential services.
The method for inviting and assessing tenders

There are two basic methods by which tenders can be invited. The first is to settle what the government is prepared to pay for a service between destinations A and B and to invite operators to say what services they would provide, what aircraft they would use, what fares they would charge and so on. Many of the details listed in Annex 1 would provide the basis for questions which the tenders should answer. The difficulty would be to assess what would be a reasonable sum to offer. It would, to be sensible, have to be related to the likely costs of, say, a weekly operation by a 20 seater aircraft between the two selected points. These figures might, at least initially, not be known to the licensing authority. This is also the danger that if the sum offered is calculated badly it might lead to unnecessarily extravagant services.

The second is to specify the service required (e.g. a weekly service with, say, a 20 seater aircraft or a service twice a week, or possibly a series of options) and invite operators to submit proposals indicating how much they would charge to provide such a service. The licensing authority could either specify the fares it was prepared to accept that the operator would charge; or alternatively, and probably better, to invite the tenderer to say what he would charge and then take a judgement on the totality of factors e.g. the quality of the service, the fares (or charges for cargo), and the amount of subsidy required.

TSR understands that Swedish experience in providing for services to remote areas indicates that the second method sketched out above has tended to produce the better offers. It is this which TSR recommends.

In the tender the following should be presented:

- Company presentation - A presentation of the company including ownership, organisation and the last annual report.
- Evidence of an Operator’s License (OL) and an Air Operating Certificate (AOC).
- Experience - Provide information on experience of air service operations.
- Requested financial remuneration - Tenders shall be given in Afghan currency.
  - In the tender it shall be clear for each service how much money is requested for operating the service in question.
  - The remuneration rates that are presented shall be based on an estimation of the costs and the revenues of the company.
  - Remuneration should only be allowed for the flight traffic and for relevant costs incurred at airports directly used by the service.
- Financing plan for the service - A financing plan for the period from decision to first payment from the contracting authorities shall be declared separately.
- Pricing, types of tickets and ticket fares - In the tenders shall be indicated the planned ticket fares and the conditions for the various price categories. Potential changes of the structure of fares for the second and third year should be approved by the contracting authorities.
- Distribution of tickets and booking system - Describe what distribution channels will be used, where tickets are going to be available for purchase and in which printed publications the time schedule and ticket fares will be published.
- The calculated passenger volume and revenue (for a period of perhaps 3 years).
- Organisation of the traffic undertaking - The tenderer shall describe how the following points will be met : technical support, how the tickets will be made available to the public, arrangements for ground handling.
• Information about possible sub-suppliers or sub-contractors.
• Accessibility - Describe the accessibility for persons with functional disability.
• Quality - Describe how the company aims to control the quality of the service.

Following the submission of the applications the licensing authority should assess them having regard to:

• The amount of money demanded to provide the service.
• The air fares and conditions which can be quoted to users.
• The guaranteed quality.
• The organisation of the service.
• The promotion of facilities for the handicapped.
• Any arrangements made for women.

These various factors will then be graded according a scale which the licensing authority will determine.

Recommendations

Continue to prepare a system for route licensing of air traffic.

Actions

The next step is for MCAT to set up a Project Management Unit in the Reform and Restructuring Office (RRO) (see further Consultation Paper 3.7) with the following functions:

• To develop further the above principles in the light of the particular geographical circumstances of Afghanistan and in particular to discuss with the provincial councils how best to start the process for the selection of non-commercial routes to be subsidised.
• To work out procedures suitable to the Afghan system for the receipt and handling of applications.

TSR suggests that although much of this work will have to be done by Afghans (or by people with a detailed knowledge of Afghanistan), it would be an advantage to seek outside assistance from a country with experience of dealing with the provision of subsidised services to remote areas. TSR suggests that Sweden and Australia, both of which have well-worked out systems would be suitable sources of expertise.

TSR suggests the recruitment of one specialist for one year, at an estimated cost of USD 250,000.
ANNEX TO CONSULTATION PAPER 3.2

OPERATIVE LICENSE

Note: Throughout this annex, and throughout the paper, the figure of 20 seats has been used to distinguish between aircraft suitable for thin routes to parts of Afghanistan needing only a basic service and larger aircraft suitable for thicker routes and more sophisticated services. It should, of course, be reviewed from time to time in the light of the aircraft available and the dividing line should be used flexibly.

FIRST-TIME APPLICATION

The granting and validity at any time of an operating license shall be dependant upon possession of a valid Air Operator's certificate (AOC) specifying the activities covered by the operating license. To apply for an operative license the following information/documentation shall be sent to the aviation authorities:

<table>
<thead>
<tr>
<th>GENERAL INFORMATION</th>
<th>ACTIVITY CONCERNED</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Name, address and tel / fax / telex</td>
<td>- Number of airplanes</td>
</tr>
<tr>
<td>- Organisation number</td>
<td>- Type version and nationality of planes</td>
</tr>
<tr>
<td>- Organisation chart</td>
<td>- Registry terms</td>
</tr>
<tr>
<td>- Management</td>
<td>- Ownership and leasing conditions</td>
</tr>
<tr>
<td>- Ownership</td>
<td>- Certificate of insurance conditions</td>
</tr>
<tr>
<td>- Proof of good repute of persons managing the undertaking</td>
<td></td>
</tr>
<tr>
<td>FINANCIAL INFORMATION</td>
<td></td>
</tr>
<tr>
<td>-----------------------</td>
<td></td>
</tr>
<tr>
<td>- Business plan for the two first years of activity</td>
<td></td>
</tr>
<tr>
<td>- The most recent internal management accounts.</td>
<td></td>
</tr>
<tr>
<td>- Audited accounts for previous financial year if available.</td>
<td></td>
</tr>
<tr>
<td>- A projected balance sheet, including profit and loss account, for the following two years.</td>
<td></td>
</tr>
<tr>
<td>- The basis for projected expenditure and income figures.</td>
<td></td>
</tr>
<tr>
<td>- Traffic/revenue forecasts.</td>
<td></td>
</tr>
<tr>
<td>- Details of start-up costs incurred in the period from submission of application to commencement of operations and an explanation of how to finance these costs.</td>
<td></td>
</tr>
<tr>
<td>- Details of existing and projected sources of finance.</td>
<td></td>
</tr>
<tr>
<td>- Details of shareholders, including nationality and type of shares to be held, and the Articles of Association. If part of a group of undertakings, information on the relationship between them.</td>
<td></td>
</tr>
<tr>
<td>- Projected cash-flow statements and liquidity plans for the first two years of operation.</td>
<td></td>
</tr>
<tr>
<td>- Demonstration the possibility to meet actual and potential obligations for a period of 24 months.</td>
<td></td>
</tr>
<tr>
<td>- Demonstrate the possibility to meet fixed and operational costs incurred from operations according to its business plan and for a period of three months from the start of operations, without taking into account any income from its operations.</td>
<td></td>
</tr>
<tr>
<td>- Details of the financing of aircraft purchase/leasing including, in the case of leasing, the terms and conditions of contract.</td>
<td></td>
</tr>
<tr>
<td>- Registration certificate and a transcript of articles of association for joint-stock company.</td>
<td></td>
</tr>
</tbody>
</table>

1 Applicable for undertakings aimed at running a service with airplanes of which the highest permissible starting weight is 10 tons or more and / or which has 20 seats or more. For smaller airplanes, with permissible starting weight under 10 tons and / or less than 20 seats, accountant certificate showing a minimum net capital of xxx and business plan for first activity year is required. The actual sum should be assessed from time to time in the light of circumstances in Afghanistan.

2 On items such as fuel, fares and rates, salaries, maintenance, depreciation, exchange rate fluctuations, airport charges, insurance, etc.

3 Other company than shareholding: an extract from the commercial registration office and a birth certificate / registration certificate for company holders is required.
**UPDATING INFORMATION TO AVIATION AUTHORITY**

<table>
<thead>
<tr>
<th>EACH YEAR</th>
<th>- Revised accounts.(^4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UPON REQUEST</td>
<td>- Audited accounts not later than six months after the end of the relevant period and, if necessary, the most recent internal management balance sheet.</td>
</tr>
<tr>
<td></td>
<td>- A projected balance sheet, including profit and loss account, for the forthcoming year.</td>
</tr>
<tr>
<td></td>
<td>- Past and projected expenditure and income figures on such items as fuel, fares and rates, salaries, maintenance, depreciation, exchange rate fluctuations, airport charges, insurance, etc. Traffic / revenue forecasts.</td>
</tr>
<tr>
<td></td>
<td>- Cash-flow statements and liquidity plans for the following year.</td>
</tr>
</tbody>
</table>

\(^4\) For undertakings that holds a valid licence for activity with airplanes of which the highest permissible starting weight is 10 tons or more and / or which have 20 seats or more.
Policy Paper 3.3

The Relationship between Ariana and the Government of Afghanistan

Executive Summary

The relationship between the government and Ariana should be clarified. The objective should be to ensure that the government has adequate control over all substantive financial decisions, whilst Ariana has freedom to take commercial and operational decisions.

Substantive financial issues are those:

- Related to capital expenditure in excess of a certain amount (to be determined in negotiation between the government and Ariana).
- Related to incurring debt in excess of a certain amount (also to be negotiated between the government and Ariana).
- Related to a matter not provided for in the business plan approved by the government and requiring expenditure above an amount to be negotiated.
- Enabling Ariana to buy shares in or take a part of another company.

Ariana should have a principal objective “to operate as a successful business and to this end to aim to be as efficient as airlines not owned by a government with which it competes on international routes. With this end in view it should carry out the activities authorised by its Articles of Incorporation with a view to making a profit, taking one year with another”.

Ariana should also be given the objective “without prejudice to the principal objective to be a good employer, and to have regard to the interests of the people and economy of Afghanistan”.

Where the government wishes Ariana to carry out functions or provide services which Ariana regards as not conductive to the achievement of the principal objective, it may give Ariana a direction to this effect. The government and Ariana should enter into an agreement under which Ariana will carry out the functions or provide the services covered by the direction in return for payment by the government.

If over a significant period Ariana fails to meet its objectives, and in particular to achieve profitability, the government should have the power to intervene to strengthen the management of Ariana by means of a contract with a suitable provider of management services.

The Board of Ariana should be strengthened by the inclusion of non-executive directors with expertise in business in general and aviation in particular.

To achieve these changes, the government should:

- Draft and negotiate with Ariana a contract which incorporates the relationship indicated above and of which an indicative draft is in the Annex to the Paper.
• Propose to the general body of shareholders of Ariana to amend the Articles of Incorporation along lines suggested in Appendix 2 to the paper.

Recommendations:

The relationship between the government and Ariana should be clarified; the government should have adequate control and Ariana should have the freedom to act commercially.

Actions:

Draft and negotiate with Ariana a contract (draft in the Annex) incorporating the above principles, and propose to shareholders of Ariana to amend Articles of Association to effect these changes.

The Ministry should be assisted by the Capacity Building Unit (see Consultation Paper 3.7) to undertake this work.
Introduction

The TSR Phase 1 policy report notes that although Ariana is a corporate entity outside government it will be important that it be run as a private sector company would be run, subject to the constraints made necessary by the fact that the majority of its shares are held by the government itself and the rest by national banks and the national Chamber of Commerce. TSR took the view that both from the point of view of the efficiency of Ariana itself and from that of its acceptance as part of the international airline community, it was desirable that the powers of the government in relation to Ariana be more precisely defined. This paper is designed to suggest what these powers should be.

It should be made clear at the outset that nothing in this paper affects the responsibility of government for the safety of Ariana’s operations. The regulation of safety is an essential governmental function which would be applicable to any operator of aircraft on the Afghan register, whether government-owned or privately-owned. This should be a completely arms-length relationship and quite separate from issues arising from the governmental ownership of Ariana.

The Issues to be Covered

The issues which arise are the following:

- The objectives of Ariana and how they should be set.
- The social and employment responsibilities of Ariana.
- The overall relationship between the Government and Ariana.
- The financial relationship between Ariana and the government.
- The issue of non-commercial activities.
- The nature of the Board of Directors and how they should be appointed.

International Trends in State-owned Enterprises

The organisation - and purpose - of state owned enterprises has changed considerably over the years. Originally they were statutory corporations, set up by law, with duties and powers set out in detail in the statute. The motivation was sometimes economic (the need for investment beyond what the private sector could cope with in an industry considered vital), sometimes social (to create employment), sometimes political. This structure was predominant throughout the 1950's and 1960's. Over time, however, the statutory corporations became rigid. The markets in which they operated became more competitive, and the frequent link with pay and conditions in the civil services proved too inflexible in such markets to attract and keep management of the necessary quality. Many of them were developed as a result into limited companies structured like any company in the private sector except that the shareholding was held by the government. Very often this was regarded as a stepping stone on the way to privatisation, but even where it was not it was thought that the greater flexibility and efficiency of the private sector style of structure would remove the operations further from political influence, and from the rigidities inherent in state employment and thus give nationally owned enterprises a greater chance of success on the more competitive markets in which they had to operate. In consequence various devices were involved to enable
governments, who still often had to provide money for the publicly owned companies, to control their investment and safeguard the public interest whilst according to them commercial and operational freedom. Ariana is at the latter end of this process: it only remains to ensure that the benefits of it are fully realised.

The Objectives of Ariana

The current objectives of Ariana are set out in Article 2 of the Articles of Incorporation. These are as follows:

- To transport passengers, baggage, cargo and mail between the points specified within and outside the country.
- To establish and operate scheduled domestic and international air services between various important points and trading centres within and outside the country in order to promote the development of trade and tourism, to main and strengthen the commercial and economic relations between the inhabitants of the Republic of Afghanistan and foreign countries.
- To operate such charter flights and other non-scheduled services, as may be necessary to carry passengers and cargo.
- To operate the aerial photography and spraying services and to perform other economic work in the field of agriculture and public health.
- To engage in business, to coordinate and provide services for transportation of passengers, cargo baggage and mail at the airports concerned.
- To enter into commercial and technical assistance agreements with the airlines of foreign countries and authorised agents, subject to the approval of the competent authorities.
- To purchase and sell or charter and lease aircraft.
- To establish technical workshops and hangars in order to provide necessary services for overhaul and reparation of aircraft.
- To establish new techniques of aeronautics and to apply the modern and advanced technology in the technical and commercial services and other fields of aviation.
- To arrange the working time-tables and determine the salaries and remuneration of employees according to the needs and requirements of the Company complying with the Labour Law of the Republic of Afghanistan.
- To train employees of the Company and to promote their skills.

It will be clear that this comprises a list of the activities in which the company may engage, as would be normal in any Articles of Incorporation. It says nothing, however, about whether the company is to do these things as an agent of government or whether it is supposed to make a profit from doing them. This should be made clear. Thus Ariana should, in TSR’s view, have an overriding objective along the following lines:

“Principal objective”

“The principal objective of Ariana is to operate as a successful business and to this end to aim to be as efficient as airlines not owned by a government with which it competes on international routes. With this end in view, it should carry out the activities authorised by its Articles of Incorporation with a view to making a profit, taking one year with another.”
Given the present needs of Afghanistan to generate employment, and to re-establish its economy, it would be reasonable that this aspect should also be included in its objectives. The current objectives of the Articles of Incorporation include the objective to promote the development of trade and tourism; and to train employees and promote their skills. These might be generalised into the following:

"Other objectives"
“It shall also be an objective of Ariana, without prejudice to the principal objective, to be a good employer; and to have regard to the interests of the people and economy of Afghanistan.”

The Overall Relationship between the Government and Ariana

It is desirable that the powers of the Government in relation to Ariana be more precisely defined. The Articles of Incorporation are able to prescribe this relationship only to a certain point and then it becomes necessary to develop a set of protocols in a separate document that establish the relationship and the powers of Government.

This paper strongly argues that the relationship needs to be at ‘arms length’ in order prevent (and be seen to prevent) conflicts of interest occurring and to provide Ariana with sufficient commercial independence to operate successfully. In keeping with the recommendation made in the next section to retain Ariana as a company and reporting along traditional company lines, it is appropriate that a ‘contract’ be executed between the Government and Ariana where the relationship is specified. That contract is transparent and is akin to standard documentation between a parent company and a subsidiary. It will allow for the performance of Ariana to be monitored.

The objectives of the ‘contract’ would be to:

- Provide Ariana with sufficient commercial independence to operate a successful airline - matters of substance would require government approval.
- Clearly set out the relationship between the Government and Ariana.
- Specify the reporting arrangements between Ariana and the Government.
- Specify the substantive matters that require Government approval.
- Provide the Government with an emergency power to intervene at ‘arms length’ in the management of Ariana.

The Financial Relationship between Ariana and the Government

Under the Articles of Incorporation, it is the responsibility of the shareholders “to approve the annual balance sheet, to appropriate the profit and loss (it is assumed that this means to approve the accounts) and to determine the aid and relief funds”. To the extent that the Ministers of Civil Aviation and Finance are shareholders and sit on the Board of the company, it might be argued that the control of public money is adequately assured. It would be desirable, however, to formalise the relationship so that the government’s control over the finances of Ariana is transparent; and so that in consequence it is clear what financial objectives the government has set and how far Ariana has achieved them.
There are two ways of doing this. The first is to set out in some sort of formal governmental instruction how the governmental shareholders should exercise their power. These would be designed to complement the principal objective, and might be as follows:

- To require Ariana to submit annually to the government its business plan for its approval.
- To require that investments above a certain level should be specifically approved by the government. The threshold should be set fairly high so that it gave the government control only over major investments (e.g. the purchase of aircraft).
- To set a target rate of return for a specified period; and the dividend to be payable to the government.
- To be able to lend money to Ariana and to establish and maintain reserves at a certain level.
- To establish rules on the payment of interest on, and the repayment of, loans granted by the government.
- To control the extent to which Ariana may borrow money on the market.

The second would be to require the Board of Directors of Ariana annually to submit to the shareholders for their approval a draft statement of corporate intent. This should specify in respect of the financial year in which it is delivered and each of the immediately following 2 financial years, the following information:

- The objectives of the group.
- The nature and scope of the activities to be undertaken.
- The ratio of consolidated shareholder’s funds to total assets, and definitions of those terms; an estimate of the loans that will be required to maintain the activities to be undertaken.
- The accounting policies.
- The performance targets and other measures by which the performance of the group may be judged in relation to its objectives.
- An estimate of the amount or proportion of accumulated profits and capital reserves that is intended to be distributed to the government.
- The kind of information to be provided to the government during the course of those financial years, including the information to be included in each half-yearly report.
- The procedures to be followed before Ariana subscribes for, purchases, or otherwise acquires shares in any company or other organisation.
- The Board’s estimate of the commercial value of the government’s investment in Ariana.
- Such other matters as are agreed by the government and the Board.

The shareholders would be required to consult the government before giving their approval.

The intent of both options is the same i.e. to provide the government with a transparent control of the finances of Ariana and to ensure that it has no powers apart from these. Of these two options, (i) is more suitable to a statutory corporation; (ii) is more suitable to an entity structured as a commercial company but owned by the government or quasi-governmental institutions. It is also more flexible, and leaves more initiative to Ariana. Since Ariana is currently structured as a company, and since this is the form most conducive to the
Government's objective of privatisation in due course, TSR recommends to keep this structure and to adopt Option (ii) above.

There would need to be one consequential change in the terms of the current Articles of Incorporation. Article 24.4 requires the Board of Directors to submit proposals to the Council of Ministers for the purpose of establishment or suppression of the company’s representative offices within Afghanistan and abroad. This should be regarded as an operational decision and lie entirely within the discretion of Ariana’s Board.

The Issue of Non-commercial Activities

It is inevitable that from time to time the government will wish Ariana to carry out tasks which the government regards as necessary in the public interest but which Ariana regards as not conducive to the fulfilment of its principal objective. TSR recommends that the government should have a power to give Ariana a direction in the public interest; but that any activities which the government requires Ariana to undertake in this way should be paid for explicitly by the government at a price to be agreed between them. There should therefore be a clause in the contract along the following lines:

“Where the government wishes Ariana to carry out functions or provide services which Ariana regards as not conducive to the achievement of the principal objective, it may give Ariana a direction to this effect. The government and Ariana should enter into an agreement under which Ariana will carry out the functions or provide the services covered by the direction in return for payment by the government. Any such direction should be published in the Official Gazette and in Ariana’s annual report”.

The Government's Right to Intervene

It would be wise to cover the eventuality that Ariana may not succeed in meeting its objectives; in particular that it may not succeed in reaching profitability. In those circumstances the Government may wish to intervene to do something about it, e.g. to give a management contract to a suitable entity (possibly, a non-Afghan airline) to run Ariana for a certain period on its behalf. This possibility should be envisaged in any contract along the following lines:

“If over a significant period Ariana fails to meet its objectives, and in particular to achieve profitability, the Government may intervene to strengthen the management of Ariana by means of a contract with a suitable provider of management services”.

The Board of Directors

Under the current Articles of Incorporation, the General Body of Shareholders is responsible for the election of the members of the Board of Directors, who have to be elected “from amongst the shareholders”. (Article 22)

It is normal that majority shareholders should have representation on the Board of Directors. It is however important, and in commercial activities normal, that the Board of Directors
should include at least the Chief Executive (President) and Finance Director of Ariana; together with non-executive members with expertise in business in general and aviation in particular. On this concept, the Board of Directors would consist of:

- A number of Ariana executives.
- One or two representatives of the shareholders.
- A number of non-executive directors with expertise in business in general and aviation in particular.

For this to happen, the Articles of Incorporation should be amended (Article 22) to read as follows:

“The members of the Board of Directors shall be elected by the General Body of Shareholders and shall include the following:

- The Chief Executive (President) and the Finance Director.
- Up to two representatives of the shareholders.
- Up to four members with expertise in business in general and aviation in particular.”

If this were accepted, it would be sensible to amend Article 21 to increase the maximum size of the Board of Directors from seven to eight. The selection of Directors should reflect the government’s policy on gender.

An Article on the composition of the Board of Directors reflecting the above changes to the Articles of Incorporation should be reflected in the statute / instructions / contract.

Although the representatives of the shareholders would be in a minority, the interests of the government would be adequately protected by the arrangements envisaged in this paper.

**Impact on the Organisation of MCAT**

The changes suggested in this paper would not entail any significant changes in the organisation of MCAT. There would have to be a relatively small section to act as the link between Ariana and the government, and to negotiate and monitor the implementation of the contract.

**Recommendation**

The relationship between the government and Ariana should be clarified; the government should have adequate control and Ariana should have the freedom to act commercially.

**Action**

On the assumption that Ariana remains a company the shares in which are owned by the government and quasi-governmental institutions, the suggestions made in this paper require the following actions:
• The government should draft, and negotiate with Ariana, a contract which incorporates the relationship suggested above. An indicative draft of such a contract is at the Annex.

• The government should propose to the General Body of Shareholders of Ariana to amend the Articles of Incorporation as set out in this Policy Paper.

The Ministry should be assisted by the Capacity Building Unit (see Consultation Paper 3.7) to undertake this work.
ANNEX TO POLICY PAPER 3.3

INDICATIVE DRAFT CONTRACT
- GOVERNMENT OF AFGHANISTAN AND ARIANA AIRLINES -

Definitions

Ariana means Ariana Airlines established as a company under the Companies Law 19??
Government means the Government of Afghanistan.
Matter means a legal, equitable, contractual, statutory or other right, power, authority, benefit, privilege, immunity, remedy, discretion or cause of action.
Substantive Matter means a contractual matter in relation to Ariana or the operation of Ariana which:
a) Is related to capital expenditure in excess of US$(to be determined) or
b) Is related to incurring debt in excess of US$(to be determined) or
c) Is related to a matter not provided for in its business plan and requires expenditure in excess of US$ (to be determined) or
d) Enables Ariana to purchase shares in or take a part of another company.

Preamble

Ariana Airlines is a wholly owned company of the Government.
The Government wishes Ariana to be an efficient and profitable enterprise of the government.
The Government is intent on establishing an ‘arms length’ relationship with Ariana in order for it to be able to operate with commercial independence and in the manner of a privately owned airline.
The relationship between the Government and Ariana requires specification in order to achieve:
a) The level of operational independence required for Ariana to operate commercially and profitably;
b) A fully transparent relationship in relation to financial management;
c) A fully transparent relationship in relation to Government directives to Ariana that are not profitable.

Purpose of the contract

The purpose of this contract is to:
a) Provide Ariana with sufficient commercial independence to operate a successful airline;
b) Clearly set out the relationship between the Government and Ariana;
c) Specify the reporting arrangements between Ariana and the Government;
d) Specify the substantive matters that require Government approval;
e) Provide the Government with an emergency power to intervene at ‘arms length’ in the management of Ariana.


**Duration of the contract**

This contract remains in force for a period of 5 years.

**Appointment of Ariana as the national airline**

The Government appoints Ariana as the National Airline of Afghanistan. No other Airline will be the National Airline of Afghanistan.

**Establishing an ‘arms length’ relationship**

*The Guiding Principle*

The Government recognises that the regulation of safety is an essential governmental function which would be applicable to any airline, whether government-owned or privately-owned.

*The Operational Principle*

The Government through its Ministry will apply and enforce international aviation standards fully and transparently upon Ariana.

**Operational independence**

*The guiding principle*

The principal objective of Ariana is to operate as a successful business and to this end to aim to be as efficient as airlines not owned by a government with which it competes on international routes. With this end in view, it should carry out the activities authorised by its Articles of Incorporation with a view to making a profit, taking one year with another.”

*The Operational Requirements*

Ariana has the freedom to operate in accordance with the approved business plan and budget and any other approval required under this contract. Ariana must always act within the limits of its authority as set out in this contract and its articles of incorporation – any doubt must be clarified with the government. Ariana must obtain the approval of the Government on a substantive matter and has no right to bind the Government on a substantive matter without that approval. The Government will not interfere in the day-to-day operation of Ariana unless it is a substantive matter.

**TRANSPARENT FINANCIAL MANAGEMENT**

*The Guiding Principle*

The management of Ariana should be as close to that of a privately owned airline as possible. The financial reporting should be undertaken on commercial lines and be transparent. The government’s control over the finances of Ariana must also be transparent so that it is clear what financial objectives the government has set and how far Ariana has achieved them.
The Operational Requirements

Ariana will submit each year to the shareholders and to Government for their approval a business plan. The business plan will be for the current year and next succeeding two years. The business plan will contain the following information:

- The objectives of Ariana.
- The nature and scope of the activities to be undertaken.
- The ratio of consolidated shareholder’s funds to total assets, and definitions of those terms; an estimate of the loans that will be required to maintain the activities to be undertaken.
- The accounting policies.
- The performance targets and other measures by which the performance of Ariana will be judged in relation to its objectives.
- An estimate of the amount or proportion of accumulated profits and capital reserves that is intended to be distributed to the government.
- The kind of information to be provided to the government during the course of those financial years, including the information to be included in each half-yearly report.
- The procedures to be followed before Ariana subscribes for, purchase, or otherwise acquires shares in any company or other organisation.
- The Board’s estimate of the commercial value of the Government’s investment in Ariana.
- Such other matters as are agreed by the Government and the Ariana.

Transparency in relation to Government Directives

The Guiding Principle

“Where the government wishes Ariana to carry out functions or provide services which Ariana regards as not conducive to the achievement of the principal objective, it may give Ariana a direction to this effect. The Directions are to be open and transparent and should be available publicly”.

The Operational Requirements

The Government and Ariana will negotiate an agreement to carry out the function or provide the service directed by Government - the agreement will include reporting requirements for Ariana in the implementation of the direction and an assessment of the achievements made. The Government will pay the cost (or the differential cost) of undertaking the function or providing the service.

Cost will include any actual loss of profit incurred by Ariana in undertaking the function or providing the service.

The Government will publish any such direction in the official gazette.

Ariana will publish any such direction in its annual report along with an assessment of the achievements made or whether the direction has been achieved.
Ariana will account for separately and also publish in its annual report the costs of undertaking that function or providing that service.

**Government’s reserve powers**

*The Guiding Principle*

If Ariana does not succeed over a significant period in meeting its objectives and in particular that it does not succeed in reaching profitability, the Government may wish to intervene to strengthen the management and viability of Ariana.

*The Operational Requirements*

The Government will send a notice to Ariana that it has not succeeded in meeting its objectives and will explain how it has not met its objectives.

Ariana will have the right of reply to that notice.

If the Government is not satisfied with the reply (on the basis of professional advice) then it may determine to intervene in the management of Ariana but retaining an ‘arms length’ approach.

The purpose of an intervention must be to strengthen the management of Ariana may include the following:

a) Issuing a contract to a suitable provider of management services to manage Ariana.

b) Developing a business plan and action plan for Ariana to apply to its business.

c) Issuing a contract to another airline to operate Ariana on behalf of the Government.

d) Dismissing the Board or any member of the Board and appointing a new Board or a new member.

In serious financial circumstances the Government may act to wind up Ariana.
Executive Summary

The management of airports should be outside central government. Initially airports should be managed as a whole business to enable revenues to be used where they will create the greatest benefit to the Afghan economy. This implies, at least initially, a single, centrally managed, corporate entity as opposed to an institutional structure that has a number of corporate entities based in the regions. The possibility of devolution into five companies might be considered when the economy is more fully recovered. The single company should remain in place a minimum of five years.

Regional interests should be properly represented at Board of Directors level. They should be involved in all decisions that affect regional investment plans and strategies, as well as implementation issues such as capital works programmes.

As many as possible of the functions that are related to airport operation should be devolved to the regional airport for management.

The Board should follow normal company structure. It should include one member of central government, one member from each region, four members with expertise in aviation, business and financial management and law, together with the President of the company and the deputy President for finance.

The relationship between the company and the government should give the government control over substantive financial issues but give the company the commercial independence necessary to operate a successful business.

There will be a number of airports which will not be commercial and which government will have to pay for under a Community Service Obligation (CSO). These airports should be accounted for separately from the accounts of airports considered commercially viable.

There should be a contract between the company and the government which should elaborate these principles and for which an outline is suggested in Annex 2 to the Paper. It will be important in the contract to provide for the government to have the power to designate the status of airports e.g. international, regional, sub-regional, but in making the designations the government should take into account the views of the airport company.

Price regulation of airports is not recommended but the government should have the power to intervene in the event of an abuse of a monopoly position.

The airport company should be charged with the responsibility for developing an airports’ investment strategy.

To begin the process of creating the airports company a Project Management Unit should be attached to MCAT to build the concept proposed and identify the process of change that is required. It should be responsible to the deputy Minister. In particular it should:
• identify and value the assets involved.
• Prepare Articles of Incorporation.
• Work out a basic management structure.
• Appoint directors, identify potential staff.
• Design the administrative (including the accounting) system.

Thereafter it should be attached to the company, once it is created, to assist in the implementation of its plans.

The PMU will require technical assistance. The expertise required is set out in the paper. It is estimated to amount to 36 man months at a cost of about USD 1 million.

Recommendations:

Establish one airport company to manage, in principle, all Afghanistan’s airports for a minimum period of five years.

Actions:

Create a Project Management Unit in the Reform and Restructuring Office (see Consultation Paper 3.7) to implement the above.

Apply for funding and expertise at a cost of about USD 1 million.
Introduction

The TSR Background Document recommends that a corporate entity should be created to own and operate the airports, its shares to be at least initially held by the government. The corporate entity should be managed by people with commercial technical and operational expertise and the government powers to intervene should be limited to a broad investment and financial control or to the giving of directions in the public interest. As much responsibility as is feasible should be devolved to the regions.

It is further envisaged that, depending on the policy towards decentralisation in general adopted by the government, consideration should be given after a number of years of operation of the corporate entity to a devolution of groups of airports to corporate entities based on the five major centres. Kabul, Herat, Kandahar, Mazar i Sharif and Kunduz.

The purpose of this paper is to sketch out what might be the shape of an initial corporate entity structure.

Institutional Structure and the Government Objective

To establish a corporate entity to manage the Airports of Afghanistan there are five issues to consider:

- **The management of airports should be outside central government.** Independence, autonomy, accountability and a focus on efficiency are all criteria that are considered to be essential for the management of infrastructure and service delivery. A government department is generally focussed on policy and strategy and providing advice to government. Infrastructure management and service delivery are secondary matters to this prime purpose and there are many instances where management by a government department has led to less than desirable achievements for infrastructure management and service delivery.

Airports are enterprises which are essentially commercial in nature and should be free from the constraints that are normally applied in central government. Those constraints are:
- Non-commercial decision making;
- Lack of ability to meet the demands of the market;
- Lack of commercial financial and balance sheet reporting;
- Inability to identify direct unit costs of operation;
- Rigid pay structures.

- **The investment of capital requires commercial expertise.** Following on from item (a) the investment needed in the Afghanistan airport infrastructure is substantial and a corporate entity, with appropriate commercial skills and experience, will be able to apply the capital that is needed in a commercial way.

- **Revenues ought to be applied to maximise economic benefit.** Initially, airports should be managed as a whole business to enable revenues to be used where they will create the greatest benefit to the Afghanistan economy. The management of airports in this structure will enable a capital investment strategy that includes a cross subsidy for airports that do
not generate sufficient income to fund capital or maintenance but are nonetheless important in the context of providing transport services. One company can also take into account national priorities as opposed to an institutional structure that has five corporate entities (one for each major airport).

- **Regional interests need to be properly represented.** Airports are and should be recognised as important centres of commercial activities in the areas where they are situated. The proposed corporate structure should ensure that regional interests are properly represented at Board of Directors level and as many of the functions as possible that are related to airport operation should be devolved to the regional airports for management.

In developing this institutional approach, small regional airports have not been separated out, but rather remain included in the overall management structure because they are important in the short to medium term as the road system is not sufficiently viable to support all the social and economic need of the country. As the economy develops, categories of airports may well change and it is important to make the change easily.

**Structure of the Central Company**

**Regional Participation**

It is vital that Regions should not feel that they are dictated to by a central Airports Management Company that is based in Kabul. There are two critical policy decisions that are needed to ensure that regions are involved, namely:

- There should be a devolving of functions to regions that allows the implementation of policy and programs at a regional level. Regional management is far better placed to manage the implementation issues based on local conditions.
- The five major regions - Kabul, Kandahar, Herat, Mazar i Sharif and Kunduz - should be represented on the Board of Directors. Regions must be involved at the central level on decisions that are required to be taken at a central level that affect regional investment plans and strategies as well as implementation issues such as capital works program implementation (Annex 1 sets out the issues that should be managed at a Regional level).

To complement that approach in the future, the TSR view is that it would be desirable to facilitate Regions taking shareholdings in the Airport Company. At some stage it would be reasonable to provide for the injection of capital into assets and that capital is not derived from Central Government. The opportunity should be afforded to the Regions to provide that capital input for infrastructure that is vital to their regional economy.

**Board Structure**

The structure of the Board should be a normal company structure, similar to the approach taken to the corporate structure of Ariana (See Policy Paper 3.3). In line with the suggestions made for the Board of Directors for Ariana, the Board of the Airport Company should comprise:

- One member of Central Government.
• One member from each major region.
• Up to four members that have expertise in aviation, business management, financial management and law.
• The President of the Company and the Deputy President of Finance.

The Chairman should be selected from one of the four experts.

Management Committee

Consideration should also be given to establishing a Management Committee that comprises the President and Vice Presidents of the Company. It is a normal structure within companies to adopt an institutional approach that separates the day-to-day management from the role of the Board of Directors which is to oversee the general direction and major policies and strategies of a company. The Management Committee would supervise the day to day running of the company and control of management strategies set by the Board, including developing performance measures and monitoring performance.

Management Structure

The Management structure should be organised on a ‘vertical basis’. The major positions within the company should reflect normal company practice and include the President, Line Deputy Presidents that might include a Deputy President - Finance & Investment, a Deputy President - Regional Operations, and a Deputy President - Administration (Personnel, Legal). Other technical Vice Presidencies to manage technical issues will also need to be established to manage safety and compliance issues.

The Deputy President - Regional Operations would have a service delivery function with supporting regional management positions at the regional airports to deliver and manage capital programs and services.

Company Articles

Company Articles will need to be developed to reflect the corporate structure that is finally approved. Those Articles should be similar in approach to the Ariana Company Articles.

Relations Between Government and Company

It is desirable that the powers of the Government in relation to the Airport Company be precisely defined (in much the same way as Ariana). The Articles of Incorporation will able to prescribe this relationship only to a certain point and then it becomes necessary to develop a set of protocols in a separate document that establish the relationship with and the powers of Government.

This paper strongly recommends that the relationship needs to be at ‘arms length’ in order prevent (and be seen to prevent) conflicts of interest occurring and to provide the Airport Company with sufficient commercial independence to operate successfully. In keeping with the recommendation made in relation to Ariana, it is appropriate that a ‘contract’ be executed between the Government and the Airport Company where the relationship is specified. That
contract is transparent and is akin to standard documentation between a parent company and a subsidiary. It will allow for the performance of the Airport Company to be monitored.

The objectives of the ‘contract’ would be to:

- Provide the Airport Company with sufficient commercial independence to operate a successful business - matters of substance would require government approval.
- Clearly set out the relationship between the Government and the Airport Company.
- Specify the reporting arrangements between the Airport Company and the Government.
- Require a separation of the accounts of “commercial” airports and airports paid for by government under a Community Service Obligation (CSO).
- Specify the substantive matters that require Government approval.
- Provide the Government with an emergency power to intervene at ‘arms length’ in the management of the Airport Company.

This contract would be sufficient to provide Government with control over the Company operations generally, but at ‘arms length’ to ensure a properly functioning commercial operation.

The importance of separating the costs of CSO’s (as set out in paragraph (d)) will show the actual costs to government. In the event of privatisation, it will be important to show the commercial areas of revenue and thus potential value of the assets. In relation to CSO’s it will provide government knowledge in purchasing CSO’s from the private sector and the level of service it can expect for those funds.

In addition, it will be important in the contract to provide for the government to have the power to designate the status of airports - for example, international, regional, sub-regional. In making decisions about airport classifications, the government would take into account the views/recommendations of the Airport Company.

In keeping with the recommendations of the Background Document, price regulation of airport activity is not recommended. It will only add to the cost of administration of airports and Government. But in a monopoly situation as the Airport Company is, where there may be an abuse of market power, there should be a reserve power to Government to impose price controls if in its view the airport charges constituted an abuse of its monopoly position and it could be shown that the Airport Company was inhibiting the redevelopment of the country.

A draft contract outline is set out in the Annex 2

**Airport Designation**

As mentioned in above, Airport designation should be a role exclusive to the Government at this stage. The role of airport designation - international and ‘others’ should to be undertaken with a national perspective and policy on economic development and regionalisation issues. The Government should however act on the recommendation of the Airport Company and the view of the airlines that are providing international services to Afghanistan and their ‘hubbing’ strategy. The Government will also need to include its customs and immigration needs in making decisions about airport designations.
It is expected that designations will be flexible to deal with changing circumstances brought about by economic and development changes, especially changes in the road network and land transport services that provide greater and cheaper access to and within the country.

**Investment Strategy**

The Airport Company would be charged with responsibility for developing an airports investment strategy. Normally that is done after master plans have been prepared for the relevant airport.

The TSR has undertaken a physical review of all airports and has costed the required capital outlay to bring the various airports up to ICAO standards. Those costs do not include Kabul or Kandahar. The airport at Kabul has had substantial capital invested and is still operating in part as a military airport and Kandahar is predominately a military airport so neither have been included in the capital needs assessment at this stage. Both have been the subject of a detailed review by the Joint Donor Mission. This review is to be found in a separate paper.

The expenditure for the work identified is USD$ 22.5 million spread over six years. Details of the capital expenditure by Airport are set out in the Overview document, and its Annex.

**Community Service Obligations**

In the initial phase of the Airport Company and indeed until some normalcy is reached in the transport sector, Community Service Obligations (CSO) will be a major part of the Airport Company’s operations. CSO’s comprise government undertaking services that are for the good of the community and particularly relate to access issues - health, to markets etc. Delivering CSO’s is generally not profitable and so not in the commercial interests of the Airport Company, but rather in the national interest.

CSO’s are normally funded by government (whether the costs are capital expenditure or ongoing service delivery costs) and so the Airport Company will need to work closely with Donors and the Government. The Company should however be required to:

- Manage the airports efficiently so that the cost of CSO’s are kept to a reasonable level; and
- Account separately for CSO works and services in order to be transparent in the real costs to it and government.

**Implementation Steps**

The exact nature of the assistance needed to implement the recommendations in this Paper will be determined after government decisions have been made on the restructuring of airports management.

The main step is to implement a Project Management Unit (PMU) in the Reform and Restructuring Office of MCAT (see Consultation Paper 3.7). The role of the PMU essentially
would be to build the concept outlined in this paper and identify the process of change that is required. The PMU should be able to create the Company within 6 months and have achieved:

- The identification of the assets (and their value) to be transferred to the Airport Company.
- The preparation and approval of the Articles of Incorporation.
- The basic management structure.
- The appointment of the Board of Directors.
- Identification of the staff to transfer to the Company.
- The design of the administrative systems including the accounting systems.

Once those tasks have been completed, the Company should be operational and the PMU would then be attached to the Company for a further 6 months to assist in implementing the Company structure. The implementation would see the following outcomes within those six months:

- The approved classification of the airports.
- The contract with Government executed.
- The administrative and financial systems in place.
- The appointment of people to positions.
- The first Business Plan developed and approved by the Board and Government.

The composition of the technical assistance PMU is envisaged as follows:

- An Airports Manager who would be experienced in finance, management decision systems, organisational structures, business planning (framework). Required for 12 months.
- Financial Management Expert (international) experienced in financial management systems. Required for 6 months.
- Lawyer (Local or International) to undertake the preparation of the Articles as well as leasing of concessions. Required for 6 months.
- An Airports Technical Expert (international) experienced in buildings management and airside landside ICAO requirements. Required for 12 months.

Legislation will be required to provide for the transfer of assets from Government to the Airport Company. The legislation is required to make the following issues clear:

- The effect of the asset transfer is for the Airport Company to hold the assets on behalf of the State. The transfer will occur without consideration so the Airport Company is not saddled with debt immediately on its creation.
- The asset transfer may happen without a valuation but a valuation must take place within 12 months of the establishment of the Airport Company.

A total of 40 man months is required and the cost of implementing the PMU approach will be approximately USD 1 million.
Recommendations

Establish one airport company to manage, in principle, all Afghanistan’s airports for a minimum period of five years.

Actions

Create a Project Management Unit in the Reform and Restructuring Office (see Consultation Paper 3.7) to implement the above.

Apply for funding and expertise at a cost of about USD 1 million.
### Annex 1 – Regional Functions

<table>
<thead>
<tr>
<th>Task</th>
<th>Management by</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Central HQ</td>
</tr>
<tr>
<td>Management of airport system</td>
<td>HQ</td>
</tr>
<tr>
<td>Management of terminal and other buildings</td>
<td></td>
</tr>
<tr>
<td>Cleaning of terminal and other buildings</td>
<td>Contractor</td>
</tr>
<tr>
<td>Flight service – e.g. weather, runway condition and preferred landing direction (if provided)</td>
<td>Local Airport or airline agent</td>
</tr>
<tr>
<td>Check in, ticketing, cargo handling and passenger service</td>
<td>Airline agent</td>
</tr>
<tr>
<td>Baggage handling</td>
<td>Airline agent or Local Airport</td>
</tr>
<tr>
<td>Rescue fire service (if provided)</td>
<td>Local Airport or contractor</td>
</tr>
<tr>
<td>Maintenance of pavements (runway, taxiways, apron), remove stones and foreign objects from pavements, pavement markings, drains, etc. Carry out repairs, repaint markings as required.</td>
<td>Airport maintenance staff or contractor</td>
</tr>
<tr>
<td>Snow clearing</td>
<td>Airport maintenance staff or contractor</td>
</tr>
<tr>
<td>Maintenance of runway strip (cut grass, remove stones, keep drainage system operational, strip markers, wind indicators, unserviceability markings, etc)</td>
<td>Airport maintenance staff or contractor</td>
</tr>
<tr>
<td>Maintenance of obstacle limitation surfaces (approach and takeoff fans, transitional surfaces)</td>
<td>Airport maintenance staff or contractor</td>
</tr>
<tr>
<td>Maintenance of buildings, roads, car parks, fences, street lights</td>
<td>Airport maintenance staff or contractor</td>
</tr>
<tr>
<td>Maintenance of airport lighting including apron floodlights (if provided)</td>
<td>Airport maintenance staff or contractor</td>
</tr>
<tr>
<td>Maintenance of communications equipment (if provided)</td>
<td>Contractor</td>
</tr>
<tr>
<td>Maintenance of standby generator and electrical reticulation system</td>
<td></td>
</tr>
<tr>
<td>Maintenance of sewerage system, potable water supply system, storm water drainage system, toilets, etc</td>
<td>Contractor</td>
</tr>
<tr>
<td>Maintenance of airport maintenance plant and equipment, e.g. trucks, tractors, rollers, mowers, slashers, hand tools, etc</td>
<td>Contractor</td>
</tr>
<tr>
<td>Maintenance of airport vehicles including cars, buses and fire trucks (if provided)</td>
<td>Contractor</td>
</tr>
</tbody>
</table>

All items related to safety to be audited twice per year by the Airports and Airways Inspectorates under the terms of the airport licence issued by the Safety and Licensing Division.

Note: The CNS/ATM service provider will install and maintain any navigation aids and also provide air traffic control services if required (i.e. equipment, facilities and staff).
ANNEX 2 – OUTLINE OF CONTRACT BETWEEN GOVERNMENT AND AIRPORT COMPANY

**Purpose of the contract:** to set the relationship between Government and the Airport Company.

**The Duration of the Contract:** the duration should be for a commercially sustainable period (usually 5 years in normal commercial terms).

**The Appointment of the Airports Company:** The Airports Company would be appointed as the sole operator of Airports in Afghanistan on behalf of the Government.

**Designation of Airports:** The Government has the right to designate the classification of airports into international and other classifications based on:
   a) The recommendations of the Airport Company;
   b) The views of the airlines flying to and from Afghanistan;
   c) The Government’s needs in relation to customs and immigration.

**Establish the “Arms Length” Relationship:** The Government will be committed to enforcing safety regulation on the Airport as though it was a privately owned company in order to ensure that safety standards were met.

**Operational Independence:** The principal objective is to operate as a successful business and to this end to aim to be as efficient a business not owned by a government. With this end in view, it should carry out the activities authorised by its Articles of Incorporation with a view to making a profit, taking one year with another.

**Business Plans:** The Company will be required to produce annual and 5 year Business Plans. Those business plans must differentiate between CSO’s and commercial operations. The Business Plans are also to include investment strategies based on among other things the designation of airports under its management.

**Transparent Management:** The management of airports should be as close as possible to that of a privately owned Company. The financial reporting should be undertaken on commercial lines and be transparent. The government’s control over the finances of the Company must also be transparent so that it is clear what financial objectives the government has set and how far the Company has achieved them.

**Government Directives:** This provision is mostly aimed at the provision of CSO’s. Where the government wishes the Company to carry out functions or provide services which the Company regards as not conducive to the achievement of the principal objective (the making of a profit), it may give the Company a direction to this effect. The Directions are to be open and transparent and should be available publicly.

**Government Reserve Powers:** If the Company does not succeed over a significant period in meeting its objectives and in particular that it does not succeed in reaching profitability, the Government may wish to intervene to strengthen the management and viability of the Company.
The Government may also exercise price regulation but only in the event that the airport charges constituted an abuse of the Company's monopoly position and it could be shown that the Company was inhibiting the redevelopment of the country.
The Modernisation of the Air Traffic Management System

Executive Summary

The modernisation of the ATM system is one of the most urgent tasks in the aviation sector. It is necessary if Afghanistan is to re-establish its international reputation.

To do this it will be necessary first to decide the Concept of Operations (CONOPS). On the basis of the CONOPS decided on, it will be necessary to develop a national ANS architecture and a blue print for modernisation. This should take into account the likely flow of traffic, the geographical environment, the costs of investing in and maintaining the system and the potential revenue.

In due course it should be considered whether to transfer ATM into a separate corporate entity. But the modernisation of the system is the real priority and to try to do both at the same time would probably put an insupportable strain on MCAT’s administrative resources.

Outside expertise should be sought to advice on the choice of CONOPS. This should not take more than two or three man months at a cost of about USD 100,000. Thereafter it should be possible to go rapidly to the second phase (ANS architecture) towards the end of 2003.

Whichever CONOPS is chosen, the modernisation programme will require a considerable training effort and recruitment.

Recommendations:

Decide on ATM concept of operation (CONOPS). Based on the above decision develop a national ANS architecture and a blue print for modernisation.

Actions:

Seek outside expertise to advise on the choice of (CONOPS)
Introduction

The Background Document identified the modernisation of the ATM as an objective to be achieved urgently to enable Afghanistan to re-establish its international aviation reputation. This paper proposes the steps that should be taken next to do this.

Background

It is necessary to distinguish the immediate tasks necessary to maintain the current system from the development of a viable ATM system for the longer term. An FAA study of September 2002 has identified the former; this aspect in any case lies outside the TSR’s remit. This paper deals with the latter.

There are two vital strategic planning components to this objective:

a) The development of a concept of operations (CONOPS). This describes the type of operational environment which is thought appropriate.

b) The development of a national ANS architecture and a master blue print for modernisation, designed to achieve the operational environment decided on under a). This should take into account the likely flow of traffic, the geographical environment, the costs of investing in and maintaining the system and the potential revenue.

These decisions are best taken sequentially since the substance of b) will depend very much on decisions taken under a).

The Development of a Concept of Operations

There are basically four operations that might be envisaged:

(i) To maintain and improve the current status. This essentially means providing a flight information service (FIS) as now, but one that is more efficient and more comprehensive.

(ii) To provide a separation service using non-radar separation requirements (time and distance) (a procedural service). This would involve the provision of navigational aids.

(iii) To build on (i) and (ii) above by the addition of radar. This might involve using non-radar separation requirements en-route and radar separation in the approach control areas; or alternatively using radar separation in both the en-route and approach control areas around the airports.

(iv) The options (i) - (iii) above are essentially enhancements of the current system of providing ATM services. The fourth is to go for a satellite based system based on Automatic Dependent Surveillance (ADS).

Each of the four options will entail different standards of facility, different types of training and different equipment. For example, for a radar-based service there would be a heavier requirement to buy and maintain equipment. ADS would avoid (or reduce) the need for
ground-based infrastructure but entail advanced work-stations and advanced controller training.

The choice of one of these options is for the Afghan government to make. When making its choice it will need to have in mind a number of different aspects. These include:

- Technical expertise of the personnel needed to provide the service (air traffic, meteorological, technical engineers, etc.).
- Staffing requirements.
- Communication and navigational aids required.
- Expected user needs and requirements (en-route, terminal).
- Cost-recovery expectations (over flight, landing, gate fees).
- The International Civil Aviation Organisations requirements, in particular compatibility with the ICAO Middle East Navigation Plan.

It would be in accordance with TSR recommendations and the government’s general policy that in assessing which option to go for the primary objective should be to ensure that the service provided is sustainable without outside assistance.

To help in making this assessment, TSR suggests that MCAT take outside advice. The sort of person TSR would suggest to give this advice would be a retired ATM Director General or Deputy Director General from a country with a well-established ATM system. His role would be to facilitate the MCAT decision-making process in choosing the CONOPS it prefers in the light of the anticipated traffic flow and a calculation of the costs and benefits of each option; and then lead the implementation effort.

This process thus envisages the following steps:

- The choice of CONOPS.
- The development of an ANS architecture and a blue print for modernisation.
- The implementation of the blue print.

These are considerable tasks, but they are urgent. At some stage it would be appropriate to consider whether to transfer the provision of ATM to an independent corporate entity, but in TSR’s view this is less urgent than the modernisation of the system itself. To try to do both together would put an insupportable strain on MCAT’s administrative resources.

**Recommendations**

The MCAT should adopt the approach to ATM modernisation recommended here, i.e. decide first on ATM concept of operation (CONOPS). Then based on this decision develop a national ANS architecture and a blue print for modernisation.

**Actions**

TSR notes that FAA Study referred to above was sponsored by the US Trade and Development Agency (USTDA); and that the USTDA invited the Afghan government to
identify the areas where USTDA might play a role. It seems sensible to TSR to pick-up this invitation to take things forward.

This implies the following action plan:

1. The Afghan government should approach USTDA with a view to their sponsoring an analysis of, and a recommendation on the choice amongst the four CONOPS options listed above.
2. In the light of its decision on that recommendation to approach potential donors including the international institutions, appropriate private sector consultancies and manufacturers of ATM equipment with a view to the implementation of the option decided on.

In TSR’s view, the first action above could be taken quite quickly. It would then be possible to invite tenders for the second, and more substantial study towards the end of 2003.

In view of the FAA survey action 1. would probably need not more than two or three man months, at a total cost of about USD 100,000.
Consultation Paper 3.6

The Regulation of Aviation Safety

Executive Summary

Together with the modernisation of ATM, the re-establishment of Afghanistan’s system of safety regulation is one of the most urgent tasks of the aviation sector. This is necessary both for the international reputation of the Afghan government and for the commercial success of Ariana since cooperation with other airlines will only be possible if they are confident of Ariana’s safety.

There are some improvements than can be brought about quickly, but others are longer-term and need safety experts to assess them. The ultimate objective should be to qualify for an ICAO Safety Audit Certificate.

TSR therefore recommends a two-stage approach:

- A first stage designed to bring about immediate improvements and assess the longer-term needs.
- A second stage designed to bring the system up to a condition which will enable it, without outside help, to pass an ICAO audit.

A contract to implement Stage 1 will require assistance comprising 9 - 10 man months at a cost of about USD 200,000 to 250,000.

Recommendations:

Use outside expertise to bring about immediate improvements and assess longer-term needs. Bring the system up to a condition to pass an ICAO audit.

Actions:

The Afghan authorities should approach USTAD and the European Commission for possible financing of the above.
Introduction

The TSR Background Document concludes that the system of safety regulation should be restored and enhanced with a view to passing an ICAO audit. This is necessary both for the international reputation of the Afghan government and for the commercial success of Ariana since cooperation with other airlines will only be possible if they are confident of Ariana’s safety. To achieve this the TSR report recommends that a safety authority from outside Afghanistan be employed to provide assistance. This paper suggests how this might be done.

Background

As indicated in the TSR Background Document, the basic safety standards are set in ICAO and appear in the various annexes to the Chicago Convention. The senior members of MCAT will be familiar with some of these annexes, but may well need to be brought up to date on others and on the changes in the methods of implementing ICAO standards which have been developed in recent years. More particularly, however, it will be necessary to train the more junior members of the staff with a view to establishing successors to take over when the current senior personnel retire. The achievement of this objective will depend, amongst other things, on success in achieving the more general objective of re-building the public service and providing adequate pay and reasonable career prospects for its members.

The Proposal

Although the members of the TSR have experience to recognise the deficiencies in the current system of aviation safety regulation, specialist expertise is needed to assess what is necessary to remedy them. As with other aspects of the civil aviation sector there are some improvements which can be brought about fairly quickly and which should therefore not wait for the longer-term improvements; and some, longer term, which can best be assessed by the experts brought in to help achieve the short-term objectives. TSR therefore recommends a two-stage approach:

- A first stage designed to bring about immediate improvements and assess the longer-term needs.
- A second stage designed to bring the system up to a condition which will enable it, without outside help, to pass an ICAO audit.

Annexed to this paper is an indication of the sort of thing that might form the basis of a contract with a suitable safety authority for the first stage.

Budget

TSR estimates that a contract along the lines sketched in the Annex would cost in the region of USD 200,000 - 250,000.
Recommendations

Use outside expertise to bring about immediate improvements and assess longer-term needs. Bring the system up to a condition to pass an ICAO audit.

Actions

TSR understands that a contract of this sort is more suitable for a bilateral donor than one of the major multilateral donors. Given the predominance in the world aviation scene of the US and European safety authorities, TSR recommends that:

- The Afghan authorities review the approach set out in the Annex to ensure that it coincides with their assessment of their needs.
- The Afghan government approach USTAD and the European Commission to see whether they would be prepared to finance a contract along the lines of that in the Annex.
ANNEX TO CONSULTATION PAPER 3.6

OUTLINE OF CONTENTS OF PROPOSED CONTRACT

Objective

1. The objective of the assistance would be to enable the Afghan authorities (either, as currently, MCAT or in due course an independent agency) to carry out its duties with regard to the civil aviation activities of Afghanistan in line with the obligations imposed by the ICAO convention in the most rapid and efficient way. The tasks involved can be summarised as follows:
   – Rulemaking
   – Airworthiness certification (though the effort needed can be minimised by the acceptance of FAA or JAA certification)
   – Approval and surveillance of operators
   – ATC and equipment surveillance
   – Personnel licensing
   – Accident investigation

2. To meet this objective, TSR estimates that the training of some 20 specialists is necessary.

3. In order to ensure that the global objective is met in the most expedient way, the entire project might conveniently be divided into two phases:
   – Phase 1: Management on-the-job training
   – Phase 2: Academic training

4. The reasons for implementing Phase 1 originate in the background situation in Afghanistan and the run-down of the regulatory capabilities of MCAT. Actions have to be taken urgently for the sake of safety and in order to reach an acceptable level in a reasonable time.

5. There exist already good models for this work. The FAA has produced a model Aviation Regulatory Document which provides model regulations and model implementing standards for carrying out a specific regulation. These can be used to review current Afghan regulations and adapt them to meet ICAO standards.

6. The European Joint Aviation Agency (JAA) has also produced Joint Aviation Recommendations, Implementation Manuals and Inspectors’ Handbooks which have the same objective. Either model would be satisfactory. Since, however, TSR recommends that any assistance in this project is likely to be more suitable to bilateral than multilateral aid, it is suggested that the choice of model be left open.
**Particular Objectives**

7. **Phase 1**: 6 weeks on-the-job training for management personnel. This phase would be intended to:

   - Familiarise the management with up-to-date international aviation practices.
   - Allow the management to develop their expertise with on-site assistance.
   - Provide on-site advice and guidance on the management role and responsibilities taking into account the local context.
   - Assess the needs.
   - Check the requirements of the Phase 2 training project in the following disciplines:
     - Airworthiness
     - Flight operation
     - Aerodromes and aerodromes facility
     - ATC and ATC equipment
     - Meteorology and meteorological provision
     - Medical service

8. **Note**: The objective of the Phase 2 training should be to provide the personnel selected for training with a full qualification so that they are able to perform their duties autonomously and with the level of competence which is in compliance with ICAO standards.

**Project Tasks**

9. Preparation, organisation and execution of a 6 week on-the-job training for the management and fact finding mission. The Consultant should consider the areas described below for the entire function incumbent on the Afghan civil aviation authorities, namely:

   - Rule-making
   - Aircraft and equipment worthiness certification and continuing airworthiness
   - Approval and surveillance of operators
   - ATC and equipment surveillance
   - Personnel licensing and continuing licences validation
   - Accident investigation

10. Either the FAA’s model aviation regulatory document and the various specific supporting annexes or the Joint Aviation Recommendations (JAR), the JAR Implementation Manuals and Inspectors Handbooks endorsed by the Joint Aviation Authorities (JAA) should be used throughout Phase 1, unless another equally acceptable implementation system is submitted to the Afghan authorities and any potential donors for endorsement. The sequence of the tasks may be adapted to the situation, or some tasks may be combined, at the discretion of the Consultant.

11. **Briefing and presentation.** Provide introductory briefing and presentation to the management on international practices and procedures based on the selected model.
Assistance on the job. Provide assistance to the authority staff in the execution of their daily duties in the functions listed in para 7.

12. **Data review.** Collect and analyse with the management in charge of the relevant function all pertinent legislation, information and data, including past ICAO and other previous studies and reports, with particular regard to the following documentation:

- National aviation legislation
- Structure of the civil aviation authority department in charge of the function
- Publications
- Aircraft register
- Summary of fatal accidents during the last 10 years

13. For the review of **approval and surveillance of operators:**

- Records relating to air operators (fleets, numbers, routes, …)
- Aircraft operational standards (including operator maintenance)

14. For the review of **ATC facilities**, equipment, procedures, training and surveillance:

- Records and relevant reports

15. For the review of **personnel licensing:**

- Records of personnel licensees

16. It is accepted that in view of the problems Afghanistan has faced over the past few years the above documentation may not be available.

17. **Review of the current situation.** Review and analyse with the management in charge of the relevant function the existing procedures followed for the accomplishment of the function and fulfilment of the corresponding responsibilities.

18. **Recommendations.** When the existing procedures are not found to ensure proper fulfilment of duties and responsibilities, provide guidance and recommendations for short-term and long-term.

19. **Personnel qualification.** Review the existing qualifications involved in safety regulation and supervision and make recommendations regarding conversion / additional training necessary, including language training.

20. **Continuous training.** Identify the needs for training the trainers within the Afghan administration including language courses, and make appropriate recommendations. Within four weeks of the commencement of Phase 1, the Consultant will present a report which will establish the training programme to be conducted under Phase 2.
Proposed Staffing

21. The qualification and experience of the experts comprising the assistance team must correspond to the nature of the work. They must also meet the ICAO policies regarding qualification and minimum experience. Furthermore, they must meet the policies of the JAA and of the American FAA in this respect which may be more demanding.

22. Legal advisor. Aviation law expert with experience in international aviation law, ICAO Conventions and Annexes, European and US aviation law.

23. Regulatory advisor. Expert in aviation regulations (JAR’s or FAR’s and ICAO standards). Background as a participant in the rule-making process of a safety authority. Substantial experience in one or more of the following areas:
   - Certification procedures
   - Airworthiness standards
   - Flight operations standards
   - Licensing standards
   - Air navigation standards
   - Airport safety standards
   - Airport security standards

24. Airworthiness inspector. Qualified airworthiness expert from a recognised safety authority, or from an organisation holding a mandate of designee from a safety authority.

25. Flight operations inspector (non-flying). Qualified flight operations expert from a recognised safety authority or from an organisation holding a mandate of designee from a recognised safety authority. Former flight operations inspector or flight operations designee from a recognised safety authority.

26. Inspector pilot. Flight operation inspector (see above) with valid pilot licence and current rating on aircraft of the type(s) to be inspected. For aircraft of simple technological level type rating on a comparable type of aircraft may be sufficient. Former instructor pilot and check airman with large experience at an airline or at a training centre holding a JAR OPS approval or a JAR FCL approval or the FAA equivalent.

27. Quality auditor. Quality expert from recognised safety authority or from an organisation holding a mandate of designee from such an authority. Background as an auditor / inspector or a designee from such an authority. Prior experience in quality audits for engineering, production or maintenance (as relevant) at an operator, a manufacturer or a maintenance organisation in the capacity of certifying personnel and designee of the authority.

29. The foreseen man-months for Phase 1 are as follows:

- Regulatory expert and team leader: 6 weeks
- Airworthiness expert: 3 weeks
- Flight operations inspector: 6 weeks
- Certification expert: 6 weeks
- ATC and ATC equipment inspector: 6 weeks
- Licensing expert: 3 weeks
- Accident investigation expert: 3 weeks
- Report preparation: 4 weeks

Total: 9 - 10 man-months

**Duration**

30. Phase 1 of the project will have a duration of ten weeks. The main part of Phase 1 should be conducted in Kabul but may also require visits elsewhere in Afghanistan.

**Budget**

31. Phase 1 of the project as contained in these Terms of Reference has a foreseen budget of USD 200,000 - 250,000.

**Reporting**

32. A complete report of the activity containing all relevant data will be presented within four weeks of the commencement of Phase 1 and will include:

- Assessment of the current situation
- Data collected
- Recommendations made
- Resources
- Conclusions about the current safety oversight capability
- Recommended training program to be conducted in Phase 2

33. The report will be presented (two copies in English, one copy in Dari) to the following recipients:

- The Afghan authorities
- The donor
Consultation Paper 3.7

Reform, Restructuring and Strengthening of the Ministry of Civil Aviation and Tourism

Executive Summary

The Ministry of Civil Aviation and Tourism is facing a number of fundamental challenges in the coming years. First, as for other parts of the government, MCAT's functions have been significantly disrupted in recent years. Second, the MCAT is envisaged to undergo organisational change in response to suggestions made elsewhere in the Action Plan. And third, the MCAT will be involved in a number of projects to upgrade the airports and the Air Traffic Management system (ATM) of the country.

This Paper proposes a strategy for how to move forward to overcome these challenges, consisting of:

- A proposal for how the MCAT should be organised during the process and at the end of its reform and restructuring.
- An approach for how to drive the reform and restructuring process
- The provision of capacity to manage the reform and restructuring process, but also to provide project management support for the implementation of capital and TA projects.

To be able to manage the reform and restructuring process, it is proposed that MCAT decides on the implementation of a new organisational structure in the coming years. This would not be the final organisational arrangements in the civil aviation sector, but should be put in place to facilitate the later transformation of the sector in terms of the proposals made in the Policy Statement and elsewhere in the Action Plan.

The approach proposed to be used to reform and restructure MCAT is based on the one outlined in Information Paper 4.1. It is repeated in this Paper and adapted to the needs of MCAT. The engine of the approach is the Decree on Priority Reform and Restructuring within Ministries and Government Agencies (the PRR Decree) explained further in Information Paper 4.1.

The third component of the strategy is to recruit a consulting team to (i) make up the core of the capacity building unit to be established to drive reform and restructuring; and (ii) provide Project Management Support for the implementation of donor funded capital and technical assistance projects.

Recommendations:

It is proposed that the MCAT accepts the strategy for reforming, restructuring and strengthening of MCAT as set out above.
Actions:

Following acceptance, in principle, of the Strategy the next steps would comprise the following:

1. Prepare complete TOR for the Team of Consultants to assist with the reform, restructuring and strengthening of the MCAT as well as to provide project management support.
2. Solicit funding for this Team of Consultants (about USD 3 million), and undertake recruitment.
3. Initiate the process for application of PRR-status to be awarded to a new department in the MCAT to be called the Reform and Restructuring Office (RRO). This Office would initially be expected to comprise a Capacity Building Unit and an Airports Unit.
Introduction

The Ministry of Civil Aviation and Tourism is facing a number of fundamental challenges in the coming years. First, as for other parts of the government, MCAT's functions have been significantly disrupted in recent years. The stimulation of tourism is for the moment not a real function; some airports are still controlled by the military and the original Afghan equipment is lost or destroyed. Ariana is theoretically corporatised but the theory is not fully implemented. Also like other parts of the government the staff are nearing retirement age and new recruitment and training programmes are necessary.

Second, the MCAT is envisaged to undergo organisational change in response to suggestions made elsewhere in the Action Plan. And third, the MCAT will be involved in a number of projects to upgrade the airports and the Air Traffic Management system (ATM) of the country, some of which are also outlined in the Action Plan.

The purpose of this Consultation Paper is to make a proposal for how to respond to these challenges. The proposed strategy builds on the model for capacity building presented in Information Paper 4.1.

The Present Organisation and Challenges

The aviation entity of MCAT consists of eight departments (referred to as presidencies) organised as set out in Fig. 1. These departments have the following responsibilities:

- Operations: In charge of 22 airports and of safety regulation in general.
- Meteorology: Supplier of the meteorological services to the civil aviation sector.
- Technical: In charge of all communication, navigation and surveillance (CNS), electrics and mechanics.
- Documents/licences and law/regulations are the institutional presidencies of MCAT.
- Planning: In charge of projects financial and technical.
- Kabul international airport: In charge of this airport.
- A department of administration/finance/human resources under a Deputy Minister for administrative affairs is responsible for all non-technical aspects of the Ministry.

In addition, there is a presidency responsible for Ariana.

One weaknesses of the present organisation is its complex reporting structure. Another is that it mixes operational and safety functions. This is true at a general level -- all departments report to the same Deputy Minister, but also at a lower level. For example, the Operations Department runs airports (other than Kabul) but also regulates safety. Although this sort of organisation has in the past existed in many countries, it is now the normal to separate out these two functions. Apart from the general rehabilitation of the administration, this is the main change of principle that needs to be made.
The future organisation structure of Ariana will, in addition have to respond to the recommendations made elsewhere in the civil aviation part of the Action Plan. If they are adopted, their impact on the organisation of government will be as follows:

(i) Ariana will be run without governmental involvement in commercial or operational matters; the powers of government will have to be defined.

(ii) There will be a need to create a separate licensing division to handle applications for licences and to assess and allocate tenders to run non-commercial domestic services. In due course this division might be transferred to an independent authority in accordance with the general policy laid down in the NDF.

(iii) There will be a need initially to take over responsibilities for capital works for airport infrastructure from the MPW. Later, there will be a need either to create a corporate structure, analogous to Ariana or regional corporate structures, to run the airports. This will involve defining the powers of the government.

(iv) When the ATM system has been modernised the running of it could also be transferred either to an independent agency or to a separate corporate entity.

(v) Equally, when the system of safety regulation is restored, it too might be hived off into an organisation separate from central government. If it is, this function could well be combined with that proposed at (ii) above.
Upgrading of the Infrastructure

The following projects are being or will have to be implemented by the MCAT.

- The rehabilitation and upgrading of Kabul International Airport, financed under the World Bank’s Emergency Transport and Rehabilitation Project. The project focuses on navigation aids, lighting, terminal upgrading, rehabilitation of certain infrastructure and the provision of essential airside equipment. The project is being implemented by consultants, with assistance from the AACA.

- A technical assistance project sponsored by the ADB for preparing a master plan for rehabilitating the regional airports. The TA, in an amount of USD 1 million, will run during 2003-04.

- The ADB sponsored TA is expected to result in two loans for regional airport rehabilitation, one to be approved in 2004 in an amount of USD 40 million and another in 2005 for USD 30 million.

- Other TA projects as recommended in Consultation Papers
  - two experts on an intermittent basis to support MCAT in the negotiation of bilateral agreements
  - support for the establishment of a route licensing system
  - support to implement a proposed new governance regime for Ariana
  - support to corporatise the airports
  - support to make proposals for an ATM concept of operations
  - support for making immediate improvements and assess longer term needs with respect to civil aviation safety

At present, MCAT has very limited capacity for serving as the client for and therefore actually managing these projects. As concerns the World Bank-financed rehabilitation of Kabul International Airport, however, MCAT’s capacity has been strengthened by two experts, one for CNS and one for ATM/Airports during a period of 6 months (Project Management Support). This is the only technical assistance available to the MCAT at the present time.

Strategy

The strategy proposed here for how to move forward consists of three components:

- A proposal for how the MCAT should be organised during the process and at the end of its reform and restructuring.
- An approach for how to drive the reform and restructuring process
- The provision of capacity to manage the reform and restructuring process, but also to provide project management support for the implementation of capital and TA projects.
Reorganisation

To be able to manage the reform and restructuring process, it is proposed that MCAT decides on the implementation of a new organisational structure in the coming years. This would not be the final organisational arrangements in the civil aviation sector, but should be put in place to facilitate the later transformation of the sector in terms of the proposals made in the Policy Statement and elsewhere in the Action Plan. It is noted that Ariana is not shown in the figure. Ariana is a separate entity; its contract with the MCAT (see Policy Paper 3.3) is assumed to be monitored by a unit in the Administration Department.

The proposed reorganisation will in addition:

- Facilitate the management of the reform process
- Ensure that responsibilities for commercial, operational, regulatory and safety matters are clearly separated in an ideal civil aviation environment.
- Facilitate reporting within MCAT

In terms of the proposed new organisation, the civil aviation part of MCAT would comprise four departments, as set out in Fig 2, below.

The Airways Department would provide the following facilities and services:

- Communications (COM)
- Navigation Aids (NAVAIDS)
- Air Traffic Management (ATM)
- Meteorological Services (MET)
- Aeronautical Information Services (AIS)
- Search and Rescue (SAR)
- Management of the Civil Aviation Training College (CATC)
- Civil/Military Coordination

Inside the Airports Department, it is proposed that the airports would be organised and managed on a regional basis such that a main centre will be responsible for nearby smaller airports, generally those which are served by feeder services from the main centre. This would facilitate the movement of technical and maintenance personnel. A possible arrangement is shown below.

<table>
<thead>
<tr>
<th>Central</th>
<th>South</th>
<th>West</th>
<th>North</th>
<th>North East</th>
</tr>
</thead>
<tbody>
<tr>
<td>KABUL</td>
<td>KANDAHAR</td>
<td>HEART</td>
<td>MAZAR-I-SHARIF</td>
<td>KUNDUZ</td>
</tr>
<tr>
<td>Jalalabad, Khost, Ghazni, Bamiyan, Yakawlang, Lal, Chaghcharan, Kron Monjan</td>
<td>Mukur, Tareen, Bost, Farah, Zaranj,</td>
<td>Shindand, Qala-e-Naw, Maymana, Sherberghan</td>
<td>Faizabad, Khojaghahar, Khwahan, Darwaz, Sheghnan</td>
<td></td>
</tr>
</tbody>
</table>
Fig 2: Overall Proposed MCAT Organisation in about 4 Years’ Time

Functions:

Secretariat: Policy, International Relations, Information, Tourism, Internal audit

Note: The Reform and Restructuring Office will cease to exist when the new organisation is in place. Continued reform will be handled by the Secretariat and Training will become a responsibility of several departments.
The structure shown in Fig 2 is the end result of the first phase of the envisaged reform and restructuring process, to take place over the next 3 to 5 years. During this period, the MCAT will take on an organisational structure which, in effect, is moving in steps from the structure shown in Fig 1 to the one in Fig 2. During this period there will, in addition, exist one further department in the MCAT, as explained further below. This department will be referred to as the Reform and Restructuring Office (RRO).

After the completion of the reform and restructuring process leading up to the structure in Figure 2, a new phase of reforms will be initiated as suggested by the TSR Action Plan. At an appropriate time in the future, it is thus envisaged that the three divisions, i.e. Safety and Licensing, Airports, and Airways, would be removed from MCAT and established as government owned companies and/or authorities. The longer term vision for the organisation of the transport sector is set out in Information Paper 4.2.

The Approach

The approach proposed to be used is based on the one outlined in Information Paper 4.1. It is repeated here and adapted to the needs of MCAT. The engine of the approach is the Decree on Priority Reform and Restructuring within Ministries and Government Agencies (PRR Decree) explained further in Information Paper 4.1.

The first dimension of the approach to implementing reform and restructuring is to do it in phases. Each phase shall have fixed and time bound outputs, and once those outputs have been achieved, then the reform and restructuring process may move onto the next phase. An output will comprise a new department in terms of the proposed organisation as per Figure 2.

A second dimension of the approach is to establish clear priorities with regard to outputs in each phase. Assuming the entire reform and restructuring program to comprise 4 phases, then the following tentative priorities can be made for the outputs of these phases:

- Phase 1 outputs: New Airports Department
- Phase 2 outputs: New Flight Safety and Licensing Department
- Phase 3 outputs: New Administration Department and the Secretariat
- Phase 4 outputs: New Air Navigation Services (ANS) Department

A third dimension is to not undertake the reform and restructuring within an existing organization. A new Airports Department should thus not be established by reforming the existing department(s). The approach is rather to set up an embryonic new organization for airports first within the Reform and Restructuring Office, which will serve as the incubator.

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1 In terms of this decree, Ministries may develop proposals to reform and restructure departments which are carrying out critical functions within the Ministry, and may seek approval for these departments to be granted priority reform and restructuring (PRR) status. With the exception of ‘beyond’ grade posts, Ministries may propose that specified posts within Departments granted PRR status should be placed on an interim additional allowance (IAA) scale pending the introduction of comprehensive pay and grading reforms; and may nominate individuals to for appointment to such posts on a time-limited basis and subject to performance. Granting of PRR status and transfer of posts and staff to the interim additional allowance scale will be subject to the approval of the Inter-Ministerial Administrative Reform Group under the Administrative Reform & Civil Service Commission.

2 Work on an output may, of course, overlap phases. That is the preparation of the output for phase 3 may be commenced already during phase 2, although most of the work will be done in phase 3.
(see below). This embryo (referred to as a unit) will only have the skeleton staff of a full department. Once the preparation for the new full department has been concluded, an application for PRR status to be awarded to it will be made to have it established as a full department. When this has been achieved, staff from the old department(s) will be transferred to the new one, and the old will cease to exist. This will facilitate reform and support the need for ‘culture change’ in the MCAT.

The mechanism to be used to implement reform and restructuring is the establishment of a new department at the beginning of the first phase, to be given PRR status and to be responsible for preparing for and implementing all major reform and restructuring activities from this phase onwards. This department may be called the Reform and Restructuring Office; it will be phased out at the end of Phase 4, and its closure is thus a further output of the last phase.

The proposed new Reform and Restructuring Office (RRO) will have a varying number of units corresponding to the outputs of each phase. Thus during the first phase, it will comprise the following units (given the list of priorities in indicated above):

1. Airports
2. Capacity Building (CBU)

In terms of the tentative priorities set out above, the RRO could have three units during phase 3 comprising

1. The Secretariat
2. ‘Other Department’
3. Capacity Building.

The functions of the CBU are to

1. Prepare preliminary designs for all the outputs.
2. Design Technical Assistance (TA) to assist with the final design and implementation of the outputs.
3. Manage all TA contracts.
4. Coordinate TA activities and donor support to the RRO.
5. Serve as main advisor to the Minister on all reform and restructuring activities.
6. Overall responsibility for the planning and execution of training programs
7. Address gender issues (see Information Paper 4.1).

Note that the CBU will remain part of the RRO until the end of phase 4. It is envisaged that the unit will be supported by TA; see further below.

The generic functions of the other units are to:

1. Prepare the final design of the output
2. Prepare for the implementation of the output

---

3 Some of its functions will then be taken over by other departments, including the Secretariat and the Administration Department.
4 For that reason, it is assumed that a new application for PRR status will have to be submitted for the RRO in order to commence each phase.
3. Prepare, where relevant, the application for PRR status to be given to the new unit.

It is envisaged that each unit will be supported by one TA team, to be managed by the unit itself. The overall control of the TA should, however, rest with the CBU.

The mechanism proposed for effecting reform and restructuring can thus be illustrated by way of Figure 3. The key aspect of the mechanism is the RRO, the phasing approach and the building of new departments from scratch. The fuel used is the PRR mechanism and donor support.

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**Fig. 3: Outline of Mechanism for Reform and Restructuring of MCAT**

**Capacity to Manage Reform, Restructuring as well as the Implementation of Projects**

The third component of the strategy is to recruit a consulting team (The CBU Consulting Team) to do the following:

- Make up the core of the CBU
- Provide Project Management Support for the implementation of donor funded capital and technical assistance projects.

It should be noted that this Team will assist with the management of the reform efforts. To actually effect reforms, further technical assistance will be required as set out in other Papers in the Action Plan for Civil Aviation.

It is envisaged that the CBU Consulting Team should comprise the following:

- An expert on a full time basis for a period of three years, with a background in the management of a ministry of civil aviation or civil aviation authority. This expert would be the team leader.
• An expert on a full time basis for a three year period to be overall responsible for organising training programmes, to manage other TA consulting contracts, and to manage the other experts to be provided by the CBU Consulting Team.
• Experts on a part time basis to partly work in their home office, partly in Afghanistan and in the following areas (i) airport terminals and infrastructure; (ii) ATM; (iii) CNS; and (iv) aviation safety.

The outline Terms of Reference for the Team are in the Annex. The estimated input is of the order 120 man-months at a total cost of some USD 3 million.

The CBU Consulting Team would initiate their work by working out a more detailed strategy for how to reform, restructure and strengthen the MCAT. Unless, the process has already been initiated, the Team would also assist with the preparation of the application for PRR-status to be awarded to the RRO as proposed above. The first RRO, with PRR-status, is envisaged to comprise the CBU and the Airports Unit. The positions in these units, with PRR-status are expected to be very limited, about 2 positions per unit.

Recommendations

It is proposed that the MCAT accepts the strategy for reforming, restructuring and strengthening of MCAT as set out above.

Actions

Following acceptance, in principle, of the Strategy the next steps would comprise the following:

1. Prepare complete TOR for Team of Consultants to assist with the reform, restructuring and strengthening of the MCAT as well as to provide project management support
2. Solicit funding for this Team of Consultants (about USD 3 million), and undertake recruitment.
3. Initiate the process for application of PRR-status to be awarded to a new department in the MCAT to be called the Reform and Restructuring Office (RRO). This Office would initially be expected to comprise a Capacity Building Unit and an Airports Unit.
ANNEX: Outline Terms of Reference for Technical Assistance to Capacity Building Unit, MCAT.

<table>
<thead>
<tr>
<th>Project: Technical Assistance to the Capacity Building Unit, MCAT</th>
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<tbody>
<tr>
<td><strong>Implementing Agency:</strong> Ministry of Civil Aviation &amp; Tourism</td>
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<tr>
<td><strong>Duration:</strong> Three years</td>
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<td><strong>Year of Commencement:</strong> Immediate</td>
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<tr>
<td><strong>Objectives:</strong> Assist MCAT</td>
</tr>
<tr>
<td>1. to reform, restructure and strengthen MCAT through</td>
</tr>
<tr>
<td>its Capacity Building Unit (CBU)</td>
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<tr>
<td>2. to manage donor financed capital and technical assistance</td>
</tr>
<tr>
<td>projects.</td>
</tr>
<tr>
<td><strong>Tasks:</strong></td>
</tr>
<tr>
<td>1. Reform and Restructuring</td>
</tr>
<tr>
<td>1.1 Assist with applications for PRR-status</td>
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<tr>
<td>1.2 Prepare detailed strategy for Reform and Restructuring</td>
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<tr>
<td>1.3 Prepare preliminary designs for all the outputs of the</td>
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<tr>
<td>strategy.</td>
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<tr>
<td>1.4 Design Technical Assistance (TA) to assist with the final</td>
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<td>design and implementation of the outputs.</td>
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<tr>
<td>1.5 Manage all TA contracts for which MCAT is the Executing</td>
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<tr>
<td>Agency.</td>
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<tr>
<td>1.6 Coordinate TA activities and donor support to the CBU.</td>
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<td>1.7 Serve as main advisor to the Minister on all reform and</td>
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<tr>
<td>restructuring activities.</td>
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<td>1.8 Overall responsibility for the planning and execution of</td>
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<tr>
<td>training programs.</td>
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<td>1.9 Assist with the mobilisation of funds for TA.</td>
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<tr>
<td>1.10 Serve as Gender focal point to Gender Advisory Group.</td>
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<tr>
<td>1.11 Address the Gender issues identified in Information</td>
</tr>
<tr>
<td>Paper 4.3.</td>
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<tr>
<td><strong>Estimated Cost:</strong> USD 3 million</td>
</tr>
</tbody>
</table>
Afghanistan Transport Sector Review

Civil Aviation Sector

Report on Airport Development including investment plan for airports

Annex to Overview

Action Plan: Civil Aviation
Abbreviations and Acronyms

AACA  Afghan Assistance Coordination Authority
AFTN  Aeronautical Fixed Telecommunications Network
AIP   Aeronautical Information Publication
AIS   Aeronautical Information Service
ANC   Air Navigation Charge
ANP   Air Navigation Plan
ATC   Air Traffic Control
ATS   Air Traffic Services
CATC  Civil Aviation Training College
CNS/ATM Communications, Navigation and Surveillance/ Air Traffic Management
DME   Distance Measuring Equipment
DVOR  Doppler VOR
EG    Engine-Generator
FAA   Federal Aviation Authority
GLONASS Global Navigation Satellite System (Russian Federation)
GNSS  Global Navigation Satellite System
GPS   Global Positioning System
HF    High Frequency
IATA  International Air Transport Association
ICAO  International Civil Aviation Organisation
IFR   Instrument Flight Rules
ILS   Instrument Landing System
IMC   Instrument Meteorological Conditions
ISAF  International Security Assistance Force
IWI   Illuminated Wind Indicator
Jet Fuel/Jet A1 Aviation turbine fuel
MCAT  Ministry of Civil Aviation and Tourism
MLS   Microwave Landing System
MPW   Ministry of Public Works
MTOW  Maximum Takeoff Weight
<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>NDB</td>
<td>Non Directional Beacon</td>
</tr>
<tr>
<td>NGO</td>
<td>Non Government Organisation</td>
</tr>
<tr>
<td>NOTAM</td>
<td>Notice to Airmen</td>
</tr>
<tr>
<td>NPA</td>
<td>Non-Precision Approach</td>
</tr>
<tr>
<td>PAPI</td>
<td>Precision Approach Path Indicator</td>
</tr>
<tr>
<td>REIL</td>
<td>Runway End Identification Lights</td>
</tr>
<tr>
<td>RFFS</td>
<td>Rescue and Fire Fighting Services</td>
</tr>
<tr>
<td>RPT</td>
<td>Regular Public Transport</td>
</tr>
<tr>
<td>TSR</td>
<td>Transport Sector Review</td>
</tr>
<tr>
<td>UN</td>
<td>United Nations</td>
</tr>
<tr>
<td>UNAMA</td>
<td>United Nations Assistance Mission in Afghanistan</td>
</tr>
<tr>
<td>UNHAS</td>
<td>United Nations Humanitarian Air Services</td>
</tr>
<tr>
<td>UNJLC</td>
<td>United Nations Joint Logistics Centre</td>
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<td>VFR</td>
<td>Visual Flight Rules</td>
</tr>
<tr>
<td>VHF</td>
<td>Very High Frequency</td>
</tr>
<tr>
<td>VMC</td>
<td>Visual Meteorological Conditions</td>
</tr>
<tr>
<td>VOR</td>
<td>VHF Omnidirectional Radio Range</td>
</tr>
<tr>
<td>VSAT</td>
<td>Very Small Aperture Terminal</td>
</tr>
<tr>
<td>WI</td>
<td>Wind Indicator</td>
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Executive Summary

Airport rehabilitation projects are urgently required at most locations to support resumption of regular domestic air services in Afghanistan. The main issues which need to be addressed to support these projects are:

1. Project Management

A project manager should be appointed to review and prioritise the projects, identify and negotiate donor funding, and implement the works.

2. Capacity Building

Capacity building across the entire civil aviation sector must commence as quickly as possible and will be an ongoing process for the next 5 to 10 years. In particular, recruitment and training of airport management and maintenance personnel, preparation of manuals and guidance materials, and provision of adequate office accommodation, transport, tools and equipment. This process will need to be supported by donor funding and TA programs.

3. Documentation

A comprehensive review of all existing civil aviation documentation and procedures is required, and new updated documentation needs to be prepared and published.

4. Development Controls

Many projects to assist in the reconstruction of the air transport sector are currently proceeding or are being proposed by foreign companies, particularly at Kabul Airport. A review and coordination process is urgently required to ensure that accepted projects are compatible with long term planning, standardisation, environmental and operational objectives and will not result in unnecessarily high life cycle cost penalties.

---

1 This will include such things as Aeronautical Information, maps and charts, manuals and airport master plans.
1. Introduction

1.1. Background

After a long period of conflict, the pre-existing civil aviation infrastructure of Afghanistan has been devastated and the availability of trained personnel across all facets of administration and technical areas has been severely depleted. Domestic airlines ceased operations in the early 1990s and to date, only Ariana has restarted skeleton services to a few ports.

Limited domestic air transport services are currently provided on a temporary basis by various United Nations (UN) agencies and Non Government Organisations (NGOs). Ariana is slowly rebuilding its international fleet and re-establishing regional and European services, and a small number of other international airlines are currently serving Kabul.

Afghan airspace, apart from flight levels designated for overflights which are handled by Afghan civil controllers, is under the control of the US led Coalition Forces, as is Kandahar airport which is the main US base. Kabul airport is under the control of the International Security Assistance Force (ISAF) and most other domestic airports are controlled by local military forces, however, it is believed that control will revert to the civil authority when MCAT is in a position to properly manage and staff the airports.

At present, there are no functioning navigation aids or meteorological facilities in the country and practically all of the previous aviation communications system is destroyed or not operating.

There is an urgent need to restore Afghan control and management of civil aviation to support regular public transport (RPT) air services on both international and domestic routes and overflights. This will require re-establishment of:

- basic airport infrastructure to the appropriate standard;
- CNS/ATM services and adequate civil air routes;
- the civil aviation administration and technical support services;
- staff recruitment and training; and
- funding mechanisms for civil aviation.

1.2. Timeframe

The timeframe adopted in this paper for the reconstruction of Afghan airports is five to six years, allowing for donor mobilisation, design, procurement and
construction. However, the planning process which underlies the airport upgrading recommendations has necessarily considered the next 10 to 15 years for the purpose of seeking a return to normality, in relation to capacity building within both the airlines and the civil aviation administration and the end of foreign military domination and control for which no timeframe has been advised but which could continue up to 2010 or longer.

1.3. **Objectives of this Study**

The purpose of this study was to assess the existing condition of the civil aviation infrastructure, chiefly the airports, and to define the works necessary to restore the infrastructure to a standard suitable for resumption of civil aviation in Afghanistan. Where practicable, staged airport development strategies have also been recommended. Indicative cost estimates are given for all of the works sufficient for bankable projects to be presented to and be considered by potential donors. Recommendations to strengthen the institutional structure of civil aviation have been made in the Transport Sector Review (TSR) Policy Paper. Comment is made in this report on those aspects relevant to airport planning, design and construction, safety and standards, airport management and maintenance, and CNS/ATM.

This report:

- documents the planning philosophy adopted for development of domestic airports in Afghanistan to a standard appropriate to the expected traffic;
- discusses the physical and operational standards applicable to the domestic airports;
- examines the existing conditions at ten domestic airports;
- details the works required to rehabilitate/upgrade the airports with indicative cost estimates; and
- sets out an implementation program and packages of bankable projects.

1.4. **Conduct of the Study**

1.4.1. **Clarification of the Brief**

At the outset, it was clarified with Technical Deputy Minister Alami that the team would be focussing on the major regional and sub-regional airports. It was agreed that detailed planning and facility development of Kabul International airport would not be considered because a number of upgrading projects had already been negotiated with various foreign companies and potential donors. ISAF is also actively contributing to this ongoing process.
Additionally, Kandahar airport is used by the coalition forces for military operations which are likely to continue for some time. As yet, there is no defined timeframe for the reopening of this airport for regular civil aviation operations and negotiations will need to be carried out between MCAT and the coalition forces to achieve a resolution to this situation. Therefore, an alternative strategy to provide civil air transport facilities to Kandahar is outlined in this report, in the event that the existing airport does not become available within a reasonable timeframe.

1.4.2. Site Inspection Visits

Airport Development Engineer Mr. Malcolm P. Dow carried out field inspections utilising the scheduled services of UNHAS, UNAMA and PACTEC/AirServ. Most visits were brief due to the flight schedules, but were sufficient to assess major items of infrastructure such as pavements, buildings and obstructions. Assistance and advice provided by the flight crews and MCAT and WFP personnel at some ports is gratefully acknowledged.

It had been intended that counterparts from both MCAT and MPW would accompany Mr. Dow on the field trips. Unfortunately, due to the lengthy approval and booking procedures, in addition to flight cancellations because of bad weather in the north of the country, this was not possible.

The following airports were visited:

13 April, 2003  Kandahar; Herat
15 April, 2003  Jalalabad
20 April, 2003  Kunduz; Faizabad.
22 April, 2003  Mazar-I-Sharif; Bamyan.
27 April, 2003  Chaghcharan; Lal (overfly); Yakawlang

1.5. Acknowledgements

The assistance and cooperation of numerous MCAT, UN and NGO staff in Kabul and outstations during the course of the study is gratefully acknowledged, as are the contributions made by the authors of numerous previous reports on the airports and CNS/ATM, observations and recommendations from which have provided invaluable input to this report.
1.5.1. Previous reports referenced in this study


1.5.2. People met and/or consulted

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<thead>
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<th>Name</th>
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</tr>
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<tbody>
<tr>
<td>Eng. Raz Mohd. Alami</td>
<td>Technical Deputy Minister, MCAT</td>
</tr>
<tr>
<td>Mr. A R Qaderi</td>
<td>President of Planning, MCAT</td>
</tr>
<tr>
<td>Mr. A Q Basharyar</td>
<td>President, Civil Aviation Operations, MCAT</td>
</tr>
<tr>
<td>Mr. S. K. Zewari</td>
<td>Technical President, MCAT</td>
</tr>
<tr>
<td>Mr. M. Tahir</td>
<td>Vice President, Civil Aviation Operations, MCAT</td>
</tr>
<tr>
<td>Mr. Mohammad Atar</td>
<td>Vice President, Flight Safety, MCAT</td>
</tr>
<tr>
<td>Mr. Q Ahmadi</td>
<td>Flight Safety Officer, MCAT</td>
</tr>
<tr>
<td>Mr. K. U. Abawi</td>
<td>President of Laws and Air Transport Agreements, MCAT</td>
</tr>
<tr>
<td>Mr. Ghulam Ali (Timar)</td>
<td>General Manager Kabul International Airport, MCAT</td>
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<tr>
<td>Mr. F. M. Fedawi</td>
<td>Vice President OPNS/TECH, Ariana Afghan Airways</td>
</tr>
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<td>Dr. Eng. M Yaqoob</td>
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<tr>
<td>Shaghasy</td>
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<tr>
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</tr>
<tr>
<td>Mr. Tony Tucceri</td>
<td>Air Operations Manager, UNHAS</td>
</tr>
<tr>
<td>Mr. Philippe Martou</td>
<td>Air Operations Manager, UNHAS</td>
</tr>
<tr>
<td>Mr Franz Zenz</td>
<td>President, Tryco</td>
</tr>
<tr>
<td>Dr. Aziz A Atif</td>
<td>Liaison Officer, Tryco</td>
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<tr>
<td>Mrs. M Wahlstrom</td>
<td>Head of Mission, UNAMA</td>
</tr>
<tr>
<td>Mr. Gary Helseth</td>
<td>UNOPS Country Manager</td>
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</tbody>
</table>
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Mr. John Woodberry  PACTEC Program Director, Afghanistan/Pakistan  
Capt. Daniel Kelly  PACTEC  
Mr. Sakhidad  ATC, Herat airport  
Sq. Ldr. John Noone  Coalition Forces Air Component Commander Local Liason (CFACC LNO (ATC))  
Mr. Ghulamraza  Technical and MET officer, Herat airport  
Mr. Abdul Ahed  Fire Chief and Airport Manager, Herat  
Mr. Farid Ghiasi  UN Flight Coordination Officer, Jalalabad
2. **Institutional Issues**

2.1. **Structure and Organisation**

Responsibilities for commercial, operational, regulatory and safety matters should be clearly separated in an ideal civil aviation environment. This is not the case in the present Ministry of Civil Aviation and Tourism (MCAT) organisation.

A suggested structure for civil aviation in Afghanistan, which would provide the necessary separation of functions in relation to safety, airport management and air traffic management is outlined in the chart below.

---

**Ministry of Civil Aviation and Tourism**

- Safety and Licensing Division
  - Aviation Security
  - Safety Regulation
  - Accident Investigation
  - Standards
  - Aerodrome Inspection
  - Airworthiness
  - Airline Licensing
  - Aircrew Licensing
  - Airways Survey
- Airports Division
  - Management
  - Operations
  - Maintenance
  - Planning & Dev.
  - Procurement
  - Capital Works
  - Training
  - Finance
- Airways Division
  - Management
  - Operations
  - Maintenance
  - Planning & Dev.
  - Procurement
  - Capital Works
  - Training
  - Finance
- Other Divisions (e.g., law, policy, etc.)

Principal responsibilities of the safety and licensing division and the airports division are clear from the diagram. Airways Division would provide the following facilities and services:

- **Communications (COM)**
- **Navigation Aids (NAVAIDS)**
- **Air Traffic Management (ATM)**
- **Meteorological Services (MET)**
- **Aeronautical Information Services (AIS)**
- **Search and Rescue (SAR)**
- **Management of the Civil Aviation Training College (CATC)**
The three divisions (Safety and Licensing; Airports; and Airways) will require capacity building for at least 4 or 5 years until a sufficient nucleus of trained and experienced staff is available. This process will need to be assisted by donor funded TA programs in many disciplines.

The divisions would operate as independent cost centres, developing revenue streams and accounting for all operating costs.

Inside the Airports Division, it is proposed that the airports would be organised and managed on a regional basis such that a main centre will be responsible for nearby smaller airports, generally those which are served by feeder services from the main centre. This would facilitate the movement of technical and maintenance personnel.

A possible arrangement is shown below.

<table>
<thead>
<tr>
<th>Central</th>
<th>South</th>
<th>West</th>
<th>North</th>
<th>North East</th>
</tr>
</thead>
<tbody>
<tr>
<td>KABUL</td>
<td>KANDAHAR</td>
<td>HERAT</td>
<td>MAZAR-I-SHARIF</td>
<td>KUNDUZ</td>
</tr>
<tr>
<td>Jalalabad, Khost, Ghazni, Bamyian, Yakawlang, Lal, Chaghcharan, Kron Monjan</td>
<td>Mukur, Tereen, Bost, Zaranj, Farah, Shindand, Qala-e-Naw</td>
<td>Maymana, Sherberghan</td>
<td>Faizabad, Khojaghar, Khwahan, Darwaz, Sheghnan</td>
<td></td>
</tr>
</tbody>
</table>

Headquarters of the Airports Division would be located in Kabul and would contain the main technical office, stores, group finance, human resources and other service departments.

It is possible that the Airways Division could be organised in a similar fashion, with a main store and technical centre in Kabul and technicians and local spare parts holdings in the regional centres to support the operating staff.

At an appropriate time in the future, it is envisaged that the three divisions, i.e. Safety and Licensing, Airports, and Airways, would be removed from MCAT and established as government owned companies.

The next step, privatisation, may be a future option for the civil aviation sector in Afghanistan but is not considered to be practical for at least 10 years.
2.2. Special Issues

2.2.1. Gender

Gender issues in Afghanistan are complex and deeply rooted in culture and recent experience. The civil aviation sector could be a leader in providing equal opportunities, accessibility and security for women, both employees and customers, most particularly, female air travellers.

Creating an environment where women can travel freely and safely by themselves, without a close male relative escort, is an essential requirement of Afghanistan’s modern transportation system in which air travel plays a major part. The groups most in need of this include businesswomen and widows (estimated at 700,000).

A large number of new employment opportunities will be created in the aviation industry in the next 10 years as capacity building proceeds. The great majority of positions and tasks can be done just as well by women as men. Therefore, in the ASB, AAA and ACA, there will be many opportunities to recruit and train women in all facets of administration and operation. Airlines are also employers of many women, in all kinds of positions, from booking clerks, check in (customer service) to managers and pilots.

2.2.2. Handicapped

Afghanistan has, unfortunately, one of the highest populations of handicapped and disabled people in the world. Most of these people are men who need employment and a responsible position to help regain respect and self-esteem. Due to the critical staffing position in the civil aviation sector, and the need to recruit and train a large number of competent people within a relatively short time, this resource should not be ignored.

2.2.3. Environment

Environmental issues have not previously been of critical concern to Afghanistan’s leaders or industries. Such issues can no longer be ignored in the modern globalised world. Civil aviation must issue an environmental policy and conduct its business in awareness of that policy, and of national environmental law, when that is implemented. Environmental aspects and implications should be considered in all administrative, operational, planning and construction activities.
2.2.4. **Recommendations**

It is recommended that:

1. a position be created in MCAT to oversee gender, accessibility and handicapped issues in civil aviation.

2. environmental awareness subjects be included in all training courses for civil aviation personnel.

---

2 It would send a powerful message if a suitably qualified woman is appointed to the position.
3. **Airports**

The principal objective of this study was to assess the existing situation and determine the appropriate rehabilitation works required at specific airports in Afghanistan.

The standard of facilities required and hence, the scope of works is dependent upon the expected level of traffic or aviation activity (measured in terms of daily or annual aircraft and passenger movements\(^3\) and the maximum size of aircraft expected to be operating at the airport).

A short explanation of the methodology used to determine facility requirements is given below as background to the airport rehabilitation recommendations.

3.1. **Determining Requirements for Airport Facilities**

The operational capability of an airport is determined by a number of factors, the most significant being:

- physical characteristics (chiefly runway and runway strip dimensions);
- pavement strength;
- surrounding terrain and natural or man-made obstructions in the approach/take-off and circling area; and
- standard and availability of communications, navigation and landing aids; airport and obstruction lighting; rescue and fire services and terminal facilities.

Currently in Afghanistan the airport infrastructure is severely degraded and many facilities either do not exist or are not functioning at full capacity. The immediate challenge is to restore facilities to a standard commensurate with the desired level of civil aviation activity at the specific airports. In order to achieve this it is necessary to have an indication of the level of operations, i.e.

- size of aircraft
- daily frequency of flights
- number of aircraft on the ground at any one time (and hence the number of passengers and baggage needing to be processed through the terminal building)

\(^3\) An aircraft movement is either a take-off or a landing; a passenger movement is either an arrival or a departure (transit passengers are not included).
There is no historical data relating to domestic passenger and freight movements and no recent forecasts appear to have been made. Therefore, estimates of domestic air traffic demand have been produced by the consultants to provide a rough basis and justification for the airport rehabilitation and upgrading works (refer Appendix 1).

3.1.1. Number of Airports

There is no official up to date inventory of airports, the last AIP having been published in December 1990. United Nations Joint Logistics Centre (UNJLC) publishes a list of airports on its website which was last updated in January 2003. The consultants have compiled a composite list of airports (refer Appendix 2 for details) which indicates there are 27 airports in total. Of these, four (Farah, Ghazni, Khost and Mukur) are listed as unuseable by UNJLC. However, it is known that PACTEC is currently operating to Farah and one or two other unlisted airports. There are also at least two airports presently under construction, one at Taloqan and one in Nuristan.

3.1.2. Airport Classification

The Afghanistan AIP makes no distinction between different standards of airport apart from Kabul and Kandahar which are classified as International. It is inferred however, that Herat, Mazar-I-Sharif, Kunduz and Jalalabad are considered to be major domestic airports due to traffic levels and size of the existing facilities.

For the purpose of discussion in this paper, airports have been assigned one of four classifications based on runway dimensions, implied aviation activity and level of existing facilities, as shown in the following table.

<table>
<thead>
<tr>
<th>Airport Classification</th>
<th>Airports</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 International</td>
<td>Kabul, Kandahar</td>
</tr>
<tr>
<td>2 Major Domestic</td>
<td>Kabul, Kandahar, Herat, Mazar-I-Sharif, Kunduz, Jalalabad</td>
</tr>
<tr>
<td>3 Regional</td>
<td>Faizabad, Maymana, Bamyan, Chaghcharan, Farah, Ghazni, Khost, Qala-I-Naw, Sherberghan, Shindand, Zaranj, Bost, Khojaghar, Tereen, Mukur</td>
</tr>
<tr>
<td>4 Sub-Regional</td>
<td>Lal, Yakawlang, Darwaz, Khwahan, Kron Monjan, Sheghnan</td>
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</table>
3.2. Design Standards

The International Civil Aviation Organisation (ICAO) has developed standards and recommended practices to ensure the safety and efficiency of air transport and airport facilities. In particular, aerodrome physical standards are defined and explained in detail in ICAO document Annex 14. These standards and recommended practices have been adopted as the basis for the airport planning undertaken in this report and are discussed in Appendix 3.

3.3. Design Aircraft

Generally, the design (or critical) aircraft is taken as the largest aircraft that is expected to be handled in the design period, as this will deposit the largest passenger load at the terminal, take up the largest amount of apron parking space, require the largest quantities of fuel and provisioning, and so on. Usually, the critical aircraft will also determine runway length and pavement requirements although this may not necessarily be the same aircraft type as is critical for the terminal and parking bay.

3.3.1. Design Aircraft for Afghanistan Airports

International

The B767/B757 and similar sized aircraft such as the A310 and A300 in the 180-260 seat range, have found wide acceptance throughout the world as regional aircraft where service frequency is paramount but traffic does not support the larger B747. This is expected to be the situation for Afghanistan for the foreseeable future. Additionally, operational constraints at Kabul airport due to close proximity to high mountains and severe winter conditions are not conducive to regular B747 operations. Discussions with Ariana established that this is in line with their fleet planning for regional / international services.

Domestic

For domestic services, Ariana’s intentions are to operate a range of aircraft from 150 seat capacity (e.g. B727/B737) down to around 20 seats, depending on airport capability and passenger demand. The remaining useful life of Ariana’s B727s is estimated at 4 to 6 years. A 50 to 70 seat aircraft is considered by Ariana to be most suited to service most major domestic and some regional airports at the present time. Typical aircraft examples are the

---

*The actual aircraft chosen by the operating airline(s) would depend on many factors but principally the operator’s own assessment of the most suitable aircraft. In the long run, a B737 variant would probably be the most flexible and economic aircraft for the most heavily trafficked routes. Ariana's current equipment (B727 and A300) might be used as a stop gap measure but these aircraft are considered to be unsuitable as both are too large for domestic services and the B727 is noisy, old technology, and expensive to operate.*
Antonov 24 (AN24) – a 50 seat twin turboprop, and the Fokker F28 (F28) – a 65 seat twin turbojet.

The design aircraft assumed for Afghanistan airports on the basis of the above discussion are listed in the following table.

<table>
<thead>
<tr>
<th>Airport Classification</th>
<th>Design Aircraft</th>
<th>ICAO Reference Code (refer Appendix 3)</th>
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<tbody>
<tr>
<td>1 International</td>
<td>B767</td>
<td>4D</td>
</tr>
<tr>
<td></td>
<td>occasional B747</td>
<td></td>
</tr>
<tr>
<td>2 Major domestic</td>
<td>B737/B727</td>
<td>4C</td>
</tr>
<tr>
<td>3 Regional</td>
<td>AN24/F28 or smaller</td>
<td>3C or lower (varies)</td>
</tr>
<tr>
<td></td>
<td>or smaller (varies)</td>
<td></td>
</tr>
<tr>
<td>4 Sub-Regional</td>
<td>Twin Otter or smaller</td>
<td>1B</td>
</tr>
</tbody>
</table>

### 3.3.2. Physical Standards for Design Aircraft

The following dimensions which are based on ICAO standards and recommendations (refer Appendix 3) are the recommended design targets for the rehabilitation and upgrading of Afghanistan airports.

<table>
<thead>
<tr>
<th>Design Aircraft</th>
<th>Code</th>
<th>Width (m)</th>
<th>Max. Transverse Slope</th>
<th>Shoulder Widtha (m)</th>
<th>Strip Width (m)</th>
<th>Width (m)</th>
<th>Strip Width (m)</th>
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<tr>
<td>B747</td>
<td>4E</td>
<td>45</td>
<td>1.5%</td>
<td>7.5</td>
<td>300</td>
<td>23</td>
<td>95</td>
</tr>
<tr>
<td>B767</td>
<td>4D</td>
<td>45</td>
<td>1.5%</td>
<td>3.0</td>
<td>300</td>
<td>23</td>
<td>81</td>
</tr>
<tr>
<td>B737 / B727</td>
<td>4C</td>
<td>45b</td>
<td>1.5%</td>
<td>3.0</td>
<td>150</td>
<td>23</td>
<td>52</td>
</tr>
<tr>
<td>An-24 / F28</td>
<td>3C</td>
<td>30</td>
<td>1.5%</td>
<td>3.0</td>
<td>80</td>
<td>15</td>
<td>--</td>
</tr>
<tr>
<td>Twin Otter</td>
<td>1B</td>
<td>18</td>
<td>2.0%</td>
<td>--</td>
<td>60</td>
<td>10.5</td>
<td>--</td>
</tr>
</tbody>
</table>

Notes:  

a) If shoulders are provided.

---

5 In practice a wide range of both new and second hand aircraft is available through either purchase or lease arrangements. Refer to Appendix 3, Table 3 for more examples.
b) ICAO Annex 14 specifies 45m wide runways for code 4C aircraft, however, many states permit B737 operation on 30m wide runways and directional stability tests have proved this to be a safe practice. All major domestic airports in Afghanistan have 45m wide runways.

c) It is considered prudent to provide 7.5m wide paved shoulders for B747 to prevent ingestion of foreign objects into the outboard engines, which overhang the edge of the 45m wide runway. The B767 engines do not overhang the 45m wide runway, so 7.5m wide shoulders are not necessary for this reason.

d) Precision approach runway.

e) Non-precision approach runway.

f) Daylight VMC operations only (VMC = Visual Meteorological Conditions).

3.4. Airport Inspections

The following airports were inspected during April 2003: Herat, Jalalabad, Mazar-i-Sharif, Kunduz, Bamyan, Faizabad, Chaghcharan, Lal (overflight) and Yakawlang.

Kabul airport was not officially inspected but several discussions were held with the Airport General Manager.

A stopover was made at Kandahar airport but it was not possible to make arrangements with the coalition forces at short notice for an inspection. A planned visit to Maymana was cancelled due to security concerns.

3.4.1. Infrastructure

During the inspection visits it was noticed that there are similarities between the existing infrastructure at many airports. For example, all the major domestic airports have paved runways (generally asphalt) which were constructed at about the same time and all are now exhibiting similar symptoms due to lack of maintenance in addition to war damage. Also, a standard terminal building design is used at most airports, invariably with a control tower cabin on the top.

General comments on infrastructure items will be made in this section to avoid repetition in the later airport description sections.

Runways and other aircraft pavements

The original construction of the runways (mostly around 40 years ago) appears to have been to a high standard. However, because of long periods of minimal maintenance the asphalt surfacing shows signs of severe ageing, embrittlement and loss of bitumen. Extensive longitudinal and alligator
cracking, ravelling (loss of stone) and some potholing is evident on most pavements. There are surprisingly few failures due to overloading and/or wet underlying pavement layers. Similar observations apply to the existing taxiways and aprons.

Most runways and some other pavements have had asphalt overlays at some time in the past 15 years or so, some as recently as 2 years or less. Generally the area treated has been limited to the central section of the runway (typically 15 m wide) and parts of taxiways and aprons. In all cases there has been no level control and the surfaces are rough and undulating; and for older overlays, also showing signs of ageing distress. All of the paved runways appear to have been constructed with a central crown and loss of cross sectional shape has occurred to a greater or lesser degree on runways, taxiways and aprons at all airports inspected. This results in drainage problems, particularly water ponding, and poor riding quality for aircraft ranging from moderate to unacceptable.

All pavements received war damage, generally in the form of bomb craters. At the airports inspected, this damage had nearly all been repaired. The quality of repairs could not be ascertained but is expected to be variable and it is likely that further remedial work might be necessary as part of the rehabilitation projects prior to construction of new asphalt overlays.

On the evidence of pavements which have been inspected, it is clear that all existing asphalt pavements will need asphalt overlays in order to restore proper longitudinal and cross sections and surface texture. The amount of asphalt required on any single runway will be dependent on the amount of shape which needs to be corrected and planing of the surface may be required in some instances to remove high areas. A pavement assessment and some testing, in addition to detailed survey of the pavements and surrounding area will be required for design of the overlay and associated works in each case.

**Airfield markings**

No airport inspected had standard pavement markings and most have none at all. After pavement reconstruction, pavement markings complying with Annex 14 should be applied. This will include runway centreline and runway edge markings, touchdown, runway identification, taxiway centreline and edge markings, apron lead lines and aircraft parking positions.

A circular cleared area around each windsock (wind indicator) should be prepared and marked with white stones. The surface inside should be darkened with sump oil to provide contrast to the windsock sleeve as seen from the air.

The AIP defines a number of visual ground signals used to communicate messages to pilots, particularly at smaller airports where radio communication may be unreliable or non-existent. If this system is to be retained, a signal...
circle should be prepared in the same way as, and adjacent to, the windsock circle and the appropriate signal materials provided to each airport.

**Runway strip**

None of the airports inspected had a defined, or cleared, runway strip complying with Annex 14 requirements. Most appeared to have had originally, a 90 m wide graded strip. Typically, the strips are now overgrown with weeds and shrubs and many contain obstructions such as rocks, boulders, mounds of earth, and wrecked vehicles and aeroplanes.

Strips will need to be re-established at all airports and strip markers provided (e.g. gable markers or plastic cones). In some cases, drainage works might be required. Arrangements will need to be put in place for regular mowing of strips where necessary and for runway and strip inspections every day, generally before the first flight of the morning.

**War wreckage**

A large amount of war wreckage is evident at most airports, including destroyed buildings, wrecked aircraft and vehicles, earthworks, engines, and metal pieces. Many of these items obstruct the runway strip or clearance surfaces associated with landing and takeoff. Apart from the danger to aircraft using the runways, this debris is unsightly and in the case of wrecked aeroplanes, could be unsettling to passengers.

It is a priority at every airport to remove this wreckage out of sight as quickly as possible.

**Terminals**

A similar design of terminal is used at all the major domestic airports. Generally the buildings are in poor condition and do not have modern heating, lighting, toilets or plumbing. Most are currently occupied by the military. Internal design is based on an office layout and there is no large space suitable for processing large numbers of air passengers or their baggage.

It is considered that airports which will not normally be handling aircraft larger than 50 seats, i.e. AN24, could make do with the existing terminal, appropriately renovated to provide reasonable space for check-in, passenger waiting, outwards baggage processing, arrivals baggage collection, and airline offices. Facilities should also include a good standard of male and female toilets, appropriate provisions for handicapped and disabled passengers and staff, including toilets, and a restaurant. In this case, the control tower cab on top of the building might also be renovated and made suitable for ATC or flight service accommodation.

At airports where B737/B727s will be operating, provision of a new passenger terminal and a new control tower/ operations/ communications building is recommended. There is not a strong case for combining the terminal and control tower as in the past as the functions are completely separate.
Fire station

All former fire station buildings are either destroyed, derelict or being used for alternative purposes, and no equipment remains. At airports where a rescue fire service can be justified, provision of a new, modern facility is recommended. Where only a small establishment is required, consideration could be given to combining the RFFS and ATS facilities in the same building.

The airport rescue and fire service needs to have ready access to all of the aircraft movement area, parts of the approach and takeoff areas close to the airport, the aprons and airport buildings, both landside and airside. It also has to meet response time targets set by ICAO, and its performance in this regard will be determined to a large extent by the location of the facilities and the types of equipment provided. Preferred locations are away from major buildings and aprons but with ready access to the runway, taxiway and airside road system.

The fire station should include the following features:

- Under cover parking bays for fire tenders, with provision for extension. The number of bays will be determined from ICAO guidelines, according to the airport category. At least one parking bay should include a pit for maintenance.

- A watchtower cabin on top of the building with appropriate communication facilities.

- Fire crew training room, lunch room and amenities.

- Administrative office.

- Secure equipment storage area

- Foam storage area.

- Water storage tank for filling tenders or standpipe with guaranteed supply.

- Hose drying tower and exercise facilities (e.g. volley ball court).

- Outside hardstand for vehicle standing and washdown.

- Airside access road to taxiway/runway.

Car park and access road

All car parks and access roads inspected were in poor condition and need to be reconstructed and sealed. The length of airport road necessary to gain access to the main highway varies and a nominal length has been allowed at each airport.
**Fences and Gates**

Existing security arrangements at Afghanistan airports are quite lax and trespass of unauthorised persons and animals onto airport property is common. Boundary fences need to be re-established at all locations and apron security fencing with appropriate gates is required to maintain security and safety on the airside, particularly around operating aircraft.

**Electric power, water and sewerage**

Some airports have connection to the municipal power supply but in all cases this is unreliable. A variety of engine generators (EG) is installed at some airports, many of these are unreliable or unserviceable. Some airports do not have generators. For the purpose of this report, it is assumed that new EGs of appropriate capacity will need to be provided as part of the rehabilitation works. Should the existing EG prove to be satisfactory or capable of being repaired, this can be accommodated in the detailed project design phase.

Existing water supply and sewerage systems at all airports are assumed to be in need of complete replacement for the purposes of cost estimates.

**Control tower, operations, communications**

Refer to comments under Terminal and Fire Station. As all control tower and communications equipment will be supplied new (apart from some recently supplied equipment which could be relocated from existing buildings) it would be sensible to install it in new purpose built, air conditioned buildings where possible. The existing control towers typically have steep access stairs which do not meet accepted standards of occupational health and safety.

If the operations building houses the pilot briefing and meteorology offices, this should be readily accessible to flight crews from the airside.

The control tower requires an uninterrupted view over all of the movement area and the approach and circuit area. Typically, it will be sited near the centre of the airport to achieve sight distances to the runway thresholds. It is also advantageous if the controllers can see aircraft on the apron so that movements can be monitored from engine start-up to entry onto the taxiway and vice-versa.

The main siting and design criteria for the control tower are:

- The cabin should be high enough so the controllers can see the runway ends, as much of the movement area as possible, and the approach and circuit areas. The need for a high structure can sometimes be avoided by siting the control tower on high ground in the airport.

- The cabin roof should be capable of taking all the required communications aerials and should be provided with a hoist for raising and lowering items of equipment onto the roof and into the cabin.
• Amenities (toilet, kitchen, rest room) for the controllers should be provided on a level immediately below the cabin level.

• An emergency exit must be provided in case of fire.

• Reliable air conditioning and power supply must be provided to safeguard the integrity of the equipment and to maintain comfortable working conditions.

• Window glass and frames should be designed to be non-glare and minimum obstructions to line of sight. If double glazing is used, careful attention must be given to avoidance of condensation between the panels.

A control tower would normally only be provided at major airports and airports at which turbine engined aircraft operate on high frequency RPT services.

**Meteorology equipment**

No meteorology equipment currently exists. The FAA report made recommendations for replacement equipment. It is understood that the government of Japan is arranging for the supply of basic equipment to all airports in the near future.

**Airport lighting and visual aids**

There are few visual aids and no airport lighting at any airport apart from temporary military installations at Kabul and Kandahar.

Major Domestic airports with a non-precision instrument approach runway would require provision of the following visual aids:

• Runway, taxiway and apron pavement marking

• Wind indicators (one, designated the Primary Wind Indicator and located adjacent to or near the apron area, should be illuminated)

• Aerodrome beacon

• Runway edge lights

• Runway threshold identification lights

• Runway end lights

• Taxiway edge lights
Annex: Report on Airport Development

- Visual approach slope indicator system\(^6\) (e.g. PAPI)
- Simple approach lighting

A low intensity system with 3 stages of intensity which would be suitable for both daylight and night conditions is recommended. Due to the low frequency of traffic and the wind patterns at the airport sites, it is considered that airport lighting which supports a single ended approach would suffice at most locations.

The airport lighting system requires a power supply and an appropriate control and monitoring system so that it can be operated from the control tower. A generator with capacity around 30/35KW would be sufficient to power the airport lighting system and a VOR/DME, if provided.

**Navigation aids**

There are currently no operational navigation aids in the country.

FAA has commented that GNSS-based procedures are a cost-effective way to introduce instrument navigation services to airports in Afghanistan. IATA has developed GNSS-based non-precision approaches for Kabul, Mazar-i-Sharif, Herat, Kandahar and Jalalabad, although they are not yet flight tested. Consequently, FAA believes that future installation of ground based navigation aids should be limited to locations where adequate cost benefit justification exists, and, furthermore, that procedural non-radar could provide the transitional step to modern CNS/ATM capabilities.

For the purpose of cost estimates in this report, it is assumed that conventional ground based navigation aids will be required at most airports.

An instrument runway requires at least one navigation aid, most commonly an NDB. This will enable a number of basic instrument approach procedures. Consideration should be given to reinstatement of NDBs at major domestic and some of the larger regional airports, such as Bamyan, Faizabad, Maymana and Farah, and possibly some smaller, remote sites.

It is recommended that a co-located VOR/DME be provided at each major domestic airport which will enable a lower minima for non-precision approach procedures, contributing to improved safety and precision of the procedures, assuming that the domestic fleet is equipped with VOR and DME. Additionally, the VOR/DMEs would serve as en-route aids for overflights.

**Airport maintenance**

Organised, regular airport maintenance activities are currently non-existent. Apart from Kabul airport where a small maintenance team is working under

\(^6\) Provision of a visual approach slope indicator system is a mandatory Annex 14 requirement for runways used by turbojet aeroplanes on RPT services.
the direction of the Airport General Manager, MCAT is not performing any form of airport maintenance. Some special maintenance tasks are being carried out by contractors, e.g. runway overlay at Herat, war damage repairs at Mazar-i-Sharif, concrete parking and start up pads at a number of small airports with gravel runways.

A detailed discussion of airport maintenance is given in section 3.6. Proper facilities are required at each airport to support the maintenance effort. Most important of these are tools, plant and equipment, vehicles and a secure compound or shed in which to store all equipment when not in use. The compound may also contain workshops, spare part storage, materials, staff amenities and the like.

Airport plans and survey

It was not possible to find any airport plans (other than those in the AIP) or survey information in MCAT or at the airports. Even if this information does exist, it would be significantly out of date in many respects. The airport drawings contained in this report are sketch plans only.

Prior to undertaking the design of any rehabilitation works it will be necessary to obtain requisite physical and cadastral survey information and produce airport plans showing all existing features and facilities. Soil surveys and pavement testing and evaluation will also be required.

Airport master plans

No airport master plans currently exist. It is recommended that these be carried out for all airports as soon as possible to enable coordination of all development proposals, including the rehabilitation works defined in this report.

Aviation refuelling facilities

Most major domestic airports formerly had refuelling facilities but all are either destroyed or unserviceable. This report does not consider rehabilitation of these facilities but assumes that the airlines will make their own arrangements with the fuel suppliers. MCAT’s role, if requested, is to allocate appropriate sites which comply with clearance requirements for storage of aviation fuels and are in accordance with the airport master development plan.

Airline support facilities

Few airline facilities were noted at the major domestic and regional airports. Airport planning should make allowance for the future development of airline support facilities at the major airports including the following:

- Aircraft maintenance / storage hangars and workshops
- Freight facilities
Detailed specifications for these or other facilities would be developed by the airlines as required.

3.5. Recommended Works

A brief summary of existing conditions and the recommended works at each airport are described in this section. Works are prioritised as follows:

Stage 1 Urgent, should be completed within 1 to 3 years
Stage 2 less urgent but essential, should be completed within 3 to 6 years

3.5.1. Summary of costs

<table>
<thead>
<tr>
<th>Airport</th>
<th>Stage 1 Estimated Cost (USD)</th>
<th>Stage 2 Estimated Cost (USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mazar-i-Sharif</td>
<td>$2.91M</td>
<td>$2.33M</td>
</tr>
<tr>
<td>Kunduz</td>
<td>$2.18M</td>
<td>$1.68M</td>
</tr>
<tr>
<td>Herat</td>
<td>$3.42M</td>
<td>$1.93M</td>
</tr>
<tr>
<td>Jalalabad</td>
<td>$2.16M</td>
<td>$1.83M</td>
</tr>
<tr>
<td>Faizabad</td>
<td>$1.15M</td>
<td>$0.05M</td>
</tr>
<tr>
<td>Bamyan</td>
<td>$0.35M</td>
<td>$0.73M</td>
</tr>
<tr>
<td>Chaghcharan</td>
<td>$0.65M</td>
<td>$0.14M</td>
</tr>
<tr>
<td>Yakawlang</td>
<td>$0.58M</td>
<td>$0.24M</td>
</tr>
</tbody>
</table>

Refer to Appendix 4 for itemised cost estimates.
3.5.2. Kabul

This study does not consider Kabul International Airport in detail as it is currently receiving considerable attention from a number of other areas and many rehabilitation projects are either commencing shortly or will be approved in the near future. These projects include installation of VOR, DME and ILS, runway overlay, runway lighting, visual slope indicators, terminal building renovations, cargo apron expansion and aircraft fuelling improvements. It is understood that these projects will be funded by World Bank credits.

The airport presently supports limited Ariana flights (international and domestic) and several other international carriers, in addition to operations conducted by UN and other agencies and the military (ISAF), which also provides all ATC services. With the planned improvements and the investment necessary to enable domestic services to re-start, the airport should have adequate facilities to support civil aviation in the short to medium term.

It is understood that a replacement airport for Kabul was investigated some 30 years ago, and a site was selected at Logar, some 45 km south of the city. The chief advantages of the proposed relocation are said to be the lessening of operational constraints which currently apply at Kabul Airport due to the close proximity of high mountains, avoiding encroachment of the existing site by new housing and the opportunity to release valuable land close to the city for commercial and other development. Due to the significant number of competing priorities for national development over the next 5 or 6 years, and the heavy investment which will occur in the short term at Kabul Airport, it will clearly not be practical to consider relocation to the new site for another 15 to 20 years.

The following recommendations are made in respect of Kabul International Airport:

<table>
<thead>
<tr>
<th>No.</th>
<th>Recommendation</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A Kabul Airport Coordination Unit (KACU) should be created within the MCAT. KACU’s task is to ensure that all interim developments are in accordance with an agreed airport master plan (refer recommendation 2), meet applicable international standards, and will not compromise future management, operational and maintenance requirements.</td>
<td>Urgent</td>
</tr>
</tbody>
</table>

---

7 The observations and comments contained in clauses 3.9.7, 3.9.7.1 and 3.9.7.2 of the FAA Report (September 2002) are also relevant and apply generally, not only to CNS/ATM issues. Briefly it states that acceptance of offers from foreign companies, without a comprehensive review of the implications, in a bid to plug immediate gaps in facilities or operations, may entail continuing life cycle and maintenance costs and provide solutions that are incompatible with long term needs and planning.
<table>
<thead>
<tr>
<th>No.</th>
<th>Recommendation</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Conduct a master plan study for Kabul Airport, including aviation forecasts and a prioritised 20-year development plan.</td>
<td>Urgent</td>
</tr>
<tr>
<td>3</td>
<td>Place planning controls on development around the airport to prevent encroachment of the boundaries and airport clearance surfaces (e.g. approach/takeoff area, horizontal surface). If controls currently exist, they should be critically reviewed, allowing for the master plan requirements.</td>
<td>Urgent</td>
</tr>
<tr>
<td>4</td>
<td>Develop a new international terminal and separate control tower in appropriate locations as determined by the master plan.</td>
<td>Within 5 years</td>
</tr>
<tr>
<td>5</td>
<td>Develop a new domestic terminal (possibly combined with the international terminal).</td>
<td>Within 5 years</td>
</tr>
<tr>
<td>6</td>
<td>Consider the provision of an emergency runway suitable for landing of B767/Airbus type aircraft which could also be used regularly by AN24 and smaller aircraft types.</td>
<td>3 to 6 years</td>
</tr>
<tr>
<td>7</td>
<td>Review the feasibility study for the replacement airport in ten year’s time and defer any decision to relocate until then.</td>
<td>2013</td>
</tr>
</tbody>
</table>

---

8 ICAO has expressed concerns regarding the ramifications of an extended runway closure at Kabul. Refer to section 5.7.7.
3.5.3. Kandahar

Kandahar airport is currently wholly occupied and controlled by the US Military. Whilst UN aircraft are permitted to use the runway and a remote hardstand, RPT services are not, and no facilities of any kind are available. There is no defined timeframe for the reopening of Kandahar airport for RPT services, therefore, this situation could last for a considerable time. Even when the coalition forces leave, there will be considerable rehabilitation and upgrading work to be done on the buildings and movement areas which would take at least one year to complete.

This being the case, it is recommended that consideration be given to establishing a temporary airport at Kandahar for interim civil use. Should a suitable site be identified and proven to be feasible, particularly in relation to airspace compatibility with the military operations, the airport requirements are outlined below. This would provide a basic AN24 standard airport including night operations, at minimal cost, which would also be capable of accepting limited B737/B727 flights subject to the appropriate dispensations being issued by MCAT.

<table>
<thead>
<tr>
<th>Item</th>
<th>Standard/Facility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airport Status</td>
<td>Domestic</td>
</tr>
<tr>
<td>ICAO Code</td>
<td>3C</td>
</tr>
<tr>
<td>Design aircraft</td>
<td>AN24</td>
</tr>
<tr>
<td></td>
<td>(limited B737)</td>
</tr>
<tr>
<td>Runway</td>
<td>1800 x 30</td>
</tr>
<tr>
<td></td>
<td>(gravel, sealed ends)</td>
</tr>
<tr>
<td>Runway shoulders</td>
<td>No</td>
</tr>
<tr>
<td>Runway strip width</td>
<td>150</td>
</tr>
<tr>
<td>Taxiways</td>
<td>Single 15 m taxiway to apron, bitumen sealed</td>
</tr>
<tr>
<td>Apron</td>
<td>For 3 x An24, 120 x 70, bitumen sealed</td>
</tr>
<tr>
<td>Terminal</td>
<td>Basic, for domestic use only, air conditioned</td>
</tr>
<tr>
<td>Air Traffic Services</td>
<td>Flight information only</td>
</tr>
<tr>
<td>Rescue Fire Service</td>
<td>No</td>
</tr>
<tr>
<td>Nav aids</td>
<td>NDB</td>
</tr>
<tr>
<td>Airport lighting</td>
<td>Runway and taxiway edge lights, PAPI, apron floodlighting</td>
</tr>
<tr>
<td>Aircraft fuelling facility</td>
<td>No</td>
</tr>
</tbody>
</table>

Notes:  
\(a)\) A 30 m runway is sufficient for AN24 and B737. B737s fitted with a gravel kit are designed to operate on unsealed runways.  
\(b)\) MCAT might consider issuing a dispensation for B727 operations if requested.  
\(c)\) If dust is a major problem, runway sealing (at additional cost) might be necessary.
3.5.4. **Mazar-i-Sharif**

**Existing Conditions**

**Runway and Strip**

Mazar-i-Sharif airport has a single asphalt runway 3,200 metres long by 45 metres wide on an alignment of 06/24. The runway surface is in poor condition with loss of aggregate from the asphalt and longitudinal cracks generally along construction joins. Shape is good (central crown) and riding quality is reasonable. Considerable bomb damage to the runway has been mostly repaired and work was being carried out towards the northern end at the time of visiting. A significant depression still exists approximately 450 m from the 06 (western) end and is a potential hazard to aircraft taking off on runway 06.

A parallel taxiway runs from the apron to the end of runway 06. This is asphalt and in similar condition to the runway.

There are no markings delineating the extent of the runway strip which appears to be 90 metres wide. A 150 metre wide strip is obtainable on the site. The strip is relatively well graded and well grassed. Grass was noted up to 450 mm high. Overall strip drainage appears to be satisfactory but runway edge drainage is impeded by a build-up of silt and grass which should be graded off. A single wind indicator is located south of the apron.

There appear to be no obstructions in the approach/takeoff areas for at least 5 km in both directions. The 1 in 7 transitional surfaces are partially obstructed by wrecked vehicles and aeroplanes, a number of structures close to the runway, and a stack of containers near the military compound north of the apron.

**Terminal and Apron**

The asphalt apron and single taxiway to the runway are in similar condition as the runway. Whilst useable by aircraft up to B727, the surface is in urgent need of an overlay. The standard concrete and brick terminal with control tower on top looks to be in reasonable condition from the airside but was not inspected due to lack of time.

A large single storied building adjacent to the terminal is being used by Ariana. It was probably the former fire station, power house and storage building. This appears to be generally in poor condition and currently provides none of its former functions.

**Control Tower, Communications, Navigation Aids and Operational Facilities**

There are no navigation aids, airport lighting or aircraft refuelling facilities at Mazar-i-Sharif airport. The former fire service is defunct due to lack of fire vehicles and fire station.
Recommended Development

Summary

Mazar-i-Sharif airport should be restored and upgraded for B727/B737 type aircraft, including night operations, based on retaining the existing runway length. This will involve an asphalt runway overlay to restore shape and riding quality, asphalt overlay to the taxiways and apron, provision of a 150 m wide runway strip, a new terminal building, and appropriate operational facilities.

Scope of Works

The proposed scope of works for the rehabilitation project is listed below.

Stage 1

- aerodrome topographical survey and approaches survey, preparation of aerodrome plan (physical), runway levels (cross sections and longitudinal sections) and pavement evaluation/testing for overlay design
- preparation of airport development plan and design plans
- revision of AIP data, approach and departure procedures and other AIS documents
- remove war wreckage
- new passenger terminal
- reconstruct access road and car park
- water supply and sewerage
- apron security fencing and gates
- rehabilitate runway strip and widen to 150 m, including drainage as required and remove obstructions
- asphalt overlay to runway (3,200 x 45), taxiways and apron including regulation course to restore shape
- pavement markings (runway, taxiway and apron) and visual aids
- wind indicators
- airport lighting system including PAPI
- powerhouse and generators
• new meteorological office and equipment
• reconstruct boundary fence
• airport maintenance facilities and equipment

Stage 2
• new control tower and operations/communications building including full equipment
• new fire station and equipment
• fire tenders
• NDB
• co-located VOR/DME
3.5.5. Kunduz

Existing Conditions

Runway and Strip

Kunduz airport has a single asphalt runway 2,000 metres long by 45 metres wide on an alignment of 11/29.

The runway surface is in reasonable condition and gives a relatively smooth ride for aeroplanes. There is a thin asphalt overlay approximately 10 years old on the central 15 metres and bomb craters have been recently repaired with concrete. There are some basic non-standard runway centreline markings but no runway identification numbers. A serviceable wind indicator is located adjacent to the apron.

There are no markings delineating the runway strip which appears to be graded to approximately 90 metres wide. The strip is overgrown with long grass and there are numerous obstructions including heaps of stones and boulders, structures, wrecked aeroplanes and vehicles and earth mounds. Drainage appears to be satisfactory (apart from the apron area). The 1 in 7 transitional surfaces are partly obstructed by structures, aircraft wreckage and large steel posts which are all that remain of the boundary fence. All obstructions should be cleared as soon as possible.

Terminal and Apron

The apron and single taxiway are asphalt which is very old. The surface is badly cracked and ravelling (losing stone) extensively. Nevertheless, it is still functional and shows no signs of failure due to overloading. Recent repairs to fill in bomb craters are evident on the taxiway and apron. Levels on the apron vary considerably, partly due to bomb damage, and there are extensive low areas which pond water.

The single storey concrete and brick terminal with control tower cab on top appears to be in reasonable condition and had been painted recently outside.

There is a large building adjacent to the terminal which was probably the former fire station and storage building. This is in poor condition and provides none of its former functions. There is a large unpaved car park between the back of the terminal and the main road and a number of other buildings, most in rundown condition.
Control Tower, Communications, Navigation Aids and Operational Facilities

The control tower is not in use but appears intact and has glass in the windows.
There are no navigation aids or airport lighting facilities. The former fire service is defunct due to lack of fire vehicles and fire station.

Recommended Development

Summary

It is considered that Kunduz airport should be restored and upgraded for regular services by AN24 type aircraft, including night operations, based on retaining the existing runway length. This will involve an asphalt overlay to restore shape and riding quality to the runway, taxiway and apron, provision of a 150 m wide runway strip, and refurbishment of the passenger terminal, control tower and operational facilities. Whether or not provision of a fire service would be justified on the basis of traffic levels would need to be decided by MCAT. The airport (apart from terminal facilities) would also be suitable for occasional B737 and B727 use.

Scope of Works

The proposed scope of works for the rehabilitation project is listed below.

Stage 1

• aerodrome topographical survey and approaches survey, preparation of aerodrome plan (physical), runway levels (cross sections and longitudinal sections) and pavement evaluation/testing for overlay design
• preparation of airport development plan and design plans
• revision of AIP data, approach and departure procedures and other AIS documents
• refurbish passenger terminal
• reconstruct and seal access road and car park
• water supply and sewerage
• apron security fencing and gates
• clear all aircraft wreckage and other debris from the airport property
• rehabilitate runway strip and widen to 150 m, including drainage as required
• asphalt overlay to existing runway (2,000 m by 45 m), taxiway and apron including regulation course to restore shape
• pavement markings (runway, taxiway and apron) and visual aids
• wind indicators
• airport lighting system including PAPI
• reconstruct boundary fence clear of 1 in 7’s
• refurbish control tower and operations/communications office including full equipment
• new meteorological office and equipment
• powerhouse and generators
• airport maintenance facilities and equipment

Stage 2
• refurbish fire station and re-equip (if required by MCAT)
• fire tender (if required by MCAT)
• NDB
• co-located VOR/DME
3.5.6. Herat

Existing Conditions

Runway and Strip

Herat airport has a single asphalt runway 2,500 metres long by 45 metres wide on an alignment of 01/19. The runway surface is in poor condition. Constructed with a central crown, there is some loss of shape and significant cracking of the asphalt, although little loss of stone.

Currently a central strip of hand placed asphalt approximately 20 metres wide and 10 mm thick is being placed full length of the runway to improve riding quality and protect the pavement from water ingress. Riding quality of the runway is reasonable but far from smooth.

There are no runway markings or identification numbers and there is a considerable amount of rubber on the surface for approximately 1,000 metres at the south end, indicating an unstable approach to runway 01 (the preferred direction for landing) due to lack of slope guidance.

There are no markings delineating the extent of the runway strip which appears to be 90 metres wide. The strip is relatively well graded with some rocks and sparse vegetation up to 1 metre high. Drainage appears to be satisfactory. A single wind indicator is located south of the apron.

There are no close-in obstructions for takeoff to the south (runway 19) and flat land in this direction lends itself to a future runway extension if required. The takeoff area to the north (runway 01) is obstructed by village houses approximately 300 to 500 metres from the runway end and some trees. Although stopways are noted in AIP (December 1990) they are rough and unusable and require reconstruction.

Terminal and Apron

The apron and single taxiway are in similar condition as the runway. The southern half of the apron is used by the military. The airside façade of the large concrete and brick terminal with control tower on top is well maintained but the building is in poor condition inside.

A well appointed VIP room is located next to the terminal. It was formerly the communications office. Next to the VIP room is the former fire station, power house and storage building. This is in poor condition and currently provides none of its former functions.
Control Tower, Communications, Navigation Aids and Operational Facilities

The control tower cab appears to be in good condition structurally but is reached by a very steep staircase with no safety rails. There is no heating or cooling in the cab or proper equipment of any kind.

There are no navigation aids or airport lighting facilities at Herat airport. The former fire service is defunct due to lack of fire vehicles and fire station. There are three diesel generator sets in the powerhouse, one of which is said to be in working order but lacking a battery for starting. All are original American units rated at 15-17 KVA each and could probably all be restored to working condition relatively easily. There was an aircraft fuel depot but this has been destroyed.

Recommended Development

Summary

Herat airport should be restored and upgraded for B727/B737 type aircraft, including night operations, based on retaining the existing runway length. This will involve an asphalt runway overlay to restore shape and riding quality, reconstruction and sealing of the 200 m long stopways at each end, provision of a 150 m wide runway strip, and a new terminal area including apron, taxiway, passenger terminal, and operational facilities. The existing apron is too close to the runway if a 150 m wide strip is introduced.

The runway can be extended to the south if required in the future. Diversion of the Kandahar road could be necessary, depending on the length of the extension.

Scope of Works

The proposed scope of works for the rehabilitation project is listed below.

Stage 1

- aerodrome topographical survey and approaches survey, preparation of aerodrome plan (physical), runway levels (cross sections and longitudinal sections) and pavement evaluation/testing for overlay design
- preparation of airport development plan and design plans
- revision of AIP data, approach and departure procedures and other AIS documents
- new passenger terminal, access road and car park
- water supply and sewerage for new terminal area
• apron security fencing and gates
• new apron and taxiway
• rehabilitate runway strip and widen to 150 m, including drainage as required
• asphalt overlay to runway including regulation course to restore shape (2,500 m by 45 m)
• pavement markings (runway, taxiway and apron) and visual aids
• wind indicators
• reconstruct and seal 200 m by 45 m stopways at each end
• airport lighting system including PAPI
• reconstruct boundary fence
• new control tower and operations/communications building including full equipment
• new meteorological office and equipment
• powerhouse and generators (or refurbish existing generators)
• airport maintenance facilities and equipment

Stage 2
• new fire station and equipment
• fire tenders
• NDB
• co-located VOR/DME
3.5.7. Jalalabad

Existing Conditions

Runway and Strip

Jalalabad airport has a single asphalt runway 2,200 metres long by 45 metres wide on an alignment of 13/31. The runway surface is generally in poor condition. There is a 16 m wide central overlay of newer asphalt which is sound but very undulating. The rideability was judged as rough in a pickup truck at high speed and the surface is considered marginal for aircraft operations. Departure from the centre section could be a potential hazard to aircraft landing or taking off as there is a drop-off between 15 and 50 mm on the edges of the overlay. There are some basic non-standard runway centreline markings but no runway identification numbers. No wind indicator was noted.

There are no markings delineating the runway strip which appears to be graded to approximately 90 metres wide. The strip is overgrown with vegetation up to 1.5 metres high. Strip obstructions include stone and boulders, various buildings, wrecked vehicles and aeroplanes and substantial earth mounds. At the southern end, there is a sharp drop off to a watercourse within the strip width. Drainage appears to be satisfactory. The 1 in 7 transitional surfaces and the take off and approach areas are also partly obstructed by trees and wreckage. All obstructions should be cleared as soon as possible.

Stopways approximately 200 m long have been recently constructed at both ends of the runway. They are very rough due to the large size of stone, and require a smooth surface course of crushed rock or asphalt to be useable.

Terminal and Apron

The apron and single taxiway received a thick asphalt overlay about 10 years ago and are in similar condition to the runway. The surface is rough and undulating and does not drain well. The concrete and brick terminal with control tower cab on top is in poor condition and is currently occupied by the military.

The former fire station and storage building adjacent to the terminal is in poor condition and provides none of its former functions. There is a large unpaved car park between the back of the terminal and the main road and a number of other buildings, most in rundown condition.
Control Tower, Communications, Navigation Aids and Operational Facilities

The control tower is not in use and has no glass in the windows. It is understood that MCAT does not presently provide any air traffic services at Jalalabad and VHF communications are operated by the military.

There are no navigation aids or airport lighting facilities. The former fire service is defunct due to lack of fire vehicles and fire station. There was an aircraft fuel depot but this is not currently functional.

Possibility of Alternate Airport for Kabul

Jalalabad airport has been proposed by ICAO as a possible alternate airport for Kabul if there was bad weather at Kabul or a disabled aircraft was blocking the single runway at Kabul. In the latter case, there is concern that if Kabul airport was closed for a considerable time, particularly during the current emergency, that urgently needed supplies might be prevented from being landed at Kabul. If Jalalabad was available as an alternate airport, aircraft could be diverted there and cargoes could be trucked the reasonably short distance from Jalalabad.

The consultants consider there is insufficient justification for the major capital expense involved in upgrading Jalalabad to a standard sufficient to enable operations by large heavy lift aircraft on an alternate basis, particularly as normal traffic levels at Jalalabad are expected to be moderate, supporting only regular AN24 services. The upgrading works recommended in this report would enable aircraft up to A300 and B767 size to use the airport in an emergency. Kandahar airport (when available) could readily serve as a bad weather alternate to Kabul for larger aircraft and, when the Kabul – Kandahar road is restored, would be within 6 hours from Kabul by road. The specific problem of a disabled aircraft at Kabul might be alternatively addressed by provision of a second or emergency runway at Kabul and by putting in place arrangements for the rapid deployment of suitable equipment for disabled aircraft removal.

Recommended Development

Summary

It is understood that in the past, Ariana operated B727 aircraft to Jalalabad airport. However, due to the reasonably close distance to Kabul and the planned improvements to the Kabul - Jalalabad road, it is likely that future demand will not support this level of service.

Therefore, it is considered that Jalalabad airport should be restored and upgraded for regular services by AN24 type aircraft, including night operations, based on retaining the existing runway length. This will involve an

\[\text{ICAO, June 2002}\]
asphalt overlay to restore shape and riding quality to the runway, taxiway and apron, sealing of the 200 m long stopways at each end, clearing and regrading of the runway strip and extension to 150 m wide, renovation of the existing passenger terminal, control tower and fire station and provision of appropriate operational facilities. The airport (apart from terminal facilities) would also be suitable for B737 and B727 use.

The runway could possibly be extended at the northern end (i.e. towards Jalalabad city), if required in the future. However, this would need to be confirmed by a full engineering and feasibility study.

**Scope of Works**

The proposed scope of works for the rehabilitation project is listed below.

**Stage 1**

- aerodrome topographical survey and approaches survey, preparation of aerodrome plan (physical), runway levels (cross sections and longitudinal sections) and pavement evaluation/testing for overlay design
- preparation of airport development plan and design plans
- revision of AIP data, approach and departure procedures and other AIS documents
- removal of all war wreckage
- renovate and improve passenger terminal
- new meteorological office and equipment
- reconstruct access road and car park
- water supply and sewerage
- apron security fencing and gates
- rehabilitate runway strip and widen to 150 m, including drainage as required
- asphalt overlay to existing runway (2,200 m by 45 m), taxiway and apron including regulation course to restore shape
- pavement markings (runway, taxiway and apron) and visual aids
- wind indicators
- surface and seal 200 m by 45 m stopways at each end
• airport lighting system including PAPI
• standby powerhouse and generators
• reconstruct boundary fence
• airport maintenance facilities and equipment

Stage 2

• renovate control tower, provide appropriate space for operations/communications in existing terminal building and full equipment
• renovate fire station and re-equip if required by MCAT
• fire tender if required by MCAT
• NDB if required by MCAT
• co-located VOR/DME if required by MCAT
3.5.8. Faizabad

Existing Conditions

**Runway and Strip**

Faizabad airport has a single runway 2,000 metres long by approximately 34 metres wide on an alignment of 18/36. The site was established by the Russian military as a tactical airfield and the runway is paved with interlocking steel panels which give a very rough ride to light aircraft, especially when taxiing.

The steel surface is in good condition and is maintained by a local team to ensure the panels stay locked together and there are no dangerous edges sticking up. There are no runway centreline markings or runway identification numbers. The runway is low lying and cross section shape varies from dished in the middle (near the apron) to one way cross fall. Drainage problems in the wet have been noted in other inspection reports.

A serviceable wind indicator is located opposite the apron.

There is no runway strip. The area opposite the apron is undulating ground up to 2m above runway level within 5m to 10m of the runway edge. All of the terrain surrounding the runway is littered with stones, large boulders and other debris which extends right up to the runway edge.

The notional 1 in 7 transitional surfaces are partly obstructed by structures and aircraft parked on the apron.

**Terminal and Apron**

The apron and single taxiway are concrete. The taxiway is of fairly new construction and in good condition, the design aircraft is not known. The edge of the apron is only 17 m from the edge of the runway. The northern half of the apron is in good condition and is preferred for aircraft parking; the southern half is badly cracked and in derelict condition.

There are a number of derelict buildings in the apron area and the police station which is habitable. There are no buildings or facilities for passengers or airline operators.
Control Tower, Communications, Navigation Aids and Operational Facilities

There are no ATC, communications, navigation aids or airport lighting facilities. The shell of the former control tower is located some 200 m north of the apron.

It is considered that air traffic control services and rescue fire fighting facilities are not justified at Faizabad due to the low level of traffic.

Recommended Development

Summary

Faizabad is an important regional centre for Badakhshan. It will probably become a hub for small aircraft providing services to remote locations such as Darwaz, Sheghnan and Khwahan, albeit, in competition with Kunduz. The area also has a very high tourist potential.

It is considered that Faizabad airport should be developed for regular services by AN24 type aircraft in daylight visual meteorological conditions based on retaining the existing runway length and location. This will involve removal of the steel surfacing on the runway, provision of an 80 m wide graded runway strip, relocation of the terminal area, (i.e. taxiway and apron) to meet strip clearance requirements, provision of a passenger terminal and associated facilities. Location of the new terminal close to the southern end could be considered, where it is closer to Faizabad town and would minimise taxi distance with the preferred landing on runway 18 and takeoff on runway 36.

Alternatively, it may be possible to construct a new runway of similar length in a slightly different position, thereby enabling the existing runway to be kept in operation during the construction period. More detailed investigation is required to determine the feasibility of runway reconstruction vs runway relocation.

Scope of Works

The proposed scope of works for the rehabilitation project is listed below.

Stage 1

- aerodrome topographical survey and approaches survey, preparation of aerodrome plan (physical), runway levels (cross sections and longitudinal sections) and materials evaluation/testing for pavement design
- investigation of alternative runway/airport locations
- preparation of airport development plan and design plans
• revision of AIP data, approach and departure procedures and other AIS documents

• passenger terminal

• meteorological office and equipment

• access road and car park

• water supply and sewerage

• apron security fencing and gates

• construct runway strip 80 m wide, including drainage as required

• construct runway (2,000 m by 30 m), new taxiway and new apron (asphalt)

• pavement markings (runway, taxiway and apron), strip markers and wind indicators

• construct boundary fence

• airport maintenance facilities and equipment

Stage 2

• powerhouse and generator

• NDB
3.5.9. Bamyan

Existing Conditions

Runway and Strip

Bamyan airport has a single gravel runway 2,590 metres long by approximately 23 metres wide within a graded strip approximately 40 m wide. The alignment is 06/24. The original runway was approximately 1,500 m long and was extended some 10 years ago for military purposes. The runway is unusual in that there is a noticeable kink of about 10 degrees where the extension meets the original, due to the proximity of the river at the north western end. This does not seem to be a problem to operations.

The brown gravel surface is in good condition and is maintained (including snow clearing) by a local team under direction of an NGO. It is generally well compacted in the central 23 m section and the landing and takeoff runs were quite smooth.

Gravel size is up to 75 mm maximum dimension of stone, which is considered rather large for an airfield but pilots reported they do not experience much significant propeller or body damage from stones. However, PACTEC will be constructing a concrete pad for parking and engine run up in the near future.

White painted concrete markers set flush into the surface designate the runway edges and runway “24” but are difficult to distinguish from the surrounding gravel.

A small gravel apron is located near the north eastern end of the runway, on an area of fill. A serviceable wind indicator is located at the runway 24 threshold.

The runway strip is constructed on a side cut into the hill which slopes from south to north and there is a significant vertical bank up to 2 m high along 50% of the southern edge. A large ravine is crossed about half way along the runway where the strip width narrows to approximately 40 m and there is a large drop off on both sides.

The notional 1 in 7 transitional surfaces are obstructed by the earth banks on the south side of the runway, aircraft parked on the apron and a number of local houses at the western end which have been built almost to the runway edge.
Terminal and Apron

The apron is contiguous with the strip and there is no taxiway. There are no buildings or facilities for passengers or airline operators and vehicles drive right up to the aircraft. There is no other parking area and the road to town leads directly north from the apron. The apron can be readily extended by filling up to 2 to 3 metres deep. This will enable aircraft to park clear of the 1 in 7 transitional surfaces and provide space for a car park and terminal.

Control Tower, Communications, Navigation Aids and Operational Facilities

There are no ATC, communications, navigation aids or airport lighting facilities.

It is considered that air traffic control services and rescue fire fighting facilities are not justified at Bamyan due to the low level of traffic.

Recommended Development

Summary

Bamyan is an important regional centre for the Hazara. The area also has a very high tourist potential. It is situated in very mountainous terrain and the approach and takeoff procedures are difficult in marginal weather.

It is considered that Bamyan airport should be developed for regular services by Twin Otter and other aircraft up to around 20 seat capacity, in daylight visual meteorological conditions. AN24 operations might be possible in certain conditions but would require an operational assessment and published procedures.

The AN24 would probably require around 2,000 metres of runway allowing for altitude and a take off weight less than maximum due to low fuel requirements. Whether or not to retain and maintain the full 2590 m would depend on the viability of AN24 operations and any other critical aircraft which operators might propose, and any future military requirements.

Upgrading of Bamyan airport for Twin Otter/AN24 would involve provision of an 80 m wide graded runway strip, apron extension to meet strip clearance requirements, provision of a passenger terminal, car park and associated facilities. Consideration should also be given to sealing the runway, taxiway and apron to reduce future maintenance and improve the surface texture.

More detailed investigation is required to determine the optimum runway length which should be retained and therefore, whether or not the houses at the western end of the strip will need to be removed.
Scope of Works

The proposed scope of works for the rehabilitation project is listed below.

Stage 1

- aerodrome topographical survey and approaches survey, preparation of aerodrome plan (physical), runway levels (cross sections and longitudinal sections) and materials evaluation/testing for pavement design
- preparation of airport development plan and design plans
- revision of AIP data, approach and departure procedures and other AIS documents
- extend taxiway and apron (asphalt)
- passenger terminal
- meteorological office and equipment
- access road and car park
- apron security fencing and gates
- establish runway strip 80 m wide, including drainage as required (grade out earth banks to comply with 1 in 7s, widen strip over ravine, remove houses at western end)
- airport markers (runway, strip, taxiway and apron) and wind indicators
- airport maintenance facilities and equipment

Stage 2

- construct boundary fence
- water supply and sewerage
- powerhouse and generator
- NDB
- resheet and seal runway (2,000 x 30)
- paint runway markings
3.5.10. Chaghcharan

Existing Conditions

Runway and Strip

Chaghcharan airport has a single gravel runway 1,950 metres long by approximately 21 metres wide within a graded strip approximately 35 m wide. The alignment is 07/25. It is located on a large expanse of flat land within a bend in the river and the threshold at either end is close to the river bank. Chaghcharan township is immediately across the river at the western end.

The gravel surface is in good condition but bumpy in places. Composed of fine brown gravel, maximum dimension approximately 15 mm, it is generally well compacted in the central 21 m section and the landing and takeoff runs were reasonably smooth. The cross sectional shape is very flat, and it is understood the surface becomes soft in wet weather.

The graded strip out to 35 m was in good condition and clear of vegetation apart from small weeds. Longitudinal drains are located at the edge of the 35 graded strip for most of the runway length. There is no graded or prepared surface outside the 35 m strip but a 90 m wide strip could be easily obtained and a 150 m strip might be possible without relocation of the terminal building. However, it is understood there are extensive mine fields around this airport which would need to be cleared before strip widening would be possible.

Strip maintenance (including snow clearing) is carried out by a local team funded by UNOPS. One serviceable diesel roller was noted on the apron.

There are no obstructions to the approach and takeoff areas and notional 1 in 7 transitional surfaces apart from a number of buildings in the town at the western end. Rising ground behind the town could obstruct the takeoff surface at this end (takeoff runway 25).

Terminal and Apron

The large gravel apron is located near the western end of the runway and is in good condition. There are several aircraft wrecks in the apron area. If required, the apron area could be extended.

The former terminal building is in reasonable condition but is not in use. An adjacent building is being used as a residence.

A serviceable wind indicator is located across the runway from the apron.
Control Tower, Communications, Navigation Aids and Operational Facilities

There are no ATC, communications, navigation aids or airport lighting facilities.

Recommended Development

Summary

It is considered that Chaghcharan airport should be upgraded for AN24 operations in daylight visual meteorological conditions, although it is likely that smaller aircraft will provide the majority of services due to the low traffic demand.

The major work is to resheet the runway and provide a central crown to obtain all weather capability and to establish an 80 m wide runway strip.

Scope of Works

The proposed scope of works for the rehabilitation project is listed below.

Stage 1

- aerodrome topographical survey and approaches survey, preparation of aerodrome plan (physical), runway levels (cross sections and longitudinal sections) and materials evaluation/testing for pavement design
- preparation of airport development plan and design plans
- revision of AIP data, approach and departure procedures and other AIS documents
- remove aircraft wreckage and other rubbish from airport property
- renovate passenger terminal
- meteorological office and equipment
- apron security fencing and gates
- resheet runway (1,950 x 30), taxiway and apron with gravel to provide a central crown with maximum transverse slope of 1.5%
- clear mines and UXO from airport
- establish runway strip 80 m wide, including drainage as required
- airport markings (runway, strip, taxiway and apron) and wind indicators
• airport maintenance facilities and equipment

Stage 2

• construct boundary fence
• water supply and sewerage
• NDB if required by MCAT
• powerhouse and generator
3.5.11. Lal

Lal airport was inspected from the air during two low level passes. The existing strip is natural surface, 700 metres long by approximately 30 metres wide on a bearing of 07/25. The strip is located between the river and the road in a narrow valley approximately 2 km NE of the town.

Work is currently under way to extend the strip to 1,400 metres which involves crossing a large ravine. Construction is being carried out by local people under UNOPS intensive labour program.
3.5.12. Yakawlang

Existing Conditions

Runway and Strip

Yakawlang airport is located on a high flat plateau devoid of vegetation, above the river valley. The natural surface runway 1,700 metres long by approximately 30 metres has a thin layer of gravel and is marked by orange painted stones. The alignment is 03/21 and there is a 2% slope up from south to north. Yakawlang township is some 30 minutes by vehicle from the airstrip.

The runway surface is in generally good condition but rough in places. The cross sectional shape is very flat, and the surface becomes soft and boggy in wet weather.

There is no marked strip but due to the flat terrain, the natural surface provides a reasonable strip to at least 90 m width, the only obstructions being the stones marking the runway edges. There is a steep drop off into a gully some 30 m from the southern end.

Strip maintenance (including snow clearing) is carried out by a local team supported by the UNOPS intensive labour program.

There are no close in obstructions to the approach and takeoff areas and notional 1 in 7 transitional surfaces but the site is surrounded by hills and more distant high mountains.

Terminal and Apron

There is no terminal shelter or apron and aircraft park on the end of the runway. PACTEC will shortly be constructing a small concrete parking and run up pad at the southern end. The airport is seldom used by more than one aircraft at a time.

Control Tower, Communications, Navigation Aids and Operational Facilities

There are no ATC, communications, navigation aids or airport lighting facilities. There is no wind indicator.
Recommended Development

Summary

It is considered that Yakawlang airport should be upgraded for AN24 operations in daylight visual meteorological conditions, although it is likely that smaller aircraft will provide the majority of services due to the low traffic demand.

The major work is to resheet the runway and provide a central crown to obtain all weather capability.

Scope of Works

The proposed scope of works for the rehabilitation project is listed below.

Stage 1

- aerodrome topographical survey and approaches survey, preparation of aerodrome plan (physical), runway levels (cross sections and longitudinal sections) and materials evaluation/testing for pavement design
- preparation of airport development plan and design plans
- revision of AIP data, approach and departure procedures and other AIS documents
- resheet runway (1,700 x 30) with gravel to provide a central crown and maximum transverse slope of 1.5% for drainage
- construct sealed taxiway and apron
- terminal shelter including meteorological office and equipment
- establish runway strip 80 m wide, including drainage as required
- airport markings (runway, strip, taxiway and apron) and wind indicators
- airport maintenance facilities and equipment

Stage 2

- NDB if required by MCAT
- powerhouse and generator
3.5.13. Maymana

Maymana was not visited by the consultants. From the available information it is likely that Maymana should be upgraded for AN24 operations in daylight visual meteorological conditions. This report is, however, unable to define the scope of works or likely costs.
3.6. Airport Operations and Maintenance

3.6.1. Immediate Needs

Very few airport maintenance tasks are being carried out at major domestic and regional airports at the present time. Those that are being performed are generally done on an ad-hoc basis by NGOs, contractors or UN agencies, often in the absence of engineering design and specifications or supervision. As far as the TSR team is aware there is no organised airport maintenance organisation or personnel within either the MCAT or MPW, and there are no experienced personnel on site who can carry out basic strip maintenance or give safety reports to aircraft operators or pilots intending to land.

The immediate needs are listed in the following table.

<table>
<thead>
<tr>
<th>No.</th>
<th>Task</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Recruit and train airport maintenance personnel.</td>
<td>By MCAT or nominated agency.</td>
</tr>
<tr>
<td></td>
<td>Training will include both theoretical and practical activities.</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Recruit experienced trainers</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Prepare training material and course curriculae</td>
<td></td>
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<tr>
<td>4.</td>
<td>Prepare “Airport Maintenance Manual” for major domestic airports</td>
<td>For guidance of airport maintenance staff</td>
</tr>
<tr>
<td>5.</td>
<td>Prepare “Airport Maintenance Manual” for small airports</td>
<td>For guidance of airport maintenance officer</td>
</tr>
<tr>
<td>6.</td>
<td>Prepare “Specification for Airport Works”</td>
<td>“How to” – defines the required standards for works</td>
</tr>
<tr>
<td>7.</td>
<td>Prepare “Reporting Officer’s Handbook”</td>
<td>Defines safety items to inspect and how to report to pilots, etc.</td>
</tr>
<tr>
<td>8.</td>
<td>Appoint airport maintenance personnel to each airport</td>
<td>Small airports will just have an Airport Maintenance Officer.</td>
</tr>
<tr>
<td>9.</td>
<td>Appoint Airport Reporting Officers at small airstrips.</td>
<td>The Airport Maintenance Officer may also double as the Airport Reporting Officer. Appropriate communications equipment is required.</td>
</tr>
<tr>
<td>10.</td>
<td>Conduct training courses for Airport Reporting Officers</td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>Provide appropriate maintenance facilities and equipment at each airport.</td>
<td>A secure building to keep and maintain equipment is required at each airport.</td>
</tr>
<tr>
<td>No.</td>
<td>Task</td>
<td>Comments</td>
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<tr>
<td>-----</td>
<td>-----------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------</td>
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<tr>
<td>12</td>
<td>Provide appropriate guaranteed funding arrangements for airport</td>
<td>Could be from MCAT, airport authority or airport company(ies) (when created), or other agency</td>
</tr>
<tr>
<td></td>
<td>maintenance and reporting.</td>
<td>responsible for airport maintenance.</td>
</tr>
<tr>
<td>13</td>
<td>Establish an airport inspectorate in MCAT Safety and Licensing Division</td>
<td></td>
</tr>
<tr>
<td></td>
<td>and train airport inspectors.</td>
<td></td>
</tr>
</tbody>
</table>

### 3.6.2. Implementation of Airport Maintenance

Once the initial graduates from the airport maintenance training courses are placed in the field and requisite equipment and facilities are available on site, organised airport maintenance can commence. Typical airport operation and maintenance tasks for major domestic and regional/sub-regional airports are listed in the following table, together with a recommendation of the responsible agency, which could be, for example, a central HQ (MCAT or an airport company), the local airport (which might be managed by a subsidiary company or a provincial authority, etc.), or the airline agent.

**PROPOSED ALLOCATION OF OPERATION AND MAINTENANCE TASKS FOR AIRPORTS IN AFGHANISTAN (EXCLUDING KABUL AND KANDAHAR)**

<table>
<thead>
<tr>
<th>Task</th>
<th>Management by</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management of airport system</td>
<td>HQ</td>
</tr>
<tr>
<td>Management of terminal and other buildings</td>
<td>Local Airport</td>
</tr>
<tr>
<td>Cleaning of terminal and other buildings</td>
<td>Contractor</td>
</tr>
<tr>
<td>Flight service – e.g. weather, runway condition and preferred landing direction (if provided)</td>
<td>Local Airport or airline agent</td>
</tr>
<tr>
<td>Check in, ticketing, cargo handling and passenger service</td>
<td>Airline agent</td>
</tr>
<tr>
<td>Baggage handling</td>
<td>Airline agent or Local Airport</td>
</tr>
<tr>
<td>Rescue fire service (if provided)</td>
<td>HQ, Local Airport or contractor</td>
</tr>
<tr>
<td>Maintenance of pavements (runway, taxiways, apron), remove stones and foreign objects from pavements, pavement markings, drains, etc. Carry out repairs, repaint markings as required.</td>
<td>Air maintenance staff or contractor</td>
</tr>
<tr>
<td>Snow clearing</td>
<td>Air maintenance staff or contractor</td>
</tr>
<tr>
<td><strong>Task</strong></td>
<td><strong>Management by</strong></td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>-------------------------------------------------</td>
</tr>
<tr>
<td>Maintenance of runway strip (cut grass, remove stones, keep drainage system operational, strip markers, wind indicators, unserviceability markings, etc)</td>
<td>Airport maintenance staff or contractor</td>
</tr>
<tr>
<td>Maintenance of obstacle limitation surfaces (approach and takeoff fans, transitional surfaces)</td>
<td>Airport maintenance staff or contractor</td>
</tr>
<tr>
<td>Maintenance of buildings, roads, car parks, fences, street lights</td>
<td>Airport maintenance staff or contractor</td>
</tr>
<tr>
<td>Maintenance of airport lighting including apron floodlights (if provided)</td>
<td>Airport maintenance staff or contractor</td>
</tr>
<tr>
<td>Maintenance of communications equipment (if provided)</td>
<td>Contractor</td>
</tr>
<tr>
<td>Maintenance of standby generator and electrical reticulation system</td>
<td>Contractor</td>
</tr>
<tr>
<td>Maintenance of sewerage system, potable water supply system, storm water drainage system, toilets, etc</td>
<td>Contractor</td>
</tr>
<tr>
<td>Maintenance of airport maintenance plant and equipment, e.g. trucks, tractors, rollers, mowers, slashers, hand tools, etc</td>
<td>Contractor</td>
</tr>
<tr>
<td>Maintenance of airport vehicles including cars, buses and fire trucks (if provided)</td>
<td>Contractor</td>
</tr>
</tbody>
</table>

**All items related to safety to be audited twice per year by the Airports and Airways Inspectorates under the terms of the airport licence issued by the Safety and Licensing Division.**

**Note:** The CNS/ATM service provider will install and maintain any navigation aids and also provide air traffic control services if required (i.e. equipment, facilities and staff).
3.6.3. Airport Maintenance Standards and Inspections

No airports in the country comply fully with Annex 14 requirements and some are deficient in significant areas, such as runway strip width, runway surface quality, and obstacles on the strip and in the clearance surfaces. None of these deficiencies are documented in the AIP or NOTAMS and it is not clear to the consultants whether or not MCAT has issued appropriate operational dispensations to the respective aircraft operators.

Due to the current staffing situation, regular airport inspections to check compliance with operational standards are not routinely carried out. A formal program needs to be set up for regular, detailed inspection and reporting of airport facilities and condition, in particular, the runway and strip surface condition and obstacle limitation surfaces. In the interim, inspections could be carried out on behalf of MCAT by an experienced consultant.

Airport Maintenance Standards will be set by the Airports Inspectorate. They will be set out and explained in simple terms in the “Airport Maintenance Manual” and the “Reporting Officer’s Handbook” (Refer to the previous section).

Airport Inspectors should travel to each airport twice per year to check that airports are being maintained in accordance with the standards and will be empowered to order the responsible authority to carry out corrective works as necessary. The Airport Inspectors’ training and experience will also enable them to advise and assist the Maintenance Officers and Reporting Officers on problems with reporting, procurement, pavements, drainage and other items.

Training courses should be provided at suitable intervals by the CATC for Airport Inspectors, Airport Maintenance Officers and Airport Reporting Officers to revise and improve their skills and to train new recruits.

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10 Last issued December 1990.

11 A dispensation should define the conditions under which operations may be conducted at airports which do not meet prescribed standards but maintain equivalent levels of safety. Such a dispensation may be necessary to permit operations by aircraft which would otherwise be excluded from operating at the airport, or penalised to the extent that the operation would be uneconomic.
3.6.4. Airport Maintenance Costs

Airport maintenance costs can vary widely depending on the size of the airport, the standard of maintenance which is carried out and the lifecycle of the assets. New runways or terminal buildings for example will require little maintenance for the first few years but then a gradually increasing effort will be necessary as normal wear and tear and the forces of nature play their part. Whether maintenance is done by day labour or under contract is also a factor in the cost.

Maintenance is normally classified for operational and funding purposes as being either regular or periodic as indicated below:

- day to day or regular maintenance covers such items as runway sweeping, grass mowing, gardening, drain cleaning, minor pavement repairs (e.g. patching and crack sealing), terminal cleaning, snow clearing, and the like
- cyclical or periodic maintenance includes repainting of pavement markings, rubber removal, and reseal or overlay of runways, taxiways and aprons. (Typically, pavement markings need to be repainted every 3 to 5 years and reseals/overlays will be required every 7 to 12 years)

Usually, an annual allocation will be made for regular maintenance and periodic maintenance items will be programmed for budgeting purposes. The maintenance program should be reviewed periodically to ensure that projects are not implemented too early or too late.

Typical cost components of regular maintenance are labour, plant (cost of hire, replacement and maintenance), fuel and materials. Periodic maintenance projects would normally be carried out under contract and typical cost components in addition to the contract itself include design and supervision, and allowances for contingencies and cost escalation.

Based on the above, the consultants estimates for regular maintenance at the airports which were inspected, following completion of the recommended upgrading works, are given in the following table.

<table>
<thead>
<tr>
<th>Airport</th>
<th>Annual maintenance cost (USD)</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mazar-I-Sharif</td>
<td>$170,000</td>
<td>Paved runway, taxiways and apron, airport lighting</td>
</tr>
<tr>
<td>Kunduz</td>
<td>$135,000</td>
<td>Paved runway, taxiway and apron, airport lighting</td>
</tr>
<tr>
<td>Herat</td>
<td>$135,000</td>
<td>Paved runway, taxiway and apron, airport lighting</td>
</tr>
</tbody>
</table>
### Annex: Report on Airport Development

<table>
<thead>
<tr>
<th>Airport</th>
<th>Annual maintenance cost (USD)</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jalalabad</td>
<td>$135,000</td>
<td>Paved runway, taxiway and apron, airport lighting</td>
</tr>
<tr>
<td>Faizabad</td>
<td>$80,000</td>
<td>Paved runway, taxiway and apron</td>
</tr>
<tr>
<td>Bamyan</td>
<td>$95,000</td>
<td>Paved runway, taxiway and apron</td>
</tr>
<tr>
<td>Chaghcharan</td>
<td>$70,000</td>
<td>Gravel runway, taxiway and apron</td>
</tr>
<tr>
<td>Yakawlang</td>
<td>$55,000</td>
<td>Gravel runway, taxiways and apron</td>
</tr>
<tr>
<td>Sub Total</td>
<td>$875,000</td>
<td></td>
</tr>
<tr>
<td>Overheads</td>
<td>$125,000</td>
<td>(Allow 15%)</td>
</tr>
<tr>
<td>TOTAL</td>
<td>$1,000,000</td>
<td></td>
</tr>
</tbody>
</table>
3.7. Implementation

3.7.1. Airport Upgrading

The recommended implementation for airport upgrading projects is outlined below.

1. **Identification and acceptance of donor offers for project funding.**
   This will probably be an ongoing process and would be managed by the project manager when it is appointed.

2. **Appointment of a project manager** (company). The project manager will be responsible for detailed investigation, design and documentation, tendering, contract administration and coordination of all projects. The project manager would be selected jointly by MCAT and the funding agency after an international tender. It is envisaged that this process would take approximately 6 to 12 months before the project manager is mobilised in Afghanistan.

3. **Investigation / Design and documentation.** This would take approximately 6 months before the first project (or project package) is ready for tendering, and would continue until all projects have been documented.

4. **Tendering.** Major projects would be put out to international tender. The process would take between 6 to 9 months to finalise contract documents and mobilise the contractor on site.

5. **Construction.** All projects are relatively small and none would take more than 6 months to complete assuming material supplies are readily available and there are no unexpected difficulties. Due allowance will have to be made in the construction programs for winter conditions.

Airports not covered in this report and for which there is no recommended development program will need to be surveyed and projects developed where required which would then be implemented in the same way.

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12 There would be advantages and cost savings if a single project manager was appointed for CNS/ATM implementation and the airport upgrading program.
3.7.2. Documentation for Airport Management

A considerable amount of documentation is required for airport management, maintenance and training purposes. A concerted program will be required to produce this documentation in step with personnel training needs and operational needs.

A tentative documentation program is given below. Donor funding would be required to support the program.

<table>
<thead>
<tr>
<th>Document</th>
<th>Estimated input (man-months)</th>
<th>Indicative cost(^{13}) (USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airport Maintenance Manual for small airports</td>
<td>.5</td>
<td>10,000</td>
</tr>
<tr>
<td>Airport Maintenance Manual for large airports</td>
<td>1</td>
<td>20,000</td>
</tr>
<tr>
<td>Reporting Officer’s Handbook</td>
<td>.5</td>
<td>10,000</td>
</tr>
<tr>
<td>Airport Management Manual for small airports</td>
<td>.5</td>
<td>10,000</td>
</tr>
<tr>
<td>Airport Management Manual for large airports</td>
<td>1</td>
<td>20,000</td>
</tr>
<tr>
<td>AIP-AGA(^{14}) Update</td>
<td>1.5</td>
<td>30,000</td>
</tr>
<tr>
<td>Course Syllabuses</td>
<td>1.5</td>
<td>30,000</td>
</tr>
<tr>
<td>Course Notes</td>
<td>1</td>
<td>20,000</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td><strong>150,000</strong></td>
</tr>
</tbody>
</table>

\(^{13}\) Based on USD20,000 per month for a technical expert.

\(^{14}\) Aeronautical Information Publication – Aerodromes and Ground Aids
### 3.7.3. Training

An outline training program is given below.

<table>
<thead>
<tr>
<th><strong>Course</strong></th>
<th><strong>Description</strong></th>
<th><strong>Who should attend</strong></th>
<th><strong>Length</strong>&lt;sup&gt;15&lt;/sup&gt; (days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airport Safety</td>
<td>Principles of safety on airports particularly related to airside</td>
<td>All personnel who will be working on airports</td>
<td>1</td>
</tr>
<tr>
<td>Airport Management 1</td>
<td>Basic principles of airport management for small airports</td>
<td>All airport managers and prospective managers</td>
<td>2</td>
</tr>
<tr>
<td>Airport Management 2</td>
<td>Advanced management concepts and techniques for major airports</td>
<td>All managers and prospective managers of major airports</td>
<td>3</td>
</tr>
<tr>
<td>Airport Maintenance 1</td>
<td>Basic principles of airport maintenance for small airports. Will include practical demonstrations and hands on experience.</td>
<td>All Airport Maintenance Officers</td>
<td>3</td>
</tr>
<tr>
<td>Airport Maintenance 2</td>
<td>Advanced maintenance concepts and techniques for major airports. Will include practical demonstrations and hands on experience.</td>
<td>All Airport Maintenance Officers and prospective AMO's for major airports</td>
<td>5</td>
</tr>
<tr>
<td>Aerodrome Reporting Officer</td>
<td>Basic airstrip inspection techniques, basic meteorology related to aircraft operations, reporting, radio technique</td>
<td>All Aerodrome Reporting Officers and all AMO's at regional and minor airports</td>
<td>2</td>
</tr>
</tbody>
</table>

<sup>15</sup> Full time
<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Who should attend</th>
<th>Length (days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airport Inspector 1</td>
<td>Responsibilities relating to airport licences, aircraft operating concepts, basic airstrip inspection and maintenance techniques, basic pavement design, radio technique, airfield safety</td>
<td>All Airport Inspectors</td>
<td>3</td>
</tr>
<tr>
<td>Airport Inspector 2</td>
<td>Advanced regulations and responsibilities relating to airport licences, advanced pavement maintenance, concrete and bitumen, clearance surface theory and field survey, introduction to AIP-AGA</td>
<td>Airport Inspectors responsible for major airports</td>
<td>3</td>
</tr>
<tr>
<td>Airport Inspector 3</td>
<td>Annex 14 standards and compliance, advanced AIP-AGA, airfield safety (major airports including international), airport location and design</td>
<td>Airport Inspectors responsible for major airports and international airports</td>
<td>3</td>
</tr>
<tr>
<td>AIP-AGA</td>
<td>Purpose and use of AIP-AGA, amendment procedure, need to keep current.</td>
<td>Airport Inspectors, AMO’s at regional and major airports, airport design engineers</td>
<td>1</td>
</tr>
<tr>
<td>Plant Operator 1</td>
<td>Safe use of simple mechanised plant, such as trucks, tractors, rollers, drawn graders, pavement marking machine, sweepers. Principles of maintenance. Practical sessions.</td>
<td>All AMO’s, Reporting Officers and Airport Inspectors</td>
<td>2</td>
</tr>
<tr>
<td>Plant Operator 2</td>
<td>Specific plant items, e.g. large graders, front end loaders, etc. Practical sessions.</td>
<td>AMO’s, Reporting Officers and Airport Inspectors as required</td>
<td>2</td>
</tr>
</tbody>
</table>
4. CNS/ ATM

4.1. Existing Conditions

Most of the former air traffic management infrastructure of Afghanistan was destroyed in the fighting and the trained staff resources are critically depleted. Any buildings and equipment that remain are rudimentary and obsolete apart from the VSAT system which is quite new and is mostly in working order.

Currently, all air traffic management except for overflights is carried out by the military. Civil aviation operations are limited to daylight hours and specific, restricted routes. The slot system in operation at Kabul severely limits the number of aircraft movements and hence the number of domestic flights that can be operated in a day. Service provision to overflight traffic is inhibited by lack of suitable equipment and insufficient flight levels to accommodate demand. A coalition forces liaison officer is currently working with MCAT and Ariana to address these and other urgent issues.

4.2. Immediate Needs

The US Federal Aviation Agency (FAA) sent an investigation team to Afghanistan in mid 2002 and issued a report “Air Navigation Services Needs” in September 2002. FAA proposed a number of urgent actions to re-establish essential components of the air traffic management system and to remove some of the current restrictions to civil aviation, namely:

- enhancing of terminal services at Kabul airport;
- facilitation of Haj flights for January 2003;
- commissioning of Global Navigation Satellite System (GNSS) based procedures;
- restoring the national en route air-ground communications network; and
- expanding altitudes available to overflying civilian aircraft.

FAA recognised the critical shortage of trained technicians and operators and proposed an intensive training program augmented by utilisation of contract support and other external assistance, e.g. United Nations Volunteers (UNV) in specialised areas such as operations and maintenance. It is understood that MCAT is currently considering the appointment of a service provider to operate the system in the short term.

There is an urgent need for airport surveys and updating of aeronautical information. The production and dissemination of this information, including
4.3. Longer Term Requirements

FAA recommended additional actions, to be implemented concurrently with the above, which would concentrate on improving MCAT’s capacity to provide air navigation services over a 2 to 4 year timeframe. The recommendations are:

- develop a national concept of operations and air navigation services architecture;
- establish a national training program for controllers and technicians;
- enhance terminal navigation services;
- improve terminal air-ground communications; and
- establish a Kabul Area Control Centre to provide procedural en route air traffic control.

4.4. Comment

The TSR has read the FAA report and agrees with the broad strategy and recommendations. The proposed improvements to the national air navigation facilities and services should be programmed to be compatible with the ICAO Air Navigation Plan (ANP) for the Central Asia Region and aimed at forming an integrated regional system.

Based on expected traffic requirements alone, (other considerations could be bad weather or difficult terrain), it would appear that the provision of air traffic services at some domestic airports is not justified, even though this may have been the case in the past.

4.5. Implementation

Necessary actions to implement the re-establishment of air traffic management and the proposed CNS/ATM program are outlined below.

- identification of donors and agreements for funding
- identification of TAs and appointment of consultants
- staff recruitment and training

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16 A similar argument also applies to the provision of rescue and fire services.
• deployment of trained staff to Kabul and outstations

• selection and appointment of CNS/ATM service provider (areas of responsibility to be documented and clarified)

• supply, installation and commissioning of equipment

• provision of new or renovated ATM facilities at airports

• aircraft to be fitted with required instrumentation (aircraft operator responsibility)

• institutional reform of MCAT to enable formation of Airways Division

All of the above and other details will need to be programmed and coordinated by a project manager (consultant company). Appointment of the project manager is a matter of some urgency. Consideration should be given to combining the project management of CNS/ATM implementation with airport upgrading implementation (refer section 3.7).
APPENDIX 1

DOMESTIC AIR TRAFFIC DEMAND

There is believed to be a large latent demand for domestic air services in Afghanistan. Currently, domestic air travel is constrained to artificial levels (either high or low) for a number of reasons including:

- flights run by UN agencies are organised to support UN activities and needs, such as transport of aid workers and humanitarian relief, or travel requirements of government ministers and officials;

- Ariana currently provides only limited RPT services for Afghans and others not travelling on official business and will not be able to re-commence flights to Kandahar in the foreseeable future; and

- many airports are not operating to capacity due to constraints on civil aviation operations (e.g. lack of aircraft, restrictions on number of movements at Kabul) and many are unusable because of damage, protracted lack of maintenance, mines/UXO, and the like.

Thus, it is not possible to get an accurate picture of the likely pattern of domestic air services from current operations. Whilst a knowledge of service patterns from 20 years ago will provide some guidance, the structure of future domestic air services will be governed to a large extent by recent population shifts and improvements in road passenger and freight transport associated with the staged restoration of the national road system.

The situation of domestic airlines in the future is also unknown. Whereas formerly there were two competing airlines, this might not be the case within the study horizon. There are few civil aircraft currently in Afghanistan which would be suitable for domestic operations. Ariana’s B727’s currently operate between Kabul and Herat and Mazar-I-Sharif and the airline has recently acquired two AN24s for use on thinner routes. It is likely that B727s will be phased out within 4 to 6 years due to age and noise problems.

It is likely that the major domestic routes, including Kandahar, will be operated by a mixture of turbojet and propeller aircraft in the 50 to 150 seat range. This would include types such as a B737 variant, F28, ATR42/72 and AN24. The 50 seat aircraft would be suitable for the thinner routes between Kabul and regional centres such as Kunduz, Maymana, Faizabad and Bamyan (subject to operational clearance) and smaller aircraft down to 20 seat capacity could also be utilised depending on passenger demand. There are likely to be opportunities for third level operators to provide feeder services from regional hubs to small airports and remote airstrips, such as between Faizabad and Darwaz, Khwahan and Sheghnan using a variety of single and twin engined
light aircraft such as Cessna 182, Beech Baron, Cessna Caravan and Twin Otter.

This paper does not attempt to make detailed aviation forecasts for domestic traffic when it re-starts in earnest. However, indicative figures are provided on the following spreadsheet which is based on assumed numbers of daily return flights between the ports indicated. The numbers are not specific to any particular year.

It is intended that these figures can be used to assist planning of facilities until more sophisticated forecasts and actual data become available.
### Annexe: Report on Airport Development

#### Aircraft and Passenger Movement Estimates

<table>
<thead>
<tr>
<th>From</th>
<th>To</th>
<th>Return Flts per day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kabul</td>
<td>Kandahar</td>
<td>2</td>
</tr>
<tr>
<td>Kabul</td>
<td>Mazar</td>
<td>4</td>
</tr>
<tr>
<td>Mazar</td>
<td>Herat</td>
<td>2</td>
</tr>
<tr>
<td>Herat</td>
<td>Farah</td>
<td>3</td>
</tr>
<tr>
<td>Farah</td>
<td>Mazar</td>
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</tr>
<tr>
<td>Mazar</td>
<td>Bamiyan</td>
<td>2</td>
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<tr>
<td>Bamiyan</td>
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</tr>
</tbody>
</table>
| Mazar  | Faizaba...
APPENDIX 2

AIRPORT DATA (APRIL 2003)
# AFGHANISTAN AIRPORT INFORMATION

**SOURCE:** AFGHAN AIP (Dec 1990) AND UPDATES FROM UNJLC WEBSITE (Jan 2003)

<table>
<thead>
<tr>
<th>Airport</th>
<th>Elev</th>
<th>Rwy</th>
<th>Length</th>
<th>Rwy Width</th>
<th>Surface</th>
<th>Aircraft</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kabul</td>
<td>5,866</td>
<td>11/29</td>
<td>3,500</td>
<td>47</td>
<td>asphalt</td>
<td>B747, IL76</td>
<td>PCN61/R/B/W/T Pavement strength unlimited. Obstructions (mountains) in landing and takeoff areas severely restrict operations.</td>
</tr>
<tr>
<td>Kandahar</td>
<td>3,317</td>
<td>05/23</td>
<td>3,200</td>
<td>45</td>
<td>asphalt</td>
<td>C130, C17</td>
<td>Twy 23m wide</td>
</tr>
<tr>
<td>Jalalabad</td>
<td>1,814</td>
<td>13/31</td>
<td>2,195</td>
<td>45</td>
<td>asphalt</td>
<td>C130</td>
<td></td>
</tr>
<tr>
<td>Herat</td>
<td>3,206</td>
<td>01/19</td>
<td>2,500</td>
<td>45</td>
<td>asphalt</td>
<td>B727, IL76</td>
<td></td>
</tr>
<tr>
<td>Mazar-e Sharif</td>
<td>1,243</td>
<td>06/24</td>
<td>3,200</td>
<td>45</td>
<td>asphalt</td>
<td>C130, C17</td>
<td>Significant depression 450m from rwy 06 threshold. Parallel twy 23m wide.</td>
</tr>
<tr>
<td>Bamyan</td>
<td>8,365</td>
<td>06/24</td>
<td>2,590</td>
<td>23</td>
<td>gravel</td>
<td>C130</td>
<td>40 m graded strip width narrows to 20 m across ravine near centre. Buildings close to rwy at NW end</td>
</tr>
<tr>
<td>Faizabad</td>
<td>3,872</td>
<td>18/36</td>
<td>2,000</td>
<td>34</td>
<td>steel plank</td>
<td>C130</td>
<td>Caution: steel planks may be loose or damaged, beware protruding edges. Twy and apron concrete Taxiway 10m wide. No strip. No security fence</td>
</tr>
<tr>
<td>Kunduz</td>
<td>1,426</td>
<td>11/29</td>
<td>2,000</td>
<td>45</td>
<td>asphalt</td>
<td>C130</td>
<td></td>
</tr>
<tr>
<td>Maymana</td>
<td>2,690</td>
<td>14/32</td>
<td>2,000</td>
<td>24</td>
<td>gravel</td>
<td>C130</td>
<td>some large stones</td>
</tr>
<tr>
<td>Chaghcharan</td>
<td>7,383</td>
<td>07/25</td>
<td>1,950</td>
<td>21</td>
<td>gravel</td>
<td>C130</td>
<td>35 m graded strip width. Rwy is soft after rain. Caution: a/p is ringed by minefields</td>
</tr>
<tr>
<td>Farah</td>
<td>2,208</td>
<td></td>
<td>2,600</td>
<td>30</td>
<td>nat surf</td>
<td></td>
<td>Unuseable?</td>
</tr>
<tr>
<td>Ghazni</td>
<td>7,149</td>
<td></td>
<td></td>
<td>21</td>
<td>asphalt</td>
<td></td>
<td>Unuseable</td>
</tr>
</tbody>
</table>
# AFGHANISTAN AIRPORT INFORMATION

**Source:** AFGHAN AIP (Dec 1990) AND UPDATES FROM UNJLC WEBSITE (Jan 2003)

<table>
<thead>
<tr>
<th>Airport</th>
<th>Elev</th>
<th>Rwy</th>
<th>Length</th>
<th>Rwy Width</th>
<th>Surface</th>
<th>Aircraft</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lal</td>
<td>9,369</td>
<td>700</td>
<td>27</td>
<td>nat surf</td>
<td></td>
<td></td>
<td>Being extended to 1,400 m</td>
</tr>
<tr>
<td>Mukur</td>
<td>6,600</td>
<td>1,835</td>
<td>24</td>
<td>nat surf</td>
<td></td>
<td></td>
<td>unusable</td>
</tr>
<tr>
<td>Quala-i-Naw</td>
<td>2,998</td>
<td>04/22</td>
<td>2,100</td>
<td>#D/V/O!</td>
<td>gravel</td>
<td>Beech</td>
<td>1,800 useable. No apron. Beware UXO &gt;15m either side of rwy. 40 m graded strip width?</td>
</tr>
<tr>
<td>Sherberghan</td>
<td>1,053</td>
<td>2,600</td>
<td>24</td>
<td>asphalt</td>
<td></td>
<td>C130</td>
<td></td>
</tr>
<tr>
<td>Shindand</td>
<td>3,773</td>
<td>1,600</td>
<td>49</td>
<td>concrete</td>
<td></td>
<td>C130</td>
<td></td>
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<tr>
<td>Yakawlang</td>
<td>8,600</td>
<td>03/21</td>
<td>1,700</td>
<td>gravel</td>
<td></td>
<td>C130</td>
<td>soft after rain</td>
</tr>
<tr>
<td>Zaranj</td>
<td>1,572</td>
<td>16/34</td>
<td>2,300</td>
<td>nat surf</td>
<td></td>
<td>C130</td>
<td>soft after rain</td>
</tr>
<tr>
<td>Bost</td>
<td>2,464</td>
<td>01/19</td>
<td>2,000</td>
<td>45</td>
<td>gravel</td>
<td></td>
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<tr>
<td>Darwaz</td>
<td>5,250</td>
<td>10/28</td>
<td>700</td>
<td>30</td>
<td>nat surf</td>
<td></td>
<td></td>
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<tr>
<td>Khojaghar</td>
<td>1,608</td>
<td>10/28</td>
<td>2,400</td>
<td>40</td>
<td>gravel</td>
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<tr>
<td>Khwahan</td>
<td>3,583</td>
<td>17/35</td>
<td>700</td>
<td>30</td>
<td>nat surf</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kron Monjan</td>
<td>8,415</td>
<td>09/27</td>
<td>900</td>
<td>30</td>
<td>gravel</td>
<td></td>
<td></td>
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<tr>
<td>Tereen</td>
<td>4,429</td>
<td>11/29</td>
<td>1,550</td>
<td>40</td>
<td>nat surf</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sheghnan</td>
<td>6,700</td>
<td>15/33</td>
<td>750</td>
<td>30</td>
<td>nat surf</td>
<td></td>
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Background

The International Civil Aviation Organisation (ICAO) has developed standards and recommended practices to ensure the safety and efficiency of air transport and airport facilities. In particular, aerodrome physical standards are defined and explained in detail in ICAO document Annex 14. These standards and recommended practices have been adopted as the basis for the airport planning undertaken in this report.

Where full conformity with the relevant ICAO standard or recommended practice is not possible a note is generally made to this effect in the national Aeronautical Information Publication (AIP). Additionally, contracting States may also notify ICAO of differences from airport standards and these differences are published in a supplement to Annex 14. In some cases, it may be necessary for the controlling authority, i.e. MCAT, to issue an operational concession to the aircraft operator in order to formalise and control operations at aerodromes where facilities do not meet ICAO standards. The concession document will define any conditions that are placed on the operation either for safety or other reasons, for example, where takeoff weight may have to be limited.

Brief Overview of the ICAO System

ICAO uses a category system to classify aerodromes and aircraft types which provides a simple method of interrelating the numerous specifications concerning the characteristics of aerodromes so as to define minimum facility standards that are suitable for the aeroplanes which are intended to operate at the aerodrome. It should be noted that many of the specifications are not “hard and fast” but they nevertheless provide useful guidelines for airport planners. ICAO also publishes a number of design manuals that give additional information and practical advice for designers and engineers.

The ICAO Aerodrome Reference Code is reproduced in Table 1 and some examples of aerodrome physical standards showing how these are linked to the reference code are given in Table 2. A list of representative aircraft and their ICAO codes is given in Table 3. Study of these three tables illustrates how the standard of aerodrome facilities is related to aircraft type.

The reference code is composed of two elements, the first of which is related to the aeroplane performance characteristic (i.e. a “reference field length” for takeoff) and the second, to the wingspan or dimensions of the landing gear, whichever is the more critical. For example, a B767-300 which has a wingspan of 47.57m, an outer main gear wheel span of 9.3m, and a reference field...
length in excess of 1800 metres, is a Code 4D aircraft. Thus, if designing an airport, or certain facilities for a B767-300 as the design aircraft, runway, geometric, and other standards appropriate to Code 4D should be used. Airports designed for B747 or B777, on the other hand, should correspond to Code 4E.

Annex 14 provides comprehensive data on all physical elements of the airport, based on the aerodrome reference code. These will not be reproduced in this report but include such items as:

- width of runways, taxiways and runway and taxiway strips;
- longitudinal and transverse slopes on runways, taxiways and aprons;
- separation distances between taxiways, runways and obstacles;
- dimensions and slopes of obstacle limitation surfaces;
- runway markings and visual aids;
- airport and approach lighting systems; and
- standard of rescue and fire fighting vehicles.
Table 1. ICAO Aerodrome Reference Code

<table>
<thead>
<tr>
<th>Code number</th>
<th>Aeroplane reference field length</th>
<th>Code letter</th>
<th>Wing span</th>
<th>Outer main gear wheel span*</th>
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<tr>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
</tr>
<tr>
<td>1</td>
<td>Less than 800m</td>
<td>A</td>
<td>Up to but not including 15m</td>
<td>Up to but not including 4.5m</td>
</tr>
<tr>
<td>2</td>
<td>800m up to but not including 1,200m</td>
<td>B</td>
<td>15m up to but not including 24m</td>
<td>4.5m up to but not including 6m</td>
</tr>
<tr>
<td>3</td>
<td>1,200m up to but not including 1,800m</td>
<td>C</td>
<td>24m up to but not including 36m</td>
<td>6m up to but not including 9m</td>
</tr>
<tr>
<td>4</td>
<td>1,800m and over</td>
<td>D</td>
<td>36m up to but not including 52m</td>
<td>9m up to but not including 14m</td>
</tr>
<tr>
<td></td>
<td></td>
<td>E</td>
<td>52m up to but not including 60m</td>
<td>9m up to but not including 14m</td>
</tr>
</tbody>
</table>

* Distance between the outside edges of the main gear wheels.

Source: ICAO Annex 14
Table 2. Aerodrome Physical Standards Related To Reference Code

<table>
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<tr>
<th>Item</th>
<th>Code number</th>
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<tbody>
<tr>
<td></td>
<td>1</td>
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<tr>
<td>Width of runway</td>
<td></td>
</tr>
<tr>
<td>Code letter A</td>
<td>18m</td>
</tr>
<tr>
<td>Code letter B</td>
<td>18m</td>
</tr>
<tr>
<td>Code letter C</td>
<td>23m</td>
</tr>
<tr>
<td>Code letter D</td>
<td>--</td>
</tr>
<tr>
<td>Code letter E</td>
<td>--</td>
</tr>
<tr>
<td>Width of runway plus shoulders</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Where the code letter is D or E, the overall width of the runway and its shoulders shall be not less than 60m</td>
</tr>
<tr>
<td>Runway</td>
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</tr>
<tr>
<td>Maximum longitudinal slope</td>
<td>1.5%</td>
</tr>
<tr>
<td>Maximum effective gradient</td>
<td>2.0%</td>
</tr>
<tr>
<td>Maximum longitudinal slope change</td>
<td>2.0%</td>
</tr>
<tr>
<td>Maximum transverse slope</td>
<td>2.0% where the code letter is A or B; and 1.5% where the code letter is C, D or E</td>
</tr>
<tr>
<td>Width of runway strip</td>
<td></td>
</tr>
<tr>
<td>Precision and non-precision runway</td>
<td>150m</td>
</tr>
<tr>
<td>Non-instrument runway</td>
<td>60m</td>
</tr>
<tr>
<td>Strip</td>
<td></td>
</tr>
<tr>
<td>Maximum longitudinal slope</td>
<td>2.0%</td>
</tr>
<tr>
<td>Maximum transverse slope</td>
<td>3.0%</td>
</tr>
</tbody>
</table>

Source: Information collated from ICAO Annex 14
# Table 3. Aircraft Characteristics and ICAO Reference Codes

<table>
<thead>
<tr>
<th>Aircraft Type</th>
<th>ICAO Code</th>
<th>Wing Span (m)</th>
<th>Length (m)</th>
<th>Tail Height (m)</th>
<th>Max Takeoff Mass (tonnes)</th>
<th>Typical seating capacity</th>
</tr>
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Source: Jane’s “All the World’s Aircraft”, manufacturer’s data.
APPENDIX 4

COST ESTIMATES

Notes on Costs

1. The cost estimates exclude the cost of land acquisition, project management and design fees, allowances for cost escalation, currency fluctuations and contingency.

2. All costs are expressed in US dollars at 2003 value.

3. In the current climate, it has not been practical to determine standard rates from MPW or contractors for the proposed airport construction works. The rates adopted as the basis for cost estimates in this report are given after the cost estimates.
APPENDIX 5
AIRPORT DRAWINGS
Note:

This page is not part of the report

Appendix 4 – Cost Estimates and Appendix 5 - Airport Drawings, need to be inserted into this report. See separate files.