International Civil Aviation Organization

Thirteenth Meeting of the APANPIRG ATS/AIS/SAR Sub-Group (ATS/AIS/SAR/SG/13)

Bangkok, Thailand, 23 – 27 June 2003

Agenda Item 3: **Review and progress the tasks assigned to the ATS/AIS/SAR/SG by APANPIRG**

UPDATE ON EMARSSH

(Presented by the Secretariat)

SUMMARY

The purpose of this working paper is to summarize the work achieved during the EMARSSH Project and highlight additional tasks still required to gain the maximum benefits of the new route structure.

1. INTRODUCTION

1.1 As a result of the cooperative and successful approach taken between States concerned, IATA and the international airlines during the Y2K Contingency planning leading up to the Millennium Change-over on 31 December 1999, it was decided to use this momentum to put forward a further challenge to ATS providers and users in an area where little change to the route structure had taken place over the past three to four decades.

1.2 The Revised ATS Route Structure, Asia to the Middle East and Europe, South of the Himalayas (EMARSSH), was initiated by the ICAO Asia/Pacific Office in collaboration with the Middle East and European Offices to increase efficiencies in the provision of air traffic services on the major traffic flows in these particular areas.

2. DISCUSSION

2.1 The meeting will recall that the concept of EMARSSH was discussed and endorsed by various APAC Regional meetings held since March 2000. It should also be noted that the eleventh meeting of the Asia and Pacific Air Navigation Regional Planning and Implementation Group (APANPIRG/11, Conclusion 1/10) agreed to the project in September 2000, and an ICAO Inter-Regional Co-ordination Group Meeting comprising Regional Directors from Paris, Cairo and Bangkok plus the Chief of the Regional Affairs Office in ICAO Headquarters, further endorsed the EMARSSH Project. The APANPIRG Conclusion on the EMARSSH Project was endorsed by the Air Navigation Commission (ANC) and the ICAO Council later in 2000.

2.2 A Core Team approach was used for this project, similar to the Y2K Contingency Planning formula. Members of the Core Team came from States, ICAO and IATA with other States joining the Team as meetings moved to the MID and European regions. By using this strategy, the Core team always had members which were familiar with the area being discussed.

2.3 There were nine EMARSSH meetings between February 2001 and August 2002, which were held in Brisbane, Australia; Cairo, Egypt; Paris, France (3); India, I.R. Iran; and Bangkok, Thailand (2). Over 32 States were involved in this project which included ATS routes crossing 40 FIRs.

2.4 The Meeting is invited to note that this accomplishment took less than two years from the first EMARSSH meeting to implementation on 28 November 2002. It has been acknowledged that, taking into consideration that this project covered three ICAO regions from Australasia to the Middle East and through European States joining the ECAC routing system, EMARSSH was the largest revised route structure project ever undertaken by ICAO, States concerned, IATA and their airlines. The meeting should also note that Phase one of the project from Australasia to Southeast Asia was completed in less than twelve months, giving immediate benefits to aircraft operating on this traffic flow.

2.5 The success of the EMARSSH project was mainly attributed to the dedication and involvement of all partners who have spared no efforts in ensuring that all measures be taken in a timely manner so as to safely implement the project on 28 November 2002. The action plan called for the commitment of all States/service providers to meet the target dates, which were set for the implementation of the required facilities and services. This involved amongst other things, the improvement of communication and coordination procedures, and in addition, review and sign operational letters of agreement between all service providers concerned.

2.6 Notwithstanding that substantial benefits have been realized since implementation, further improvements in procedures and route design are required to gain the maximum effect from the EMARSSH project. The meeting is urged to continue working together to improve the route structure in accordance with the aims put forward in the EMARSSH Principles, which were agreed to by all States concerned at the commencement of the project.

Review of Operations after 28 November 2002

2.7 The following is a summary of information given to the EMARSSH Post Implementation Review meeting (EMARSSH PIRM) held in Surfers Paradise, Australia on 31 March to 2 April 2003 from States and IATA regarding the effect of the EMARSSH route structure implementation on ATS and aircraft operations since implementation:

Australia

2.8 Earlier meetings of the EMARSSH Task Force had encouraged States, where possible, to implement EMARSSH routes on a sub-regional basis earlier than 28 November 2002. Accordingly, during EMARSSH Task Force one and two meetings, Australia, Indonesia, Malaysia and Singapore examined several EMARSSH route proposals for early implementation on 29 November 2001. The early implementation of these new routes was designated EMARSSH Phase One.

2.9 It was noted that the excellent degree of cooperation between the Indonesian Civil and Military Authorities had resulted in the alignment of two new EMARSSH routes either in close proximity to, or overhead existing Military special use airspace.

2.10 Since the implementation of EMARSSH Phase One on 29 November 2001, increased route capacity has been achieved through the introduction of RVSM across the common Australia/Indonesia airspace boundary.

2.11 The EMARSSH PIRM also acknowledged the contribution made by Dr. David Anderson, Safety Analyst for Airservices Australia, for his assistance in providing a safety assessment of the EMARSSH Project.

India

2.12 The implementation of the EMARSSH routes within Indian FIRs was carried out on schedule on 28 November 2002 at 0200 UTC. The transition was smooth although slight problems were encountered during the initial phases of the implementation. The meeting was informed that the following issues still needed to be addressed:

i) weather deviation procedures (Bay of Bengal);
ii) multiple crossing points;
iii) flight planning; and
iv) proper use of Mach number technique (MNT)

2.13 On the issue of flight planning, there had been cases where changes to the filed flight plans were made by aircraft en-route, and requests had been made to divert to other routes at crossing points, thus defeating the spirit of EMARSSH parallel route scheme. The need for restricting flights to follow a single EMARSSH route, in accordance with the filed flight plan was recognized.

2.14 India advised that ADS and CPDLC facilities, fully commissioned, are now available at Chennai and Kolkata ACCs.

Indonesia

2.15 Indonesia informed the EMARSSH PIRM that EMARSSH routes were implemented in two phases within the Indonesian airspace. Phase One was implemented in conjunction with the States of Australia, Malaysia and Singapore on 29 November 2001 and RNP10 was implemented on these routes on 29 December 2001.

2.16 EMARSSH Phase Two was implemented within the western part of the Jakarta FIR (Medan Upper Sector) on 28 November 2002 and included new routes between the adjoining FIRs of Kuala Lumpur, Colombo, Chennai and Singapore. RNP10 was also implemented coincidentally with these new routes.

2.17 Since the full implementation of EMARSSH, a review had been undertaken of traffic movement data, which showed that there had been a significant increase in movements on several routes, especially on the new ATS Route P574.

2.18 As a result of this increase in traffic, Indonesia plans to further expand the implementation of RNP10 and to undertake some limited modification to the route structure between Southeast Asia and Australia, to enhance route capacity and reduce Controller workload

Malaysia

2.19 The PIRM was advised that initially ground delays post EMARSSH implementation were quite significant and, in some cases, greater than pre-EMARSSH because the LOAs required spacing additional to basic MNT. However the LOAs now reflect basic MNT procedures thus minimizing ground delays. Radar hand-off procedures with Bangkok FIR have also been amended to allow minimum spacing for westbound aircraft that will diverge after Phuket.

Nepal

2.20 Nepal had proposed additional routes through the Katmandu FIR to enhance the east/west route structure at the Asia/Pacific Regional Air Navigation (RAN) meeting held in Bangkok in 1993. Unfortunately, despite further adjustments to the original proposal, there has not as yet been agreement by other States affected by these new routes. At the EMARSSH Task Force meetings held prior to implementation, Nepal offered further refinements to their proposals, which had the support of IATA. There was however an issue with these proposed routes transiting through military airspace of adjacent States, which still requires further civil/military consultations. Nevertheless, as both of these proposed routes are seen as benefits, the PIRM agreed that the issue will be further discussed at subsequent meetings in an endeavour to open the routes for international operations. The concerned routes are commonly known as BB17 and BB18.

Pakistan

2.21 The establishment of additional ATS routes has given more flexibility to the management of international aircraft transiting through Pakistan both via I.R. Iran and Afghanistan. It was recognized that further improvements can be achieved to the revised structure but would need further consultation with adjacent States as well as military authorities. These proposals included Himalaya 1, Pakistan 1, Pakistan 7 and restructuring of A466.

2.22 Preparations for implementation of RVSM on 27 November 2003 are in progress. The aircraft approval process has commenced by the national airline and other operators as well as appropriate training of air traffic controllers. As Afghanistan, Tajikistan and China will not be part of the RVSM implementation process planned for 27 November 2003, Pakistan will need to transition aircraft to and from the three mentioned States.

Singapore

2.23 Singapore advised that initially, operational gains in the EMARSSH route structure had not materialised as expected due to some States applying restrictions as follows:

a) instead of basic MNT, as described in Doc 9426, a minimum of 14 minutes spacing between departures without closing speeds had been applied; and

b) the requirement for flights that diverge onto separate routes downstream from the Singapore FIR to be spaced by at least 5 minutes.

2.24 An additional problem was the bunching of flights on specific routes, which further complicated the situation by flights operating at mach numbers ranging from M 0.81 to M 0.86.

2.25 Notwithstanding the above, since 26 February 2003, it was encouraging to note that States concerned had commenced applying correct MNT spacing between flights on the same route. In addition, instead of 5 minutes spacing, radar separation, either longitudinal or lateral, is now being applied between westbound flights that will diverge onto separate routes after Phuket.

2.26 The meeting should note that the westbound delays could be further reduced if:

a) flights are distributed across the available routes over the Bay of Bengal;

b) one route could be set aside for flights that agree to operate at a common mach number, say M 0.84; and

c) airlines spread out their departure times.

2.27 It should also be noted that the Civil Aviation Authority of Singapore actively encouraged airlines to spread out their flights using a variety of operational routings by faxing out routing details of westbound flights by 9 pm (1300 UTC) each day to all the airlines.

Thailand

2.28 Thailand requested the meeting to consider revising the lowest useable level for the route structure to FL260. During peak traffic periods some flights preferred to depart at FL260, even though this flight level was below controlled airspace, so as to avoid being delayed on the ground for FL280. It was mentioned that, when RVSM is implemented on 27 November 2003, it is likely to apply between FL290 and FL410. The meeting was advised that the question on RVSM levels over the Bay of Bengal is still being considered by the RVSM Task Force.

2.29 Some Europe-bound flights chose to operate on ATS route B463, thus by-passing other Europe-bound traffic on R468, P646/N895, L507 and G473 out of South East Asia. In this regard, Thailand and Myanmar were considering the issuance of a NOTAM restricting Europe-bound flights using B463 to FL240 or below and FL350 or above between 1400 and 1900 UTC daily.

IATA

2.30 IATA advised the meeting that EMARSSH was a major step forward in air traffic services with the implementation of RNAV and RNP-10 routes. In addition, EMARSSH is a success story of civil/military cooperation with the dynamic sharing of airspace by allowing night-time or a high altitude shelf for civil operations. States are to be commended for their successful negotiations with their military counterparts.

2.31 However, not all of the planned EMARSSH Phase II programme, as originally agreed by States, has been implemented. Therefore, instead of 4 independent Asia – Europe flows across the northern half of the Bay of Bengal and through India, Pakistan and Afghanistan, there are still the same two independent flows (via TIGER or SAMAR at the India/Pakistan FIR boundary) that existed prior to EMARSSH. Unfortunately the favourable options of routes that could have allowed a more even distribution of traffic loads that was envisaged, did not occur due to all northern traffic flows having to route over the existing two bottlenecks.

Need for additional independent flows between Asia – Europe

2.32 The meeting was advised that airline needs for traffic flows can best be explained by the example of Afghanistan and Iran. Depending on operational requirements such as seasonal upper wind patterns, loading and destination, airlines from SIN/KUL/BKK have requirements to fly either through the Russian Federation sovereign airspace via Afghanistan, the Caspian Sea via Afghanistan, or via Turkey or the Black Sea through the I.R. of Iran. Flights across the Caspian and Black Seas have the highest demand. With the reduced vertical capacity in Afghanistan, traffic already exceeds capacity and is this is likely to increase. Consequently, there is a significant need for three independent flows flying across India, Pakistan and Afghanistan to the Caspian and Black Sea to cater for departures from Bangkok, Kuala Lumpur, Singapore, Delhi and Mumbai.

2.33 The most preferred solution is to provide a route between ASOPO (northern end of P628) and Rahim Yar Khan (RK) and from RK to Kandahar (KN). In order to reduce the congestion of traffic over-flying Delhi, there is a critical need to lower the minimum en-route altitude (MEA) on L333 from FL310 to FL280, which would allow two levels on this route westbound during the night-time rush period. The present lowest available westbound level of FL310 on L333 has resulted in aircraft at FL280, who have been unable to climb to FL310 due to conflictions, being rerouted via Delhi, which forced the aircraft to fly an additional 63 NM as well as adding to the traffic congestion

at Delhi. To add to this penalty, such reroutes have sometimes resulted in the flight no longer having a FL310 slot into Afghanistan to reroute via G452 through I. R. Iran and on occasions to land at an intermediate airport to refuel.

2.34 The meeting was also advised that flights across Iran face a bottleneck at Zahedan. There needs to be an option that provides an additional corner-cutting route north of Zahedan.

Air-Ground Communications

2.35 There are still some significant deficiencies in air-ground communications in Myanmar, India and Afghanistan. IATA recently performed an air-ground communication survey over the Bay of Bengal and India and concluded that HF and some of the VHF air-ground communication required serious attention. In addition to HF, there is a significant capability by Bay of Bengal States and airlines in the use of CPDLC.

Traffic management for flights transiting the Kabul FIR Westbound

2.36 IATA expressed the view that there were two options that had to be addressed with regard to the westbound traffic flows across the Bay of Bengal and into Afghanistan. These were

a) the need for an air traffic flow management (ATFM) centre. Such a centre would require concerned States to coordinate all planned and actual departures to Europe; and

b) that some States do not want to coordinate departures and therefore desire a static procedure that would be under their control alone and not require any pre-coordination phone calls.

2.37 IATA advised the meeting that the issues that concerned its member airlines are as follows:

a) the need for a procedure that guarantees a departing aircraft a slot through Afghanistan. Re-routes assigned to flights that are already en route are very costly to airlines and usually results in an unplanned stop to take on additional fuel;

b) a procedure that maximises the frequency of departures without regard to potential enroute bottlenecks would defeat any benefit that may be gained from the reduction in ground delays;

c) airlines are willing to assist with the management of air traffic and are for the most part willing to participate in restricting a single track to M 0.84. However, this would only be for FL280 and 310 and should include the ability to flight plan on adjacent track without such speed restriction;

d) opportunities for overflights in Afghanistan must be fair and equitable. This would include addressing departures from Singapore, Kuala Lumpur, Hong Kong, Bangkok, Phuket, Delhi and Mumbai that flight plan over Afghanistan; and

e) airlines urgently need FL280 for Afghanistan operations during the westbound rush. Even a small window, such as from 2000-2400 UTC, would provide major relief to the existing capacity of Afghanistan;

2.38 Taking note of discussions mentioned of the above regarding independent traffic flows through Afghanistan to the Caspian and Black Sea, three tracks are now available with the implementation of N644, L750 and B466/V390 in Afghanistan. IATA expressed the view that a rational plan must be implemented, which will allow ATC to issue departure clearances that will guarantee access onto these three routes. Such a plan could either be a tactical air traffic flow management plan or involve a traffic orientation scheme (TOS) to be used during peak hours. A TOS for Afghanistan would need to consider the following:

a) **N644**
N644 is the northernmost track in Afghanistan that caters to traffic to the Black Sea. Traffic destined to N644 must route over Delhi A466 DI. Being the northernmost track, it would support Bangkok departures (or flights that over-fly Bangkok);

b) **L750**
L750 is the middle track through Afghanistan to the Caspian and Black Seas. This track caters primarily to departures from Singapore and Kuala Lumpur;

c) **V390**
V390 was implemented in March 2003. Although it is too early to predict the traffic loads or demand for V390, it will be an attractive route for departures out of Mumbai. It is also likely that this route could be a favoured seasonal route for departures out of Singapore and Kuala Lumpur. Nevertheless, Mumbai departures should be given priority access to this route and a procedure developed to allow SIN/KUL departures to fill the additional slots; and

d) **Delhi Departures**
Departures out of Delhi face several difficulties. First of all, Delhi departures are the last to depart and many times usable levels have already been taken by departures from Singapore, Kuala Lumpur or Bangkok. In addition, the non-availability of FL280 in Afghanistan has prompted ATC to place requirements on Delhi departing aircraft to reach FL310 by waypoints that cannot be achieved, such as BUTOP (100NM from Delhi). However, the MEA of A466 is FL280 until Dera Ismail Khan – an additional 335 NM beyond BUTOP. Some airlines have given up on flight planning A466 and file G452 instead just to get airborne and save excessive ground delays, even though routing via G452 and I.R. Iran adds an additional 10-15 minutes to their flight time.. However they then frequently request a reroute to either L750 or B466/V390 while on their way to TIGER in an endeavour to reduce this additional flight time through Iran. This works in that the departures are now more on time and if a L750 reroute is successful, then there is a 10-15 minute savings in flight time to destination. A more efficient procedure needs to be put in place to overcome these route change requests.

Flights into Russia

2.39 IATA reiterated that flights into Kazakhstan and Russia need to fly over Delhi A466 to Afghanistan. A466 tracks over Dera Ismail Khan (DI), which is also the anchor point for the heavily travelled N644. Although A466 and N644 both fly over DI, the westbound degree divergence of 22 degrees facilitating the application of procedural air traffic control and flow management. There would be capacity on A466 to accommodate the flows to N644 and A466 if both India and Pakistan permits aircraft to fly at the MEA of FL280.

Other Issues

2.40 The PIRM welcomed the initiatives by IATA in an attempt to solve the problems for aircraft transiting the Kabul FIR westbound, however, there appeared to be one issue, which had not been adequately addressed. This issue is the question of under utilization of available westbound levels through the Kabul FIR.

2.41 The meeting recalled that FL310/350/390 were the only levels available on 5 of 6 routes through the Kabul FIR for westbound flights. These routes were B466, V390, L750, N644 and A466. M881 is only available at FL280 westbound. The majority of aircraft are departing Malaysian Peninsular ports with maximum weights which limit their climb to either FL280 or FL310.

2.42 In order for aircraft flying at FL280 to gain access to FL310 through the Kabul FIR on the five routes available, there needs to be an airline flight management process whereby aircraft operating at FL310, which restrict the climb of aircraft operating at FL280, must have the ability to climb to FL350 by the India/Pakistan border. If this does not occur, the chances are that the aircraft at FL280 will be unable to proceed via Afghanistan and would be required to re-route via I.R. Iran.

2.43 IATA was requested to study this procedure, taking into account aircraft types and payloads so that FL310 and FL350 could be utilized on the most popular routes through Afghanistan.

IFATCA

2.44 IFATCA advised that there should be a critical examination of the specific problem areas, e.g. the Delhi chokepoint and the Afghanistan airspace. If these cannot be solved directly (by new routes or altitudes), then there would be a need to look further back along the routes, perhaps even as far as the departure points. It may well be that there is, or will be, a need for some form of strategic traffic management, e.g. a tactical flow management centre or a traffic orientation scheme.

2.45 They also expressed the view that concerned parties should use all available resources to assist the traffic. In this regard, IFATCA would not be in favour of isolating V390 for Delhi/Mumbai traffic but recommended that it should be kept available for other traffic flows as well. In this area, IFATCA generally supports the IATA views on traffic handling, that is sharing this route with other aircraft. If controllers were given clear direction and adequate tools, the traffic can be managed.

2.46 IFATCA would like to see an overall plan for traffic management in this area and supports the creation of a flow management plan and is more than willing to assist in the development of the same.

SITA

2.47 SITA advised that, over the next twelve months, SITA plans to provide additional services in support of aircraft operating on EMARSSH routes through the installation of VHF ground stations as follows:

a) Port Blair (IXZ), Andaman Islands, 11 39N 92 45E, frequency 131.550 MHz; and

b) Trivandrum (TRV), India, 08 28N 76 55E, frequency 131.725 MHz.

2.48 SITA's Enhanced Ground to Air Voice Service supports ground to air Satellite voice communications for ATS Providers to INMARSAT priority Q12. This new service had recently been tested with South African Airways and other Operators.

Jeppesen

2.49 Jeppesen gave a detailed report on AIS issues relating to EMARSSH implementation. In presenting its report, Jeppesen acknowledged the pro-active involvement of the ICAO Asia/Pacific Regional Office and commended the CAA of Singapore for its assistance in the calculation and compilation of data associated with the EMARSSH route structure.

2.50 In completing a review of AIS issues relating to EMARSSH implementation, Jeppesen reminded the meeting that the dissemination of AIP documents in advance of an intended effective date and in adherence to the pre-determined AIRAC schedule was very important to the aviation industry.

2.51 The meeting recalled previous advice from Jeppesen in relation to operators using automated navigation systems that are dependent on databases for navigation. Jeppesen emphasized the difficulties that can arise when a recipient does not receive data according to the AIRAC concept, especially where new or changed information cannot be applied to navigation databases for the intended effective dates. This can result in pilots, airlines, flight planners and simulator operators using out-dated information when the ATS Provider is expecting operators to have current information.

2.52 In relation to major changes, Jeppesen reminded the meeting that ICAO recommends a publication date of at least 56 days in advance of the effective date. Allowing 14 days shipping time, recipients may not receive the data until approximately 42 days in advance of the effective date. According to Jeppesen, and based on experience gained through previous major changes (e.g. South China Sea route restructure), this is not sufficient time for the components of industry to manage all major changes especially those involving several States or FIRs such as the EMARSSH project.

2.53 Jeppesen strongly recommends that wherever possible, the AIRAC publication schedule for major changes should be moved from the current 56 days to 84 days with the objective of reaching recipients 70 days in advance of an effective date, rather than the current 42 days.

2.54 The meeting was also urged to consider the merits of distributing advance notification of AIS data associated with major changes, by means of e-mail or website notification in addition to the regular means of notification.

3. SUMMARY

3.1 It was unfortunate that the attendance at the PIRM was affected by two events; the imminent start of the Iraqi conflict and the Severe Acute Respiratory Syndrome (SARS) issue in Southeast Asia. Because of these events, attendance from Middle East States was low and the IATA Asia/Pacific Office was not able to attend, although several international airlines were present.

3.2 The meeting however was very successful in that many issues, which had an adverse affect on the EMARSSH route structure were highlighted. These have been summarized in brief above. Action Agreed Items were developed which are included at Appendix A to this working paper. The meeting should note that many of the agreed tasks are overdue and require finalization before air services return to normal.

3.3 Since this PIRM meeting took place, both events mentioned above, especially SARS has had serious consequences to the aviation industry in the Asia Region. As a result, the deficiencies mentioned at the PIRM have had less effect on aircraft operations because of the minimal amount of aircraft flying the new EMARSSH structure, especially in regard to the normal westbound traffic from Malaysian Peninsular Ports in the late evenings each day. It would therefore seem prudent to take the

opportunity of the ATS/AIS/SAR/SG13 meeting to revisit the discussions of the PIRM in an endeavour to arrive at satisfactory conclusions on these issues.

4. ACTION BY THE MEETING

4.1 The meeting should note that there is still substantial work to be completed in order to gain the operational benefits, which were stated in the Principles of EMARSSH and followed-up on during the nine EMARSSH meetings prior to implementation.

4.2 The meeting is therefore invited to form a special working group of ATS/AIS/SAR//SG/13 to address and move forward on this summary of issues mentioned in the working paper and further amplified in the Final Report of the EMARSSH PIRM meeting.

PROPOSED CHANGES TO CURRENT ROUTE STRUCTURE – TASKS ASSIGNED

	ACTION ITEM	TIME FRAME	RESPONSIBLE PARTY	REMARKS
1.	Review the route description of L333 to include FL280	4 Weeks	India	Report to ATS/AIS/SAR SG
2.	(Add new words re India) Establishing ~~Establish~~ a new route linking ASOPO to RK	4 Weeks	India and Pakistan	Report to ATS/AIS/SAR SG
3.	Create a procedure whereby a fixed mach number requirement is applied on a route	4 Weeks	All concerned States, ICAO and IATA	Report to ATS/AIS/SAR SG
4.	The development of a westbound flow management plan	2 Months	All concerned States, ICAO, IFATCA, IFALPA, IATA and ATS/AIS/SAR SG	Report to ATS/AIS/SAR SG
5.	Pursue additional flight levels in Kabul FIR	4 months	ICAO	Report to ATS/AIS/SAR SG
6.	Investigate the capability of some flights climbing to FL350 before Kabul FIR	4 months	IATA and airlines	Report to ATS/AIS/SAR SG
7.	Pursuit of consistent application of proper MNT	2 months	All concerned States	Emphasis on the faster in back application To provide updates to the ATS/AIS/SAR SG
~~7.~~8.	Follow-up implementation of BB17 and BB18 with States concerned	4 months	All concerned States	Two additional EMARSSH proposed routes which need further examination