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FORTY-THIRD SESSION

WEU and the use of satellite resources in major hazard prevention and management

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REPORT

submitted on behalf of the Technological and Aerospace Committee
by Mr Le Grand, Rapporteur

ASSEMBLY OF WESTERN EUROPEAN UNION
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[1] Adopted unanimously by the Committee.

[2] Members of the Committee: Mr *Marshall* (Chairman); MM *Lenzer, Atkinson* (Vice-Chairmen); Mrs *Aguiar*, Mr *Arnau*, Mrs Blunck, Mrs Bribosia-Picard, Mr Cherribi, Sir John Cope (Alternate Sir *Dudley Smith*), Mr Cunliffe (Alternate *Alexander*), Mr *Diana*, Mrs Durrieu, Mr Feldmann, Mrs *Gelderblom-Lankhout*, MM Jeambrun, *Le Grand*, Litherland, López Henares (Alternate *Díaz de Mera*), MM *Lorenzi, Luís, Martelli*, Olivo (Alternate *Lauricella*), MM Polydoras, Probst, Ramírez Pery, *Staes, Theis*, Valleix, Mrs *Zissi*.

Associate members: MM *Kiratlioglu, Dinçer, Yürür*.

Note: *The names of those taking part in the vote are printed in italics.*

Draft Recommendation

on WEU and the use of satellite resources in major hazard prevention and management

The Assembly,

(i) Having regard to the need to meet the challenge posed by naturally occurring and technological major hazards, with regard both to their prevention and management;

(ii) Taking account of the fact that such risks may directly affect the lives of the populations concerned, cause damage to the environment and entail economic costs conditioned by the severity of their impact geographically or over time;

(iii) Noting that such hazards may have a direct or indirect effect on security and may also influence defence-related matters;

(iv) Taking into consideration the efforts at European level to find solutions that contribute to the prevention and management of such risks,

(v) Stressing that the aim of such efforts is to stimulate cooperation over the use of all the available resources to ensure efficient, collective management of major hazards;

(vi) Noting that a prospective study has been completed on the use of space technologies in managing such risks, thus demonstrating that while a space-based solution is not the only one available, it is nevertheless of major importance in terms of earth observation, navigation, telecommunications and in data-gathering and transmission;

(vii) Recalling that environmental monitoring is one of the tasks assigned to the WEU Satellite Centre which has already carried out a number of investigations in this field of application,

(viii) Highlighting the need to look for synergy between the civilian and military sectors to avoid fragmentation and duplication of effort and consistently ensure increased efficiency and stringency in the use of public funds,

RECOMMENDS THAT THE COUNCIL

1. Task the Space Group to carry out a study on the possibility, feasibility and appropriateness of our Organisation assisting in work being carried out at European level to arrive at appropriate solutions for the prevention and management of major hazards through the use of space technologies;

2. Ensure that such a study can avail itself, as necessary, of the services of the WEU Satellite Centre with a view to developing a space-based response to these types of risk;

3. Inform the public at large about the results of this study and the research carried out by the Satellite Centre in relation to environmental monitoring, as an area constituting an integral part of a global security concept.

Explanatory Memorandum

(submitted by Mr Le Grand, Rapporteur)

I. Introduction

1. During a recent Technological and Aerospace Committee visit to the WEU Satellite Centre (WEUSC) at Torrejón, Madrid, on 5 March last, the Centre's Director, Mr Mollard, reminded those attending of the tasks it carried out with a view to achieving the aims for which it was created.

2. Those tasks are firstly to supply WEU with image-interpretation data obtained by space and aerial means. This task itself subdivides into *(i)* general monitoring of the following security domains. *(a)* areas of interest to WEU, under a mandate from the Council defining the terms of the monitoring task, *(b)* assisting with monitoring treaty compliance and *(c)* assisting with armaments and proliferation control; *(ii)* supporting Petersberg-type missions and *(iii)* more specialised monitoring tasks (marine and environmental monitoring). Secondly the Centre is involved in training a team of WEU, and, resources permitting, national image interpreters Thirdly it develops techniques and procedures to optimise its output. Lastly it supplies interpretation data to observers and associate partners.

3 Environmental monitoring must, needless to say, be understood as a further way of contributing to stability and hence to international security, since the risks or threats to the environment clearly, in the majority of cases, have a direct or indirect effect on security and can consequently affect defence-related matters.

4. Moreover in view of the fact that satellite resources used for security and defence purposes can also and increasingly be used for what might be termed civilian applications, it is reasonable to seek to achieve synergy in so far as those applications may be relevant to security and defence, as in the case of major hazard prevention and management, which is the subject of the present report.

5. That synergy is the more necessary in view of the fact that the situation we find ourselves in at present is one where our countries' financial outgoings and the demands placed on their budgets call increasingly for tighter management of public expenditure and hence for better use to be made of available means and resources

6 In the present report we propose to consider what WEU's contribution and that of its Satellite Centre might be to the efforts being made by the various institutions and organisations in Europe with a view to carrying out major hazard prevention and management tasks and demonstrating to the public at large in Europe that our Organisation, which regards the environment as an important factor in the overall security concept, can contribute to preventing major hazards likely to be a threat to the environment and therefore to security

II. Major hazards

7 Major hazards can be divided into naturally-occurring and technological hazards The first are those occurring in nature earthquakes, volcanic eruptions, floods, cyclones, hurricanes and forest fires when triggered by natural causes, for example lightning

8 Besides occurring naturally, such risks are characterised principally by their frequently unforeseen occurrence and their intensity Although science can help us respond to some of their effects, their inherent unpredictability has, at least until now, made it impossible to deal with them in a fully effective manner.

9. Technological hazards arise as a result of economic or social progress. Many of the disasters Europe has experienced in recent years serve to illustrate the nature of such hazards better than any other explanation could: for example those that devastated Seveso in Italy in 1976 or Chernobyl in Ukraine in 1986

10 Some commentators have identified a third category of major hazards, known as mixed hazards, which arise as a result of human action likely to aggravate the consequences of hazards that occur naturally – in other words through convergence of technological and natural hazards.

11 An example of a mixed hazard might be a change in the course of a river leading to an increased risk of flooding, the floods that devastated Germany and the Low Countries in 1995 being a case in point

12 Statistics over the last 20 years reveal a spectacular increase in both naturally occurring and technological major hazards, a factor which led the United Nations to launch the International Decade for Natural Disaster Reduction (IDNDR) in 1989

13. The 1989 Tokyo Declaration gave an impetus to work in this area with the foundation of a United Nations Special Commission and a Geneva-based Secretariat and the establishment of national committees. The Conference held in Yokohama in 1995 and the Declaration issued at its close laid the foundation for a series of actions and initiatives which are to continue into the next century

14 A study will be made in the next chapter of the solutions put forward and undertakings realised by European institutions and organisations with responsibility for such issues.

III. Major hazard assessment at European level

15 In March 1987, the Committee of Ministers of the Council of Europe adopted Resolution (87) 2 establishing an intergovernmental Open Partial Agreement, the main aim of which was to reinforce cooperation between member states in a multi-disciplinary context to ensure better prevention, protection and organisation of relief in the event of major natural or technological disasters

16 This Open Partial Agreement, the "EUR-OPA Major Hazards Agreement", covers the Mediterranean region and has been subscribed by 21 member states Albania, Algeria, Armenia, Azerbaijan, Belgium, Bulgaria, France, Georgia, Greece, Israel, Italy, Luxembourg, Malta, Monaco, Morocco, the Former Yugoslav Republic of Macedonia, Portugal, Russia, San Marino, Spain and Turkey Japan has observer status.

17 The European Commission, UNESCO, WHO and the United Nations Department of Humanitarian Affairs also participate in the Agreement

18 The main aim of the Agreement is to promote cooperation between member states by calling upon present-day resources and knowledge to ensure efficient and interdependent management of major hazards

19 The Agreement is referred to as "Open and Partial" because any member or non-member state of the Council of Europe may accede to it

20 Three levels of action are specified in the Agreement.

(a) the political level consisting of ministerial meetings and of the Committee of Permanent Correspondents which determine cooperation policy in accordance with the objectives of the Agreement;

(b) the scientific and technical level with the European Early Warning System, the European Advisory Evaluation Committee for Earthquake Prediction and the Network of Specialised European Centres One of the main thrusts of the Agreement is to foster the creation of European centres in order to develop the direct interest and participation of member states,

(c) special programmes of a different order compared with the activities of the first two levels in that they call upon voluntary financial contributions. Examples are a prospective study on the use of space technology to assist risk management; the FORM-OSE training programme and a project on "communication and risks" – the Image and Media project

21 With regard to the prospective study on the use of space technology to assist risk management, in which our Committee is particularly interested, in May 1994 the Executive Secretariat for the EUR-OPA Major Hazards Agreement requested the European Space Agency to undertake a study, in coordination with the European Commission on the use of space technology for major hazards prevention and the management of relief operations.

22. In October 1994 in Brussels, the Ministers of the EUR-OPA Major Hazards Agreement unanimously adopted a resolution based on the conclusions of this study in which the Ministers, in view of the importance they attached to the potential contributions space technologies could

make to hazard management, decided to continue with the prospective study in the areas of earth observation, navigation, telecommunications and data collection and transmission

23 As a follow-up to the resolution, a series of actions were agreed on for 1995: continuation of the prospective study, formation of a steering committee and preparation of a report to be presented to the meeting of the Ministers of the EUR-OPA Major Hazards Agreement in 1996.

24. The study on the use of space technology for major hazards management consists of four phases

(a) identification of requirements for major hazard management;

(b) drawing up an inventory of the relevant satellite technology, existing or under development in the European continent, within the framework of an internal study carried out by ESA,

(c) comparison of the needs identified in the first phase as against the available resources examined in the second. This phase should also include an assessment of the possible contribution and upgrading of a space-based system using existing resources It also involves an optimisation study on user needs, operational constraints, particularly as regards data merging and integration and analysis costs. In addition, the third phase is intended to seek out innovative solutions to meet needs that are still unsatisfied, to assess the cost of building additional space and ground components and of operating the system and lastly, to make recommendations regarding a realistic operational and institutional scenario,

(d) evaluation of the advantages of the space system and corresponding ground facilities, defined in the third phase, in terms of civil protection criteria and definition of an arrangement for sharing costs with other system users

25 The Ministers' decision to create a Steering Committee has already been implemented. The Committee is chaired jointly by the European Commission and ESA and is tasked with monitoring the study described above

26 It is made up of representatives of the following bodies: the Executive Secretariat of the EUR-OPA Major Hazards Agreement, the European Commission (Space Unit of DG XII and Secretariat-General) the civil protection services of Belgium, France, Italy, Morocco, Russia and Spain, the German Space Agency (DARA), the CNES (French National Centre for Space Studies), the Russian Space Agency (RKA) and ESA.

27 The Steering Committee will ensure that the study gives first priority to the stated needs of the ministries with responsibility for environment and civil protection rather than the possibilities offered by space technologies

28. The conclusions of phases 1 and 2 of the ESA study were presented in Frascati (Italy) in November 1995 and those of phases 3 and 4 in Ispra (also in Italy) in July 1996

29. The first phase of the study contains a passage which we feel to be of particular, indeed of fundamental importance, regarding satellite system user requirements These requirements have been broken down according to the three risk phases – prevention, crisis and post-crisis – considered in the study.

30 The prevention phase relates to preparedness and knowledge improvement, the crisis phase to monitoring and the post-crisis phase to damage assessment and rehabilitation

31. The potential user communities addressed in the study are civil protection organisations – primarily concerned with the warning and crisis phases – government authorities and collaborating scientific institutes involved in the prevention and post-crisis phases, for example: environment ministries, dedicated government agencies and European institutions involved in risk management and, lastly, insurance companies for damage assessment.

32 The user communities need reliable, timely information for risk management purposes The ESA study shows that in use of space technologies can efficiently complement other sources of information. Five space technologies were examined in this connection: meteorology, data collection and localisation, navigation, telecommunications and earth observation from space (optical imagery and radar)

33. The study points out that the first four of these technologies already have fully operational space systems and are meeting user requirements Such systems are to be found in Europe, including in Russia. Planned space systems will bring an improvement in system performances and will reduce operational costs

34 According to the study, existing earth observation systems are still in an exploratory pre-operational phase, at the research stage even, in the case of some technical areas It also notes that applications in the area of risk management still have to be developed through a better knowledge of user needs, easier access to data and lower-cost space images

35 The study divides into categories the various information needs expressed by the different user communities during the first phase of the ESA study programme The first task was to build upon those requirements and translate them into technical characteristics (parameters) which can be easily compared with existing or planned space system capabilities

36 The user needs identified can be summarised as follows:

> *(a)* during the first, knowledge improvement and prevention phase use of simulation models, risk area cartography and vulnerability maps, routine monitoring and weather forecasts,
>
> *(b)* in the warning and crisis phase. alert (i e. more frequent) monitoring, cartography of damage, disaster simulation models using real data and their comparison with prevention models, resource management and rescue, and high-quality weather forecasts,
>
> *(c)* post-crisis damage assessment and feedback of disaster data into existing models

37 A study dated 26 September 1986 carried out by a consortium led by Nuova Telespazio defined user needs in relation to each type of incident taken into account. Thus for example priority information needs in the case of forest fires included improvement of routine risk monitoring, cartography of exposed areas, reinforcement of communication during the crisis, vulnerability data availability, aggravating weather monitoring during the crisis (wind), location of the means and damage assessment

38. In specific technological hazard circumstances, such as for example a radiation threat, high-level user information needs were for meteorology monitoring for radionuclides dispersion assessment, resources for monitoring water pollution, communications necessary for accident monitoring, means of identifying potentially polluted water resources, cartography of the exposed area and monitoring the extent of soil pollution

39. Paragraph 36 notes that user needs were translated into technical characteristics or parameters which can be compared with existing or planned space system capabilities 54 different technical characteristics were identified as matching those needs and various space technologies were able to supply them.

40 Compliance analyses between these parameters and user needs were performed using a database specially set up for the purpose. The analyses were performed on several levels, the first consisting in comparing the different parameters which have to be measured within the various information needs against the capabilities of the different sensors to measure those parameters.

41 On the second level, technical feasibility was investigated using technical requirements (spatial and temporal resolutions and positioning accuracy), while on the third level operational feasibility was investigated, taking into account delivery periods and the availability of space products and services

42 Among the 54 retained parameters, 30 are in the field of earth observation, 6 in that of meteorology, 13 require data-gathering space systems, 1 can be obtained from navigations satellite systems, 2 from space tracking systems and a further 2 through use of telecommunication satellite systems.

43. Lastly, 37 of them can be obtained with current space technologies. 2 will benefit from future space missions while 15 parameters cannot be met at all though current or planned European technologies.

44 The study was conducted by ESA in cooperation with the European Commission, with the EUROPA Major Hazards Agreement of the

Council of Europe and the Russian authorities and was approved by the group of experts on the use of space technologies for hazard management which is seeking to identify a common development orientation at European level. The experts, who attended a workshop at the Joint Research Centre at Ispra on 1-2 July 1996, concluded their meeting by welcoming the research carried out and pointing to the need to create a European space-based information system on major hazards within a framework of close European cooperation

45. The group of experts were of the view that the system should guarantee end users reliable and timely information for risk management purposes, inform those with responsibility for such management of the possibilities offered by space-based earth observation, telecommunications, navigation, tracking and data-gathering systems. It should also provide training opportunities for those involved

46 Moreover, through synergy between the various actors, this European space-based information system should facilitate the collection and transfer of space data, the processing thereof and the production of information able to assist decision-making The system should make a contribution to strengthening existing hazard prevention policies and to improving management of emergencies by making it easier to assess damages. It should also, through the use of telecommunications and tracking functions, contribute to the analysis of post-crisis situations and the development of the necessary rehabilitation measures.

47 Regarding the conclusions reached in the first phase of the study, it should be noted, as a paper produced Tractebel Consult with the collaboration of Geste points out, that firstly all countries wish their situation to be improved, irrespective of their level of technological development. There is furthermore marked agreement as to information needs expressed by the various countries. It would also appear to be of major importance that all new data should be transmitted to those operationally responsible in each country in an appropriate format adapted to their needs and chain of command

48. It was emphasised too that any efficient major risk management system should incorporate new or improved technological achievements and must necessarily be linked to population training and information, adapted risk management organisation, the availability of expert teams in the technical and scientific fields involved and systematic feedback analysis

49 One further and essential consideration must be added to all the others referred to – the economic factor. Clearly the most serious consequence of a major disaster is loss of human life, which must be avoided at all costs, but there will sooner or later be some form of economic fall-out affecting the socio-economic balance in the disaster area, or possibly of the entire planet, depending on the scale of the disaster geographically and over time.

50 The study referred to stresses that cost will be a deciding factor in the choice of a system, system acceptance is linked to financial considerations and must be justified economically It is therefore necessary to weigh the economic consequences of any disaster against the cost of preventing it, major hazards against economic risk and to assess the costs of a return to normality and the time it is likely to take

51. Throughout the present chapter we have referred, albeit in summary fashion, to the various European institutions and organisations responsible for meeting the challenge involved in major hazard prevention and management. To try in this report to describe in greater detail the work done and the research carried out by these various bodies goes beyond our remit, which consists merely in compiling a document that can form the basis of a wider and more rigorous study by our Committee. Brief mention should perhaps be made by way of an example to some of the activities of these institutions in the area of interest to us.

52 We have already referred to the initiatives the Council of Europe has taken in this matter, in framing the EUR-OPA Major Hazards Agreement in 1987 to promote cooperation between member states. Hence a programme has been drawn up which is to continue until the year 2001, setting out aims, general principles and a plan of action subdivided into three levels: political, scientific and the special programmes, which have already been discussed in this chapter Needless to say, the Council of Europe's initiative has by and large fulfilled its objectives and

all that remains is to hope they are entirely successful and to try and help achieve this

53. The European Union for its part launched its space policy in 1988, via the European Commission, paying particular attention to areas such as telecommunications, navigation, earth observation, launch services and technology research. In addition to the achievement represented by the Ispra Joint Research Centre (Italy), mention should also be made of the Earth Observation Centre project, a multi-thematic effort implemented by the European Commission through the 4th framework programme with the aim of facilitating the utilisation of earth observation data. Furthermore, in early 1996, the European Commission (DG XII) in the context of the preparation of the 5th framework programme for research and development also created a thematic cooperation group on the use of space technologies in the field of major hazards

54. At the Eucosat Symposium held in Bonn in September 1995, the European Space Agency (ESA) was described by its Director-General, Jean-Marie Luton, as a "symbol of European cooperation in space since the 1960s". ESA's activities cover science, earth observation, telecommunications, space segment technologies including the Space Station and platforms, ground infrastructure, space transport systems and microgravity research

55. The Ariane Launcher is doubtless one of the most striking successes of European space cooperation. In earth observation, worthy of mention are the Meteosat series of weather satellites ERS-1 and ERS-2 are European achievements in the field of radar satellites. The future Envisat and Metop missions and the Meteosat Second Generation programme are but some of the challenges ESA is looking to in the future.

56 In the field of telecommunications, the Artemis programme is under way and ESA is proposing the ARTES (Advanced Research in Telecommunication Systems) programme designed to retain Europe's competitive position in the field

57. Lastly, besides the institutions already referred to, which are endeavouring in their respective areas to meet the challenge major hazards represent, there are the national space agencies and other governmental bodies working at national level to achieve the same objectives

58. Attention should also be drawn to the activities of other organisations such as Eucosat (European Control by Satellite), an independent European body whose aim is to promote the creation of a European satellite-monitoring authority and the setting-up and use of satellite systems. Eucosat devotes a great deal of effort to the use of satellite resources for major hazard prevention and management through study groups and meetings that seek to make a contribution to such issues by bringing together representatives from military, scientific and industrial circles

IV. An operational response – the WEU Satellite Centre

59. In the introduction to the present report it was noted that environmental monitoring was one of the fields of application for the work of the WEUSC. It should be mentioned in this connection that a dossier produced by the Centre on the ecologically disastrous effects on areas of marshland of the construction of a dam at the confluence of the Tigris and the Euphrates in southern Iraq won it first prize out of 220 entries from all over the world, from the Environmental Research Institute of Michigan The award took place in Las Vegas in February 1996.

60 To the best of your Rapporteur's knowledge, the major problem facing the WEUSC in undertaking environmental tasks is not implementation of methodologies, nor the timely completion of tasks, but rather the definition of the problems The need to define the region of study, and more importantly the link between the environment and populace behaviour which leads to strategic risk, is of paramount importance for the WEUSC to be successful in this area Local agencies are generally responsible for hazard mitigation and this suggests that the tasks undertaken by the WEUSC should focus on the prediction of events that could lead to shifts in strategic situations This implies a significant definition effort prior to image analysis and also a variable dependence on collateral data

61. The WEUSC, which uses images from commercial satellites such as Spot 1 and 2

(France), ERS-1 and 2 (ESA), Landsat-4 and 5 (United States), Radarsat (Canada) IRS-1C (India) and Russian imagery, as well as images from the military satellite Helios-1 by agreement with France, Italy and Spain, has completed seven environment-related tasks to date, as described below

62. Tasks DO1 – Arab Marshes 1, DO2 – Euphrates Waters and DO3 – Arab Marshes 2 examined the effects of barrage construction on the marshlands adjacent to the confluence of the Tigris and Euphrates rivers. DO1 dealt specifically with the estimation of marsh vitality using Landsat data following completion of barrages, whereas DO2 and DO3 concentrated on engineering work sites and changes in the patterns of human settlement using Spot data Using open-source collateral data, the completion dates of major drainage canals were calculated Images taken in September 1992, prior to barrage completion, were analysed to establish the extent of the marshlands Additional images were collected in September 1993 and October 1994 and the extent of marshland was estimated. The images clearly indicated that the barrage construction resulted in a catastrophic decline in marshland coverage. Abandonment of settlements and extensive fires in the vicinity of former settlements showed the effects of the marsh drainland on the local populace. The task was an excellent illustration of how environmental damage and its effects on populations may be monitored. To obtain results more quickly, it would be necessary to identify the inception of construction work and rapidly establish the "environmental baseline". Data acquisition at the smallest interval possible would provide a more rapid and accurate appraisal of the marshland decline.

63 Dossier DO1 – East Anglian Coast consisted of to a task request for an examination of the coastline of East Anglia, United Kingdom, to identify sites of possible contraband activity for use in anti-narcotic operations. Using Spot data, archived aerial photography, and 1 25 000 maps, the coastal geomorphology and the local transport network were analysed Several zones were identified that were suitable for the landing of small craft and it was clear that the satellite imagery provided a more complete picture of the transport network in comparison with maps which were somewhat outdated The results of the task could be extended by the incorporation of more detailed information on the type of sea-craft used by narcotics smugglers and also by more detailed bathymetric maps of the coastal waters

64 In task DO1 – Usinsk, the Centre was asked, following reports of a major pipeline fracture in the Usinsk area, to report on the extent of pollution adjacent to the river network that links Usinsk with the Arctic Ocean. A combination of Spot and ERS-1 radar data were used to identify areas of possible oil pollution in the Usinsk region. Due to the fact that the data used did not show definitive spectral signatures for oil, an attempt was made to identify known areas of pollution reported in collateral data and then to automatically identify all areas showing similar properties in the image data. Although ground checks were not carried out by the WEUSC, the results of the study were subsequently found to be in close agreement with other studies that focused on the same area and which included extensive ground investigations. Significantly the task identified those segments of the river network in which there was no pollution, thereby refuting claims that damage to river ecosystems would be geographically widespread. This conclusion had clear implications for strategies for remedial action in the face of pollution

65. In the case of DO1 – Surinam, the original task request focused on the provision of an accurate map of the shoreline and hydrographic network of Surinam. Due to tropical weather conditions the proven methods of map compilation using optical data were ruled out and thus a pilot project was proposed using radar data from the Canadian Radarsat instrument The difficulties of making images conform to standard map projections in coastal regions, the lack of appropriate maps and the high accuracy requested by the user suggested that use of GPS (global positioning system) points would be appropriate for this task but clearly the resources of the WEUSC limit such an approach In consultation with the requester, it was agreed that a previously existing Digital Elevation Model would be used to describe the topography and that large-scale maps would be provided to the WEUSC.

66. Finally task DO1 – Turkey Fires will monitor forest fire damage and subsequent natu-

ral and assisted recovery in an area of the Dardanelles The task request presented a detailed image acquisition plan that would provide measures of forest extent and vigour prior to forest fires, in the intervening years to the present time, and finally, at specified times in the future The task therefore has the potential to remain a "standing task" in the WEUSC, which would provide an excellent opportunity to establish procedural steps for such studies

67. It should be recalled that the WEUSC may be tasked by the following: the WEU Council and certain of its subsidiary bodies on the Council's instructions, member and associate member countries for requirements in connection with their involvement in WEU decisions and actions, the same countries for national needs and other possible users on the Council's instructions

68. When our Committee visited the Satellite Centre on 5 March last, the Director, Mr Mollard, noted that it was not extensively used by the Organisation, as only 14.4% of its work (in terms of man/week resources) was taken up with tasks requested by WEU, the remainder being undertaken at the request of the member or associate member countries

69 Our Committee's visit enabled it not only to gain an awareness of the sterling work being done by the Centre but also of the very encouraging future prospects open to it thanks to the technical know-how, determination and enthusiasm of the splendid team of professionals who work there. The WEU Council would be well advised to strengthen those skills by offering its political backing and the necessary financial support which, in your Rapporteur's view, cannot for the present be taken as read.

V. Conclusions

70. The importance of this topic, its complex nature and the lack of time for adequate preparation of the present report, which the Committee decided to go ahead with only on 3 March last, led your Rapporteur to conclude that the present document should be used as the basis of future, more detailed reports on the issue which will provide efficient, technically and economically viable responses to the challenges presented by major hazards

71. Having said this, it is clear in the light of this initial outline that WEU, through its Space Group and Satellite Centre has a say in such matters and should play its part in Europe's efforts to respond efficiently to major hazards, in terms of both prevention and management.

72 The Space Group should therefore examine whether WEU's participation in such endeavours through the agency of the Satellite Centre would be possible and appropriate, at the same time seeking synergies between the civilian and military sectors in order to solve a problem which could affect security.

73 Patently, a space-based solution is not and cannot be a panacea for all major hazards, but its strategic importance should spur us on to ensure that it plays a vital part

74 Financial considerations are also of fundamental importance when it comes to major hazard prevention and management for the aim must be to secure a return on investment and avoid duplication of effort, excess operating capacity and a waste of public money. Coordination of what have been fragmented efforts to date is therefore essential

75. Europe in fact already has the necessary technological and industrial capability to deal with 80% of users' needs in connection with major hazards and projects already exist that will allow its potential to be increased In any event cooperation in this field with countries with comparable levels of technology to our own (e.g Russia, Ukraine, the United States and Japan) is also desirable

76 Lastly, the need to inform and educate people should be stressed together with the overriding necessity for support from the public at large through a policy that meets these two objectives.

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