International Agency for Research on Cancer

World Health Organization

Governing Council **GC/53/11**
Fifty-third Session 28/04/2011

Lyon, 12–13 May 2011
Auditorium

PLAN FOR FUTURE INFRASTRUCTURE PROJECTS (INCLUDING OPTIONS FOR FINANCING)

Preamble

1. Since 1972 IARC has occupied the tower building provided by the City of Lyon, based upon an agreement between the City, France as host country and the Agency. This agreement is governed by a convention signed between France and the World Health Organization on 14 March 1967 and endorsed by the French Government decree number 70-504 dated 9 June 1970. An agreement between the City of Lyon and IARC was signed on 1 October 1972, updated on 10 May 2002 and is valid until 30 September 2032. The Agency has since constructed additional buildings: the Princess Takamatsu and Sasakawa Memorial Halls, the Biological Resources Centre (BRC) and the Latarjet building, which are not the responsibility of the City of Lyon.

2. Since the 52nd Session of the Governing Council, the IARC Secretariat has investigated the full extent and financial implications of renovation of the IARC tower building. This has revealed a far worse state of decay than was understood by the Secretariat one year ago. This additional information has changed the discussion from a relatively technical one of renovation and adaptation of the building to future IARC scientific activities, to one of principle as to whether construction of a new building is a better solution to provide premises that satisfy the expected needs of the Agency over the next two to three decades.

3. The purpose of the current document is to describe the progress to date in seeking to provide a well-adapted working environment for the Agency and to highlight the next steps in agreeing a way forward. This process has already lasted several years and a lack of resolution represents one of the major risks to the future of IARC.

Activity to date

4. The Governing Council established a Working Group on Infrastructure (WGI) in 2007 with a plan to report to the 50th Governing Council meeting in May 2008. The WGI did not meet between May 2007 and 2008 and hence the Governing Council agreed the WGI should meet during 2008 and report in May 2009 at its 51st Session.

5. The WGI met in September 2008 and decided to ask an outside expert – SOCOTEC – to carry out a technical overview of all IARC's buildings and to develop a complete list of all building maintenance and restoration projects, including their costs. This was to be followed by discussions with the City of Lyon and the host country to agree on a list of works and a means for financing.

6. The new IARC Director arrived in January 2009 and on 23 February 2009 the IARC Secretariat met with the City of Lyon and the host country to establish a working relationship to address the future infrastructure projects. The WGI met on 27 February 2009, planning a report for the 51st session of the Governing Council. This discussion was followed by a meeting on 27 April 2009 of the Secretariat with the City of Lyon and the host country.

7. A document (GC/51/10) and a corrigendum (GC/51/10 Corr.1) were presented to the Governing Council at its 51st Session, which resulted in Resolution GC/51/R8 requesting IARC to continue its negotiations with the City of Lyon and the host country to provide adequate means in their respective budgets from 2010 onwards for the works identified. The Resolution also asked the Director to elaborate a long-term capital master plan based on his vision of the future activities of the Agency.

8. The Secretariat met twice with the City of Lyon and the host country prior to the 52nd Session of the Governing Council, when a further document was presented (GC/52/11) and a Resolution (GC/52/R8) was passed requesting that a detailed analysis of office and laboratory space needs and a plan for future infrastructure projects, including options for financing, be presented and discussed at the next regular session of the Governing Council.

9. Since the last Governing Council meeting, the Secretariat made an appointment with the City of Lyon and the host country for November 2010, which was postponed to January 2011 at the request of the City of Lyon. A further meeting was held on 25 February 2011. A scheduled meeting on 8 April 2011 was postponed due to cancellation of participation by the City of Lyon.

10. The option discussed in the earlier meetings with the City of Lyon and the host country, and presented in the documents previously provided to the Governing Council, involved a progressive renovation of the different IARC buildings, with a breakdown of the costs to be shared between the City of Lyon, the host country and the Agency through its Participating States. This was largely based on the SOCOTEC report of 2008 (Annex 1).

11. However, in response to the Governing Council Resolution at its 52nd Session, a further analysis of the state of disrepair of the tower building by the Secretariat, in consultation with external experts who have advised on projects involving centres similar to IARC, now leads us to the conclusion that this approach is not optimal, either in economic or in technical terms. It has become evident that the SOCOTEC report did not fully describe the state of decay of the tower building and underestimated the full cost of the renovation. In addition, the disruption to the scientific activities of the Agency during renovation was not fully taken into account in that analysis.

12. Furthermore, the negotiations with the City of Lyon have revealed a difference of understanding concerning their obligations as landlord versus those of the Agency as tenant. For example, when the first part of the SOCOTEC renovation plan was addressed in April 2011, one central heating unit was changed but the City of Lyon considered all the corroded pipe-work beyond the heating unit itself to be the responsibility of the Agency. If this division of responsibility is accepted then the Agency will face major renovation costs to keep the building functional.

In fact, in view of the general ageing and decay of the tower building, IARC's position is that the City of Lyon as owner is responsible for this major overhaul.

13. Since his arrival in January 2009, the Director has made numerous efforts to meet with the Mayor of the City of Lyon to discuss the difficulties faced by the Agency in relation to the tower building. The Mayor did agree to meet the Director briefly on 30 March 2010 prior to a conference in Lyon; it was during this meeting that a verbal engagement to replace the air conditioning was made. In order to build on that exchange, letters were sent from the Director to the Mayor on 22 April 2010; 15 June 2010; 29 September 2010; 24 January 2011 and 9 March 2011. No written reply has been received to date although a meeting has been fixed for 9 May 2011.

Current status of the tower building

14. Since delivery of the SOCOTEC report on 8 December 2008, the City of Lyon agreed to change two central heating units in 2010 and 2011 respectively. The installation of the first unit is underway and should be commissioned by mid-June 2011. The City of Lyon agreed in January 2010 to request its own specialized services to start costing the work related to the air conditioning system in parallel to those of the heating plant. This study has not yet taken place.

15. The main problems faced by the current building remain as follows:

a) **Decaying central air-handling system.** The air-handling unit, and in particular the refrigerated water pipes located in the second-level basement, are heavily corroded. In addition, the air-conditioning cooling towers present a risk of legionellosis, confirmed during routine checks, necessitating expensive disinfection. In order to be in line with current and future norms, the air-handling unit of the laboratories would require the replacement of the air and water pipes coming from the basement with pipes that permit the requisite increased flow. As the current tower building structure does not allow for this, the only practical solution would be to sacrifice one laboratory floor to house a separate air-handling unit between two remaining laboratory floors.

b) **Corroded and inefficient air-conditioning system.** The air-conditioning system is based on a costly and obsolete process which functions without recycling, energy recovery, or optimization of the regulation system. Corrosion is reaching dangerous levels according to all experts contacted and was already visible on photos in the SOCOTEC report (Annex 1). Eventually this will lead to the piercing of one of the pipes resulting in the failure of the ventilation and cooling system and a forced evacuation of the building.

c) **Leaking facades.** The facades are no longer waterproof and allow dust and microbes to enter, leading to energy-waste and problems of hygiene. This particularly impacts on the quality of the laboratory work, due to frequent contaminations that are costly in time, money and biological samples.

d) **Expensive annual repairs and running costs**. The running costs, maintenance and repairs of the building are extremely high. For example, in addition to the normal annual maintenance contract signed with SEITHA (€110 000), the company responsible for the heating, air-conditioning and air-handling unit, the Agency spent €300 000 during the last year on essential repairs due to the poor state of the infrastructure. This high annual cost

of routine maintenance and repairs will accelerate and continue to divert funds from scientific research. Furthermore, the tower has excessively high, and increasing, running costs for energy, water and security caused by the out-dated heating and cooling systems, the absence of insulation and the high cost of security measures associated with high-rise buildings. For example, the cost of gas central heating is estimated at €260 000 in 2011, compared to €209 000 in 2010, while electricity will continue to increase by approximately 5% per year. It is also notable that because of the high-rise nature of the tower, the Agency spends €350 000 on its security contractor each year.

e) **Carbon footprint.** A recent study of the Agency's carbon footprint by VERITAS (Annex 2 in French only) shows a highly inefficient building, which results from the fact that all insulation, heating and cooling infrastructure dates from before the first 1973 petrol crisis. This inefficiency is further demonstrated by another VERITAS study on energy consumption (Annex 3 in French only).

f) **Ill-suited to scientific activities.** The layout of the Agency's premises is poorly suited to its current and future scientific activities in a number of ways. First, a core element of the Agency's Medium-Term Strategy (2010–2014) is to conduct interdisciplinary research that demands interactions between epidemiologists and laboratory scientists. The spread of Groups and Sections across different buildings and the high-rise tower configuration do not encourage this interaction. Second, laboratory science offers enormous opportunities to the future of epidemiology and cancer prevention. However, the IARC laboratories located in the tower are outdated and do not meet the standards of a modern, state-of-the-art facility. The layout also leads to duplication of functions and further inefficiency. In addition, the loss of one or two additional floors of laboratories to solve the air-handling problem identified above would be unacceptable. Temporary laboratory solutions have already had to be found in the BRC for the new Biomarkers Group, due to lack of space in the existing facilities. This puts at risk the recruitment of top quality laboratory scientists in the future. Third, the Agency is overcrowded. The configuration of the tower leads to 40% of the footprint being lost to occupancy (e.g. corridors, lifts, services, etc.). One partial solution would be to convert the 13th floor (ex-animal house) to offices and meeting rooms, but this transformation would prove to be expensive, having been estimated even a few years ago at €1.5 million, assuming no asbestos is found. Fourth, other aspects of the Agency core activities are not adequately met, notably in terms of the lack of dedicated space for the expanding IARC Biobank and the lack of sufficient meeting rooms.

g) **Laboratory infrastructure for IARC.** The current IARC laboratory infrastructure is located at multiple sites and occupies five out of the thirteen floors of the tower building. Similarly, the archive of biological material and the Biobank, which is a central resource of IARC, is located at multiple sites in the tower building and on the ground floor of the BRC building. Although similar techniques are being used by the different research groups, the laboratory facilities are centred on the needs of each specific research group. This situation leads to duplication and makes it difficult for the Agency to create centralized shared facilities that would allow easy access to sophisticated equipment and high throughput technologies. Additionally, because of the increased need for laboratory space to accommodate new and more up-to-date laboratory equipment, many of the

laboratories that were suitable at the time of the commissioning of the tower building, are no longer fit for purpose. Thus alterations have been made over the years to accommodate growth and changes. For example, the 6th floor which was primarily an office floor now also accommodates laboratories. These changes have raised a number of issues that are being dealt with on an ad-hoc basis, such as inappropriate flooring and walls in laboratories that are converted from offices, lack of washing-up facilities and clean areas or changing rooms and uncontrolled airflow. The latter is a consequence of the large number of safety hoods which now compromise the fresh air supply, with the possibility of introducing contamination into the laboratory environment. Another important safety issue is the current L2 facility at IARC, which is obsolete; the system does not comply with current French safety regulations and needs urgent upgrading.

16. A number of the technical problems were identified by SOCOTEC in its 2008 report (Annex 1). However, the work required for renovation is more extensive than anticipated, the disruption during the renovation was not considered and the link between the Agency's Medium-Term strategy and its day-to-day functioning were not integrated into this technical report.

Future options

17. On the basis of the above observations and in considering the future for the Agency premises the Secretariat considered: a) the option of a new building on a new site; b) the renovation of the tower and c) the possibility of new laboratories built on the current site combined with a renovation of the tower, without laboratories.

18. A number of principles are important when considering these options:

- The premises must be adapted to the future scientific activities of the Agency;
- The process of provision of adequate premises must not unduly disrupt the functioning of the Agency's research programmes and affect its ability to attract extra-budgetary funds;
- There must be a long-term perspective to ensure the outstanding reputation of the Agency and the ability to continue to attract the best people are maintained;
- The local scientific interactions should be considered, especially in relation to cooperation in laboratory science;
- The Agency, as per its mission, has a high number of visitors every year, most from abroad, so convenient access through public transport is essential;
- The premises should be efficient to protect the environment and to minimize the expenditure on building provision as opposed to research.

19. The preference of the Agency is to maintain its historic links with the City of Lyon and its scientific community.

20. The advantages and disadvantages of the three different options are analysed in the tables below. After this evaluation, the second option of a new build on the current site was not considered further for the reasons given in the Table.

OPTION	ADVANTAGES	DISADVANTAGES
1. Construction of a new centre in Lyon	1. Four to five storey "horizontal" building will maximize scientific interaction in line with the Agency's Medium-Term Strategy 2. Timeframe (maximum five years from planning to occupation) 3. Initial estimates suggest cost is competitive with that of renovation 4. Substantial reduction in running costs and carbon footprint 5. Limits disruption of the Agency's research programmes 6. Possible financing through the sale of the current land and buildings[a]	1. Administrative procedures may be cumbersome for the City of Lyon and the host country. This may be eased by transferring the responsibility for construction to IARC, or by envisaging a joint project ownership, with management by IARC 2. The requirement for the City of Lyon to identify and donate land with easy access by public transportation 3. The BRC and Latarjet buildings would be sold off as assets

[a] The current IARC building is located in an urban zone, classified as URM, which allows for a mix of offices, apartments and shops on the ground floor, hence a greater resale value. Current value is conservatively estimated at €16.8 million based on a resale value of the buildings at an average price of €1500 per m^2; the estimated resale value of the Latarjet building alone is €4 million, at €2 000 per m^2.

OPTION	AVANTAGES	DISADVANTAGES
2. Construction of new laboratories above the IARC car-park	1. No change of site 2. Conservation of the existing buildings 3. Possibility to expand the space available for research 4. Some of the advantages listed in option 1 above (construction of a new build) will in good part remain valid	1. Increased fragmentation compared to current situation with separation of disciplines 2. No income to finance this option from the sale of the current complex (unless the sale of Latarjet could be considered) 3. Still necessary to renovate the tower 4. Long period of disruption due to step-wise building of laboratories and renovation of tower

OPTION	AVANTAGES	DISADVANTAGES
3. Complete renovation of the current premises	As in the previous option, the advantages are: 1. No change of location 2. Conservation of the current buildings	1. Lengthy period of completion of the works, estimated at up to 10 years, leading to long period of disruption and risk to scientific activities 2. Requires costly rental of office and lab space during renovation 3. Major cost resulting in a superficially renovated but ageing structure; existing cracks in the basement and terraces confirm this point 4. Requires renovation of 13th floor to provide adequate space for scientific activities and loss of at least one floor of laboratories but will not increase the available area 5. High running costs and poor suitability of high-rise building to scientific activities will remain 6. The 'Asbestos Diagnosis' has confirmed the presence of asbestos in some components of the building. Given the age of the building, it is expected that asbestos will be found in pipes and walls, leading to added costs due to the need for special measures of decontamination.

Option of new building

21. The total surface area of the current plot of land is 8710 m^2, of which 7200 m^2 are occupied by the tower, its annexes and the parking space. The BRC and the Latarjet Building occupy a total of 1510 m^2. The total net outside gross area is 16 156 m^2.

22. The total surface area required for a new building has been estimated on the basis of offices of 16 m^2 per professional staff member and 12 m^2 per general service staff member and other categories.

23. The above total calculated for offices has been increased by 20% to recognize the current crowded conditions and to allow for growth in the medium- to long-term. Similarly, recognizing the crowding in the laboratory areas, the current footprint has been increased by 20% whilst an extra 600 m^2 has been added for the IARC Biobank given the central future role of this facility.

24. The capacity of the other spaces, such as meeting rooms and storage rooms, which are currently inadequate for the work of the Agency, has been increased by 50%.

25. Whilst the above estimates include an increase in usable space it should be noted that the total surface area of the proposed new building is only 6.3% more than the current footprint because a low-rise building of four to five floors has far less "lost" space than a high-rise tower (approximately 20% compared to 40%).

PROPOSED AREA IN M^2 EQUIVALENT TO THE REFERENCE CURRENT AREA	11 173
CURRENT AREA OF ALL IARC BUILDINGS IN M^2	10 512
INCREASE	6.3%

Note: for both area calculations the basements are not included as these are taken into account in the cost of construction

26. Having established a projected surface area for a new build, the indicative costs used were €2500 per m^2 for the laboratories and €1500 per m^2 for the other spaces, including the Biobank and 100 underground parking spaces (at €12 500 per parking space).

27. The total cost is estimated therefore at €23 500 000, from which would be subtracted the resale price of Latarjet, BRC, Takamatsu, Sasakawa and the tower itself. The current estimate for the latter is €16 800 000 using a price of €1500 per m^2 as per current prices for land in the vicinity. This includes a conservative estimate of a resale value of the Latarjet building alone of €4 000 000, i.e. €2000 per m^2 and assumes no re-sale value for BRC. However, the Secretariat recognizes that these values are indicative and require valuation by the Government specialized services (Domaines de l'Etat) in the first instance.

28. Finally, there are a number of additional costs which the renovation of the tower would incur but which the new building would avoid. There would, however, be the cost of urgent repairs needed to secure the functioning of the current tower building for five years, estimated notionally at €500 000, which it is suggested would have to be financed by resources provided by the Governing Council.

29. The table below describes the estimated costs in the case of construction of a new centre, including the savings made in not having to rent alternative accommodation during renovation:

	TOTAL in €	**City of Lyon in €**	**IARC in €**
CONSTRUCTION OF A NEW CENTRE	23 500 000	23 500 000	0
MINUS SALE OF LAND WITH BUILDINGS	- 16 800 000	- 16 800 000	
MINUS LAB RENT OVER 3 YEARS	- 996 500	- 996 500	
MINUS OFFICE RENT OVER 3 YEARS	- 2 040 000	- 2 040 000	
PLUS URGENT REPAIRS OVER TIME OF CONSTRUCTION	500 000		500 000
ADDITIONAL FINANCING NEEDED	4 163 500	3 663 500	500 000

30. The total cost of the new building could be further reduced in case of construction of a ground-level parking, which would however necessitate a larger area of land allocation, which in turn would allow for future extensions.

31. It should be noted that the most recent analysis strongly suggests that the renovation costs presented to the Governing Council at its 52nd Session were markedly underestimated. As one example, the replacement of the 119 elements that provide heating and cooling to the ground, first and second floors of the tower is currently estimated at €410 000. This work alone represents about 10% of the total costs of renovation estimated by SOCOTEC (Annex 1). The work would span over six months, based on an estimate of two months per floor, hampering working conditions and resulting in lower productivity. Even then, the replacement components will remain inefficient in terms of energy consumption due to the general design of the system.

32. The new build has some additional advantages which whilst not considered in the cost here are notable. First, there will be a contribution to the local economy through the construction work. Second, the new building would add significantly to the image of Lyon as a city with international aspirations. Third, the new building will substantially reduce the carbon footprint, energy consumption and running costs of the Agency.

Option of renovation of current building

33. An estimated cost of renovation, based on the SOCOTEC report but with more accurate and current prices, is €8 560 000 including: the conversion of the 13th floor to offices, renovation of external facades, update of technical components such as air handling, air conditioning and heating. This does not include the required internal refurbishment of the floors themselves at a cost of €700 per m^2 or €8 440 000, resulting in a total of €17 million. The cost of renting office and minimum laboratory space for at least three years is added to this cost. The cost of renting meeting rooms would be extra but has not been added at this stage.

34. The table below therefore summarizes the costs in the case of renovation of the current tower:

	TOTAL in €	**City of Lyon in €**	**IARC in €**
RENOVATION OF THE CITY OF LYON OWNED TOWER	17 000 000	17 000 000	0
LAB RENT OVER 3 YEARS	996 500	996 500	
OFFICE RENT OVER 3 YEARS	2 040 000	2 040 000	
ADDITIONAL FINANCING NEEDED	20 036 500	20 036 500	0

35. With the second option of an additional building on the current site considered the least suitable, the third option of a total renovation of the tower would, according to the experts consulted, take twice as much time and result in a significantly greater net cost than a new construction. This is primarily due to the cost of dismantling the facades, air handling systems, heating, etc., their removal from the site and their recycling.

36. As explained above, the renovation option would not allow IARC to benefit from the opportunity to adapt the space to future use. The added running costs due to the high-rise building, the poor environmental efficiency, limits on future growth and the probability of asbestos in the construction, notably on the 13th floor, also render this option unattractive.

37. As explained above, given the constraints of the high-rise building, the laboratories cannot be renovated to meet current and future needs without sacrificing one floor out of three to accommodate air-handling units.

38. A few additional costs associated with the renovation would be:

a) The need to relocate staff in offices rented by the City of Lyon. The renting of such space, based on the currently 3400 m^2 occupied as offices, would represent €2 040 000 over three years. The cost of renting laboratory space on the basis of the price paid by INSERM in 2008 would be close to €1 million, and require two moves. The rental period has been included as a minimum of three years, during which time the different parts of the tower would be renovated. Should the renovation take longer these costs would increase.

b) It should be noted that the costing provided in the SOCOTEC report only addresses a part of the renovation, and, as stated above, is underestimated. For example, work needed for better energy efficiency, as detailed by the VERITAS consulting company, represents €1.9 million, of which €1.4 million is used for the renovation of the facade curtain wall (replacement of windows for €1 million) and internal insulation (€400 000).

39. In conclusion, in the view of the Secretariat the only realistic long-term option, providing suitable accommodation to take the Agency forward over the next two to three decades, is the construction of a new centre, adapted to the science of the future, based on current laboratory and office norms, providing for low running costs and a small carbon footprint. Using the sale of the current location and its buildings indicates this as a viable option.

40. A solution would need to be identified for the time delay between the cost of construction and the sale of the current land and accommodation. To that effect a zero interest loan would be needed, financed by one or more of the Participating States and the City of Lyon.

41. The IARC contribution to the financing would be the Latarjet, Takamatsu, Sasakawa and BRC buildings, as well as the cost of the move.

42. The Governing Council is invited to support: a) the principle of a new building on a new site as the solution to accommodation for the future of IARC; b) to authorize the Agency to negotiate this option in detail with France as the host country and the City of Lyon, in comparison to the option of full renovation, for consideration by the WGI and subsequently by the Governing Council at its 54th Session; and c) to request the City of Lyon to accept responsibility for provision of adequate infrastructure under the terms of the existing convention, such that the scientific activities of the Agency are not jeopardized in the short-term.