

Background and objective of the meeting

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On behalf of the
International HOTLAB working group



Within the international HOTLAB group - the contact forum for hot laboratories - the need of a small cask for ***inexpensive*** radioactive ***samples*** transport is being identified as a major issue for the international nuclear research community.



Transport of unirradiated MOX, UO₂

Research samples
International transport (Europe)
Air, Road
Croft

→ ~ 26000 €



Transport of 5 irradiated UO_2 fuel pellets

Research samples
International transport (Europe)
Road
Padirac

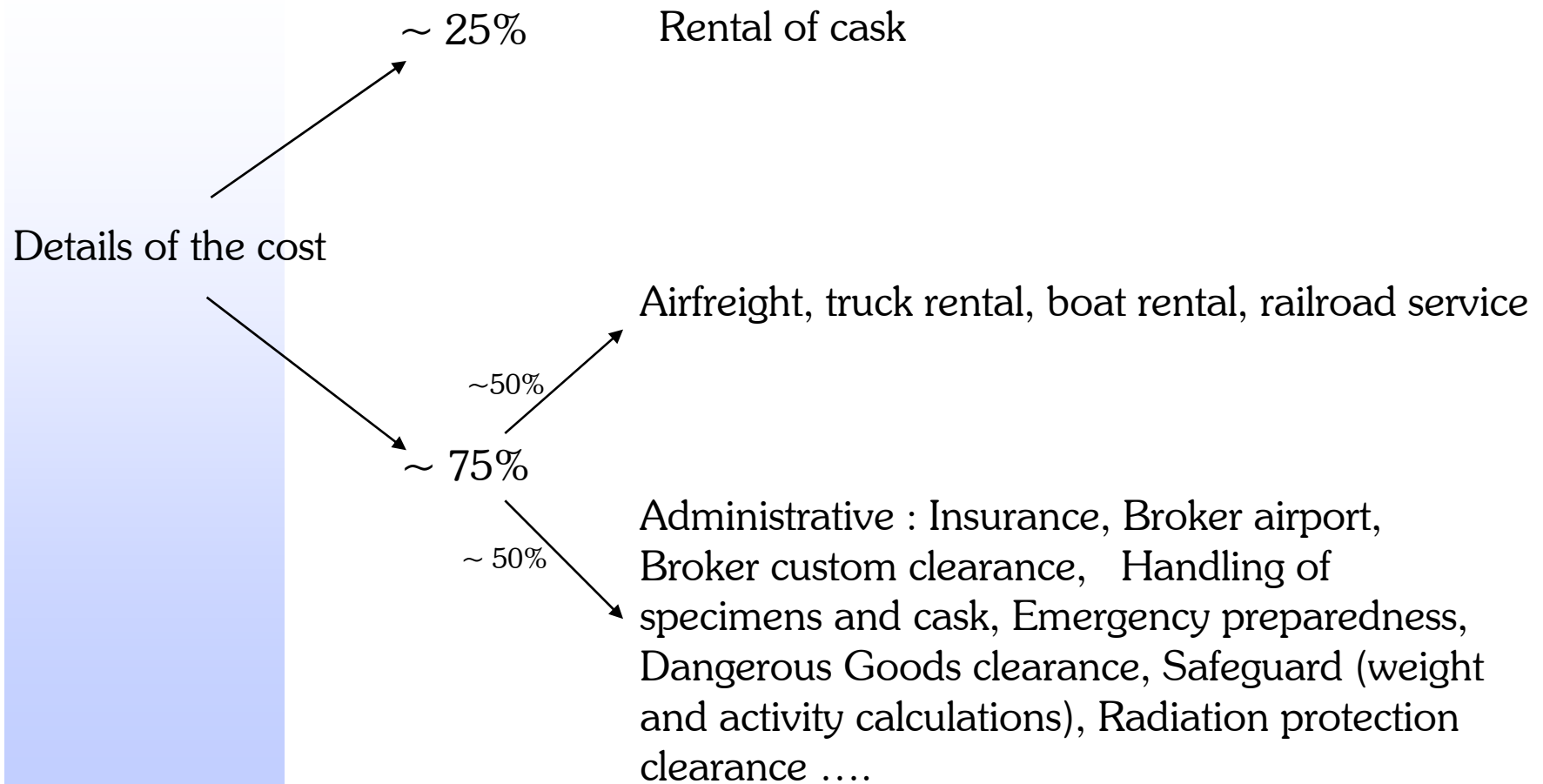
→ ~ 70.000 €



Transport of 5 irradiated MTR fuel samples

Research samples
Intercontinental transport (USA-Europe)
Road, maritime
(TN106)

→ ~ 500.000 €



Transport cost



Where can we gain something ?



Rental of cask

Rental price of cask is mostly defined by

Development and fabrication cost
Cost for licensing

Term of lease

Road - Railroad - Maritime transport

→ Several days (international) up to
weeks (intercontinental)

Air transport

→ Several days (international or intercontinental)



Cost for Airfreight, truck rental, boat rental, railroad service

Avoid the need to rent expensive large trucks
→ keep the weight of the cask low

Maritime transport : cost of rental ship $>$ $<$ a small amount RA material

Air transport : problem of 'denial of shipment'



Administration costs

Currently not much to gain

Required 'paperwork' differs from country to country

A more transparent and unified system is much needed

However

Packages containing fissile material (U-233, U-235, Pu-239, Pu-240) needs multilateral approval i.e. approval by the competent authorities of the State of origin and of each state through or into which the package is to be transported

Packages of excepted fissile materials (< 15 g fissile material) requires unilateral approval, i.e. approval of the competent authority of the State of origin of design only

→ Large reduction of paperwork and time !



A cask for inexpensive radioactive samples transport ?

Make it :

Safe

Small – light

Designed for air transport

Worldwide validation

Type B(U)f or C(U)f



Why are you here ?



The current fleet of casks does not offer a solution for the problem



Define a new type of cask that meets all the requirements

Your expertise is needed to help us

Pinpoint the current problems (presentations – discussion)

Finalize the specifications of the cask



What next ?



Step 1

A call for pre-design of such a cask will be issued to several cask designers. The costs of this call will be shared among the hot labs

Step 2

IAEA is asked to make an evaluation of all the submitted pre-designs and select the most viable in function of licensing and cost

Step 3

Final design and construction of a prototype for licensing purpose based on the pre-design. To lower the rental cost of the cask, the working group HOTLAB will help with the financing of the construction of the prototype and the unilateral licensing to be done by the participating HOTLAB members.



Step 4

Finally (and hopefully) we will end up with a licensed cask design. Interested transport companies or hot labs can then order a licensed cask from the constructor.

Estimated time step1 → step4 : 3 years

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