INTERNATIONAL FORUM
" Chornobyl's Legacy for the Nuclear Safety of the World"
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30 Years of Experience and a Way Forward

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Before the Accident

- Ensuring nuclear safety was always a fundamental principle and challenge in the peaceful use of nuclear power.
- Engineers, scientists and operators always worked hard for it.
- More than 30 years ago it was difficult to imagine an accident comprising:
  - Loss of control over nuclear core,
  - Complete explosive destruction of all physical barriers provided by reactor and reactor building,
  - Spreading reactor core materials in the environment,
  - Subsequent fire within the reactor / reactor premises remains,
  - Widespread radioactive contamination over thousands of kilometer.
- The unimagined became bitter reality on 26 April 1986 with the severe accident at Unit 4 of ChNPP.

After the Accident – First Steps

-> Huge efforts for protection of public, workers and environment:

- Immediate measures :
  - Fire fighting
  - Shut down of NPP
  - Evacuation of pubic from the immediate vicinity
  - Explore and analysis of the situation

Liquidation

- Liquidation measures:
  - Establishing of an Exclusion Zone
  - Construction of physical barriers around ChNPP Unit 4: Object Ukritiye
  - Clean-up and recovery of the site to re-operate ChNPP Unit 1-3
  - Creation of immediate accident waste management facilities
  - Burrying of high active contamination to reduce radition levels

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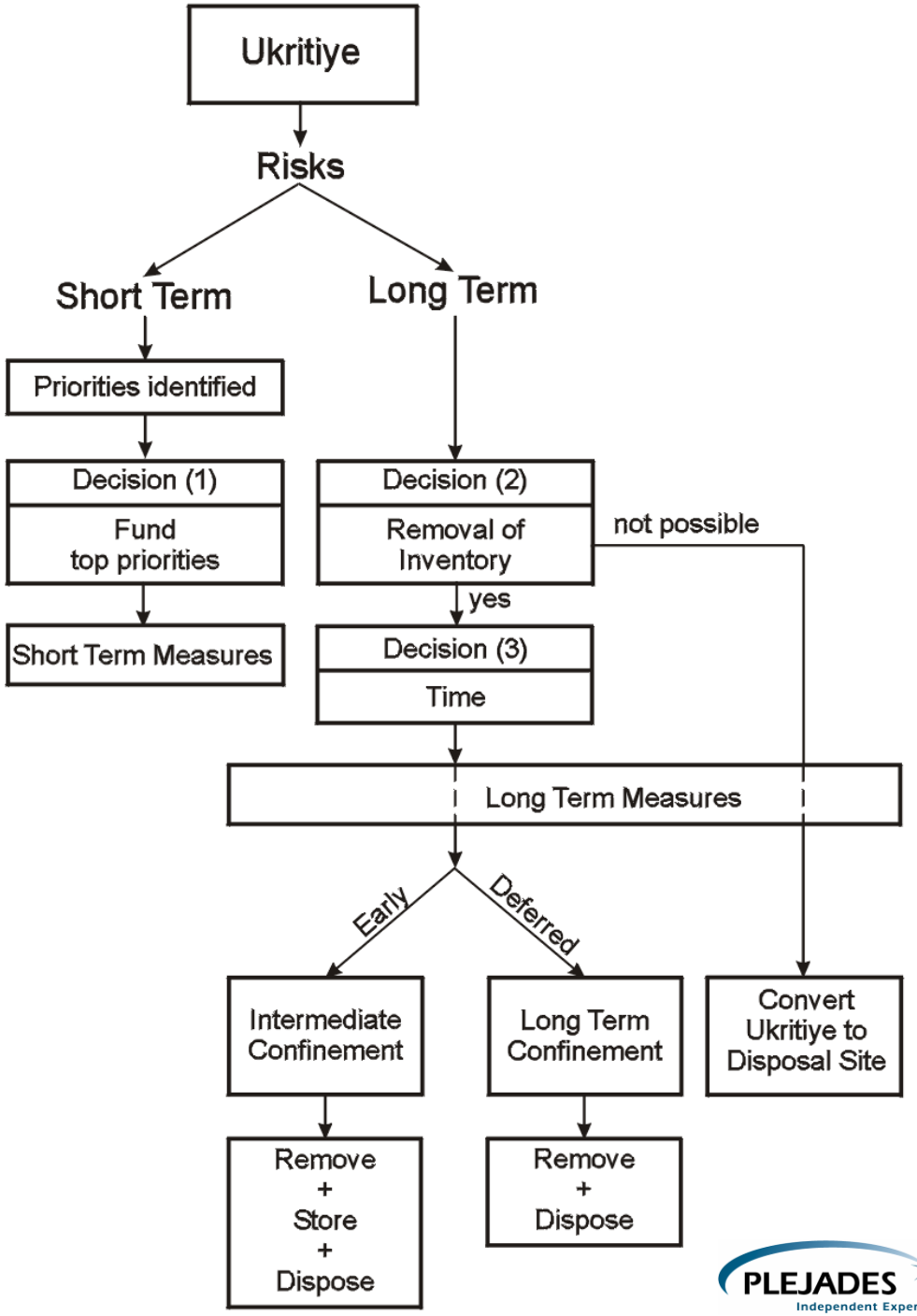
International Cooperation Basis since 1995

- “Memorandum of Understanding” between Ukraine, G7 and European Union was signed in 1995
- It addressed nuclear safety cooperation and include among others:
  - The development and support of an environmentally sound and cost effective program for ChNPP Unit 4.
  - Shut down and decommissioning of ChNPP Unit 1-3
- Based on the Memorandum a „Recommended course of actions“ has been developed in 1996 for Unit 4.
- Based on this „Recommended course of actions“ the „Shelter Implementation Plan (SIP)“ has been developed which was decided at the „Denver Summit in 1997“.
- These studies were carried out in compliance with the „ National Program for Conversion of Object Ukritiye into safe ecological conditions“.

Development of the recommended course of actions

Recommendation of ChNPP and International Expert Team:

- Phase 1
  Stabilisation and other Short Term Measures
- Phase 2
  Preparation for conversion into an environmentally safe site
- Phase 3
  Conversion into an environmentally safe site



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Shelter Implementation Plan (SIP)

Object Ukritiye	Stabilized Ukritiye Monitoring & Safety improvement	New Safe Confinement Deconstruction unstable parts Inventory Management & Removal Strategy	Inventory Removal
Various hazards & risks	Less hazards & risk	Reasonably achievable risk situation	No nuclear and radiological risks remaining

SIP: Program with 22 Tasks to improve safety

Stabilization → New Safe Confinement → Control until Removal

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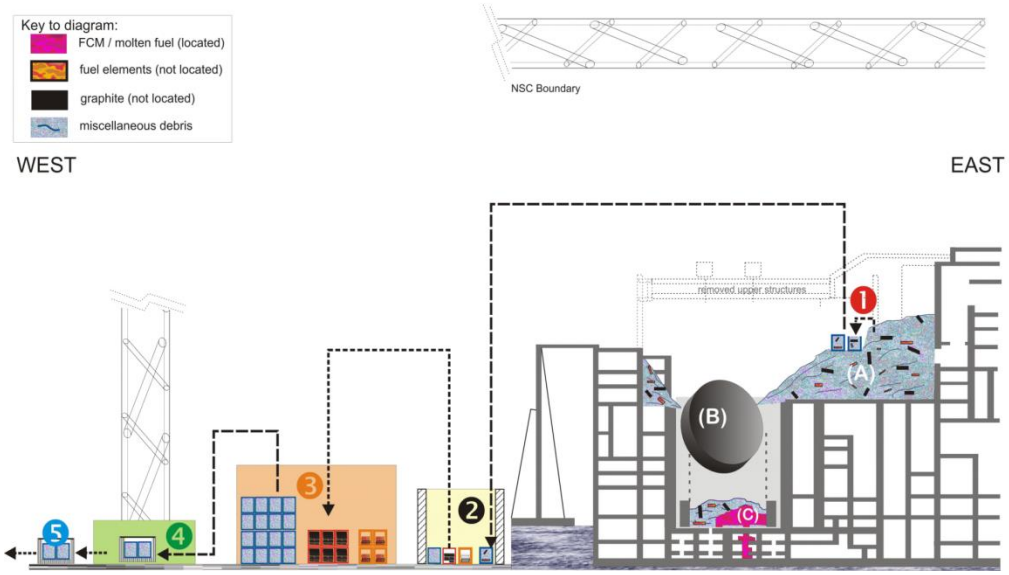
Possible Steps after SIP completion

Phases of recommended course of actions (not included in SIP):

- **Phase 2.3**: Safe control of the inventory according FCM strategy developed
  - Option:
    Retrieve accessible FCM and transfer it into safer conditions
    (e.g. on site storage)
  - Preparation of next conversion phase



- **Phase 3.1**: Convert remaining reactor structures with its remaining inventory to a system with relaxed requirements
- **Phase 3.2**: Long term control and maintain the safe structure until the remaining inventory can be removed
- **Phase 3.3**: Inventory removal

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A Look and a Way Forward

The main future challenge at ChNPP Unit 4 will be:

- The safe management of the inventory inside the Unit 4 until its removal and transfer into a safe geological disposal.
- Focus should be given to the developed inventory management strategy, addressing:
  - Retrieval technologies
  - Processing of retrieved inventory
  - Access corridors for control and removal
  - Partial removal of accessible and retrievable FCM
  - Conversion of current structures optimized for long term safe management of remaining inventory
  - Control of remaining inventory until its removal
- The SIP and the other work performed at ChNPP provides good boundaries to perform these activities!

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Conclusions

Let us conclude:

- 30 years ago an **unimagined accident** happened.
- Within 30 years **extraordinary works** have been performed.
- Within 30 years **safety has been improved** step by step.
- With the soon completion of **New Safe Confinement** the baseline is set for:

Safe management of nuclear & radioactive inventory within the framework to achieve a sustainable and environmentally safe **end state**

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Thanks

With the achievements made and challenges remaining let me take the opportunity to **thank**:

- all **people** having vested so much efforts and time in their lives **in the past**,
- those **people** who will continue this work **in the future**,
- **Ukraine** for its extraordinary efforts to improve the situation in their country which is also a safety improvement for **neighbouring countries**.
- the **international community** for their **support** in the past as well as in the future.
- the **organisations** who have contributed to realize an **effective response** to recover from an unimagined accident.
- **you** for your attention for nuclear accidents, which is your **important contribution** for those who are working hard to recover.

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