

**INSTITUT INTERNATIONAL  
DU FROID**

Organisation intergouvernementale  
pour le développement du froid



**INTERNATIONAL INSTITUTE  
OF REFRIGERATION**

Intergovernmental organization  
for the development of refrigeration

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# **IIR Working Party** *on Life Cycle Climate* *Performance Evaluation*

**Yunho Hwang, Ph.D.**

**Chair of LCCP WP**

**Vice President of Commission B1**

**IIR Working Party: Life Cycle Climate Performance Evaluation**

# Agenda

Time	Topic	Organizer/Presenter
09:50 – 10:20 pm	LCCP WP Overview	Yunho Hwang
10:20 – 10:40 pm	An extensible framework for LCCP based design and evaluation	Vikrant Aute
10:40 – 11:00 pm	Brief on acquirement of fundamental data of LCCP calculations in China	Baolong Wang
11:00 – 11:20 pm	Drop In LCCP of low GWP R-410A alternatives for heat pump	Gang Li
11:20 – 11:40 pm	Discussion on further steps of WP	Yunho Hwang
11:40 – 12:00 pm	Adjourn	Yunho Hwang

• Meeting location: Lecture Room C (LR-C) located in the Administrative Building (aka Bldg 101) at NIST



## IIR's LCCP WP - Goal

- **Access the merits of different methods for evaluating the environmental impact of refrigerants and to produce implementation protocols for these methods.**



# LCCP WP - Approach

- **Collect information** on direct and indirect emissions of working fluids
- **Establish the LCCP evaluation methodology** applicable for refrigeration and air conditioning systems
- **Evaluate how different assumptions** that can affect the result of the assessment
- **Assemble such information and to disseminate** it amongst WP and IIR members



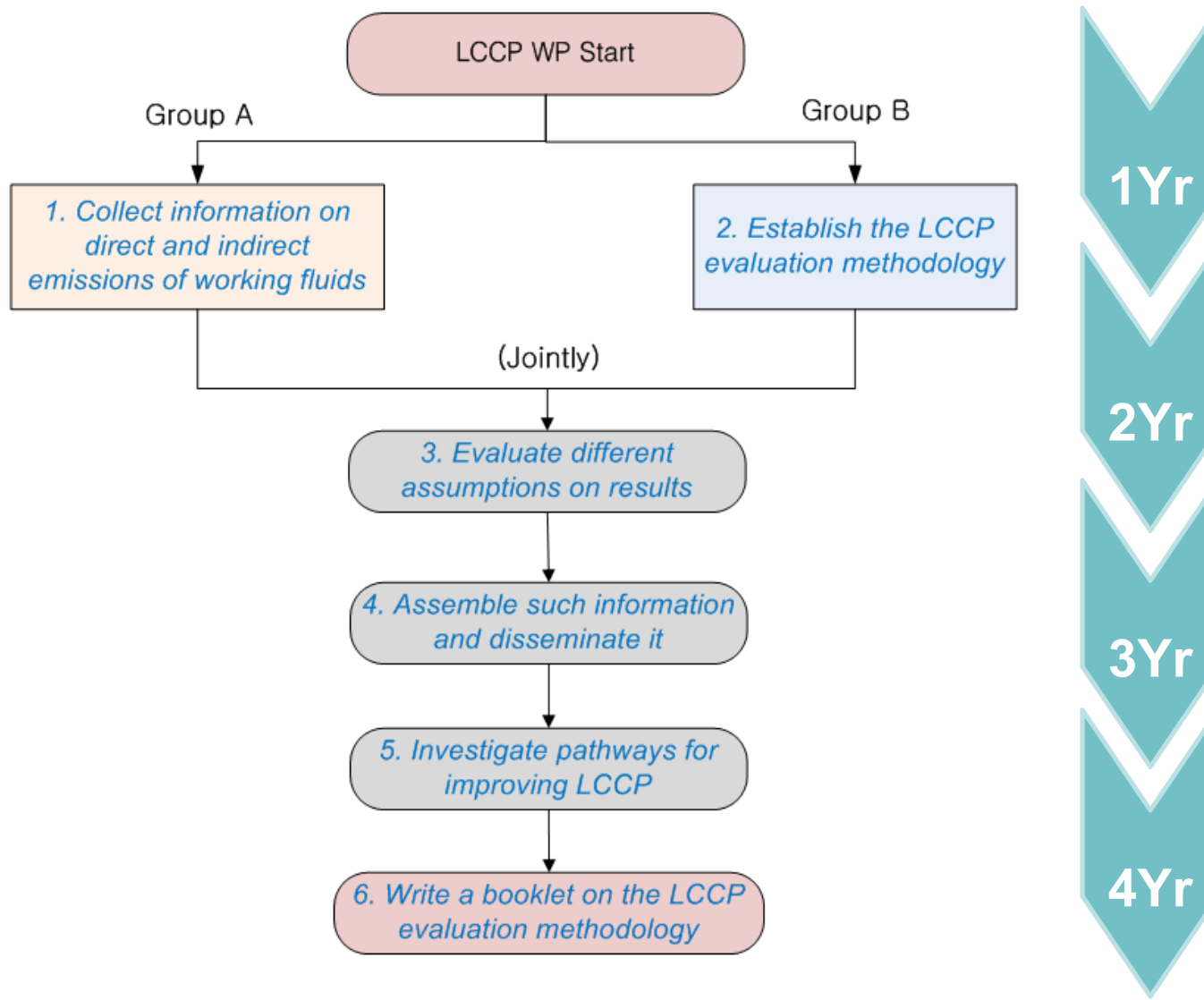
# LCCP WP - Timescale

- WP started: **January 2012**
- Entire WP efforts: **4 years**
- WP shall hold one or two meetings per year.
- Minutes shall be taken at each meeting and posted on the IIR web page of the Working Party.

Phase	Prep. phase	Working phase		
Year	2012	2013	2014	2015
Meeting	2	2	2	2



# LCCP WP: Roadmap



# LCCP WP: Website

- **Basic information of the working party can be obtained from this web site.**

[http://www.iifiir.org/medias/medias.aspx?INSTANCE=EXPLOITATION&PORTAL\\_ID=portal\\_model\\_instance\\_\\_WP\\_LCCP\\_Evaluation.xml](http://www.iifiir.org/medias/medias.aspx?INSTANCE=EXPLOITATION&PORTAL_ID=portal_model_instance__WP_LCCP_Evaluation.xml)

## Working Party on LCCP Evaluation



### Welcome to the Working party Web page

Since the main part of the global warming contribution from refrigeration equipment (including air conditioning) is due to indirect emissions, the climate performance of refrigerating system during its life cycle is an area of concern. Moreover, its proper evaluation is a key factor in determining the true impacts of working fluids for specific application and geographic location, and will assist in determining next generation working fluids for refrigeration and air-conditioning systems.

The IIR has therefore decided to set up a working party (WP) to assess the merits of different methods for evaluating the **Life Cycle Climate Performance (LCCP)** for refrigerating systems environmental impact of refrigerants and to produce implementation protocols for these methods, for use by decision makers and refrigeration stakeholders. **Yunho Hwang**, Vice-President of IIR Commission B1, is the chairman of this new WP, which started from January 2012, after approbation of the Science and Technology Council of the IIR.



# Collection of Emission Information

- **Good database**
  - **U.S.**
  - **Europe**
- **Progress**
  - **China: Faculties of Tsinghua University agreed**
  - **(Prof. Baolong Wang, W. Shi, L. Shi)**
  - **Japan: Chun-chung Piao (VP) is working on**
- **Pending**
  - **Other countries**





# Our Goals

