

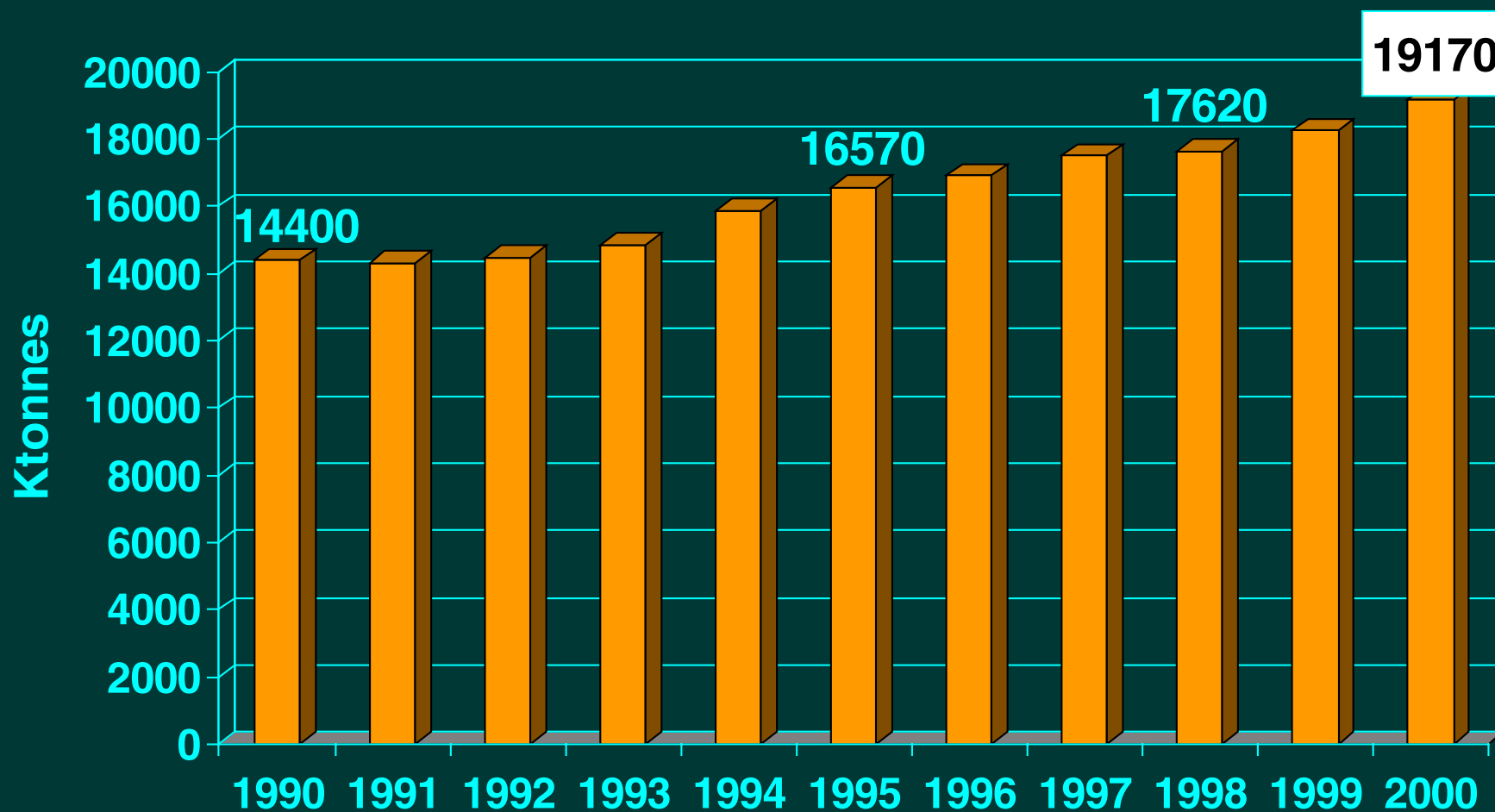
**COPPER**

*International Copper Association, Ltd.*

# Copper and the Environment

- **Copper: a Sustainable Resource?**
- **Copper and Human Health**
- **Copper and the Environment**
- **CuproBraze and the Environment**

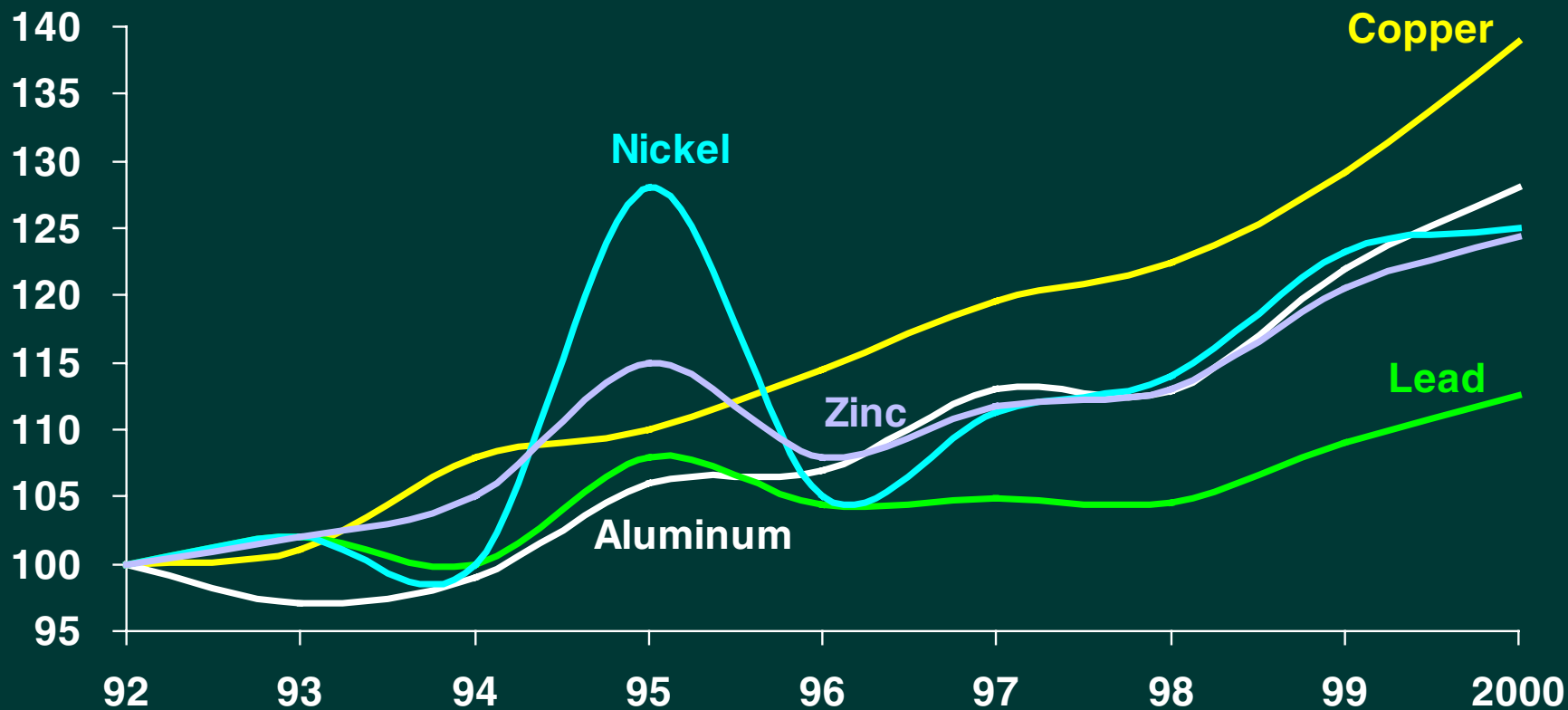
# Total Global Copper Consumption



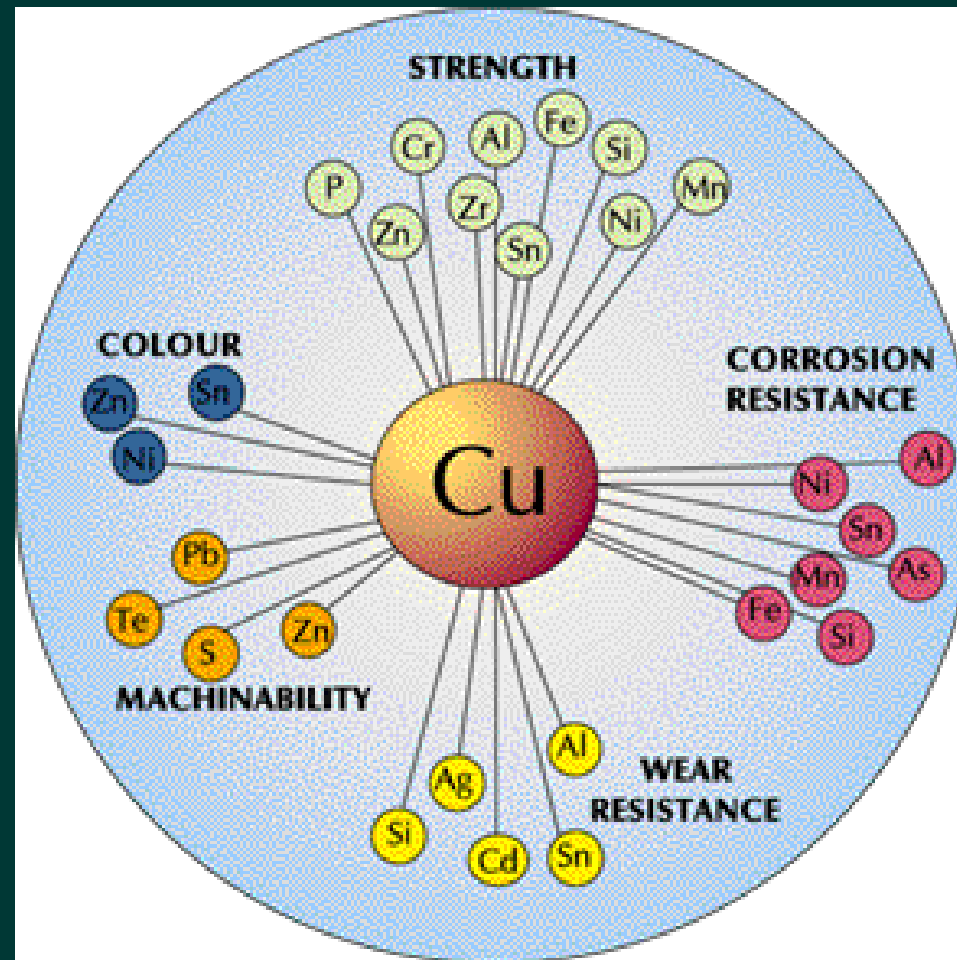
# World Refined Metal Consumption

Consumption

Source: ABMS



# Multifunctional Copper



# Copper Resources

Is Copper a Sustainable resource?

Annual Usage of Refined Copper (2000):

Primary Refined: ~ 13 Million Tonnes

Secondary Refined: ~ 2 Million Tonnes

Secondary Other: ~ 4 Million Tonnes

# Copper Resources

**2000: World Resources: 2300 Million Tonnes**

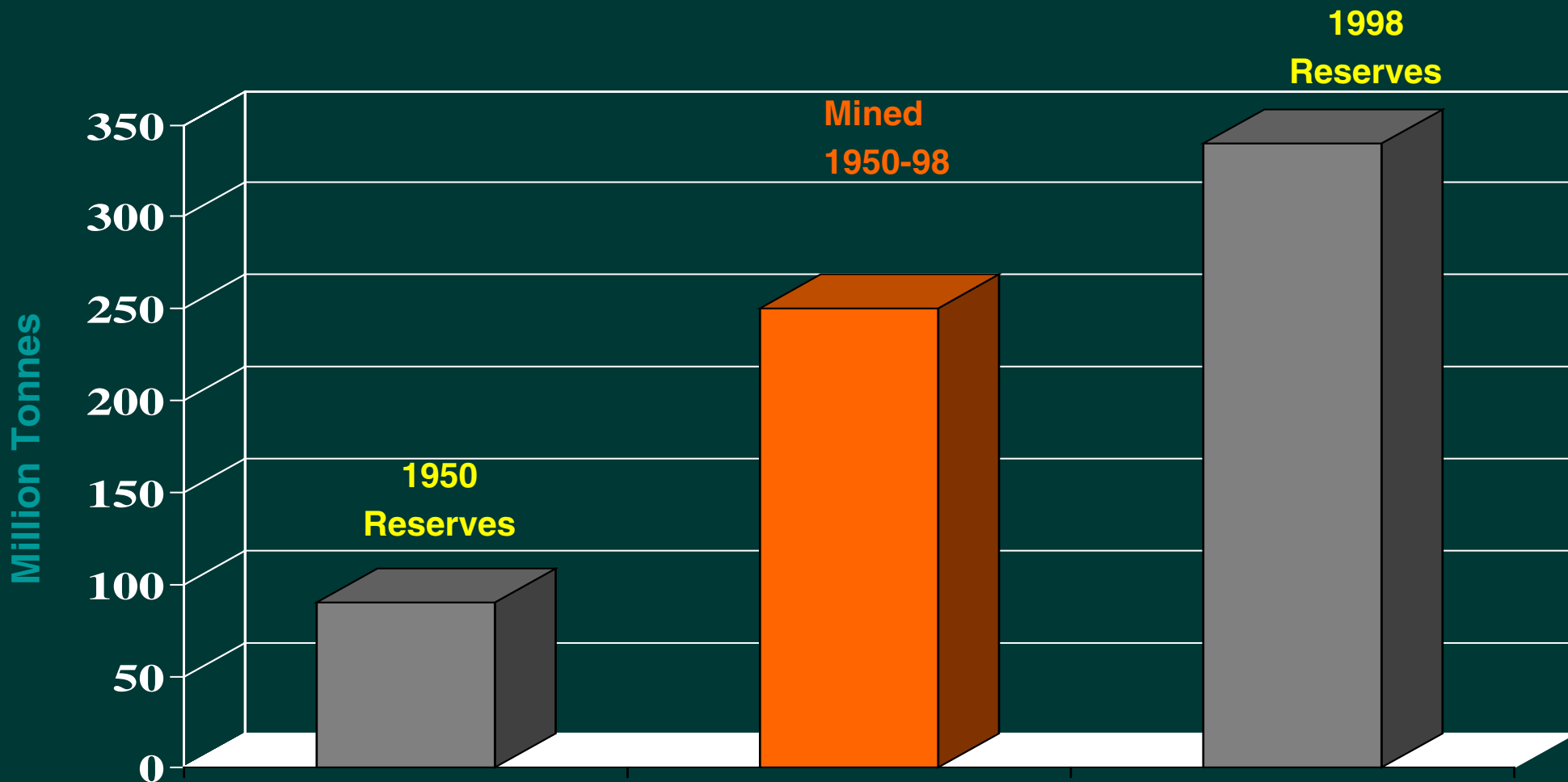
**Economically Recoverable Volume\*:**

- **1950: 90 Million Tonnes**
- **1970: 280 Million Tonnes**
- **1998: 340 Million Tonnes**

**\* Source: US Geological Survey**

# Copper Reserves\*

(Amount that is economically recoverable at the time of determination)



\* Source: US Geological Survey

# Copper Resources\*

(Amount that is known to exist)



\* Source: US Geological Survey

# Copper Resources

**Known Copper Resources: 2300 Million Tonnes**

**Historically Mined Copper: 315 Million Tonnes**

**(and Most of it is Still in Circulation)**

**At Current Consumption,**

**KNOWN Copper Deposits will last ~ 175 Years**

# Copper Recycling

**40%\* of copper used annually is recycled\***

**Compared with:**

**25%\*\* of aluminium used annually is recycled**

**\*Source: Int'l Copper Study Group**

**\*\*Source: World Bureau of Metal Statistics**

# Copper Resources

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**Copper is not Consumed!**

- **Copper is Used.....**
- **.....and Reused**

# Copper and Health

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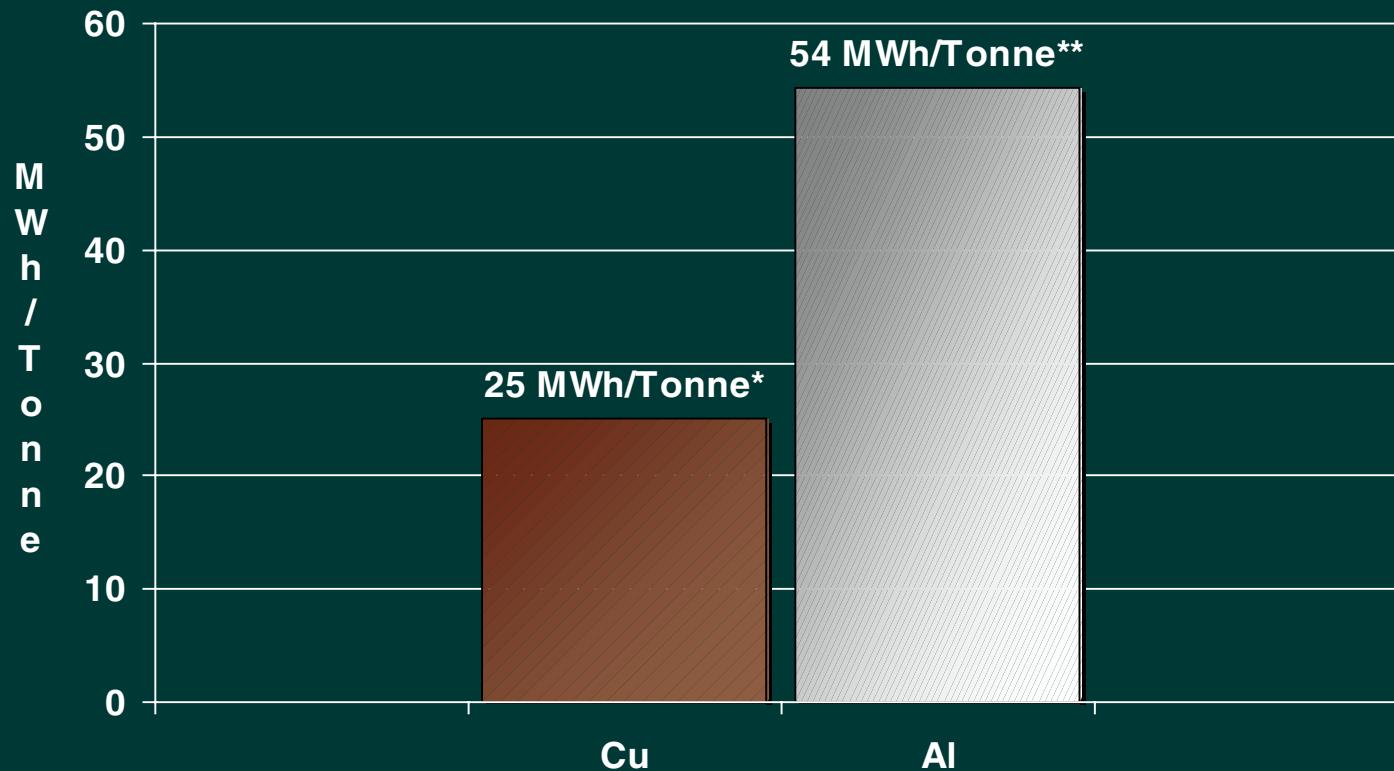
**Copper is an Essential Nutrient  
Required by the Human Body!**

# Copper and Health

**The World Health Organization (WHO) has Concluded that Copper Deficiency is much more of a Risk in Humans than is Copper Toxicity.**

# Copper and the Environment

Energy Consumption to Produce 1 Tonne of Primary Metal

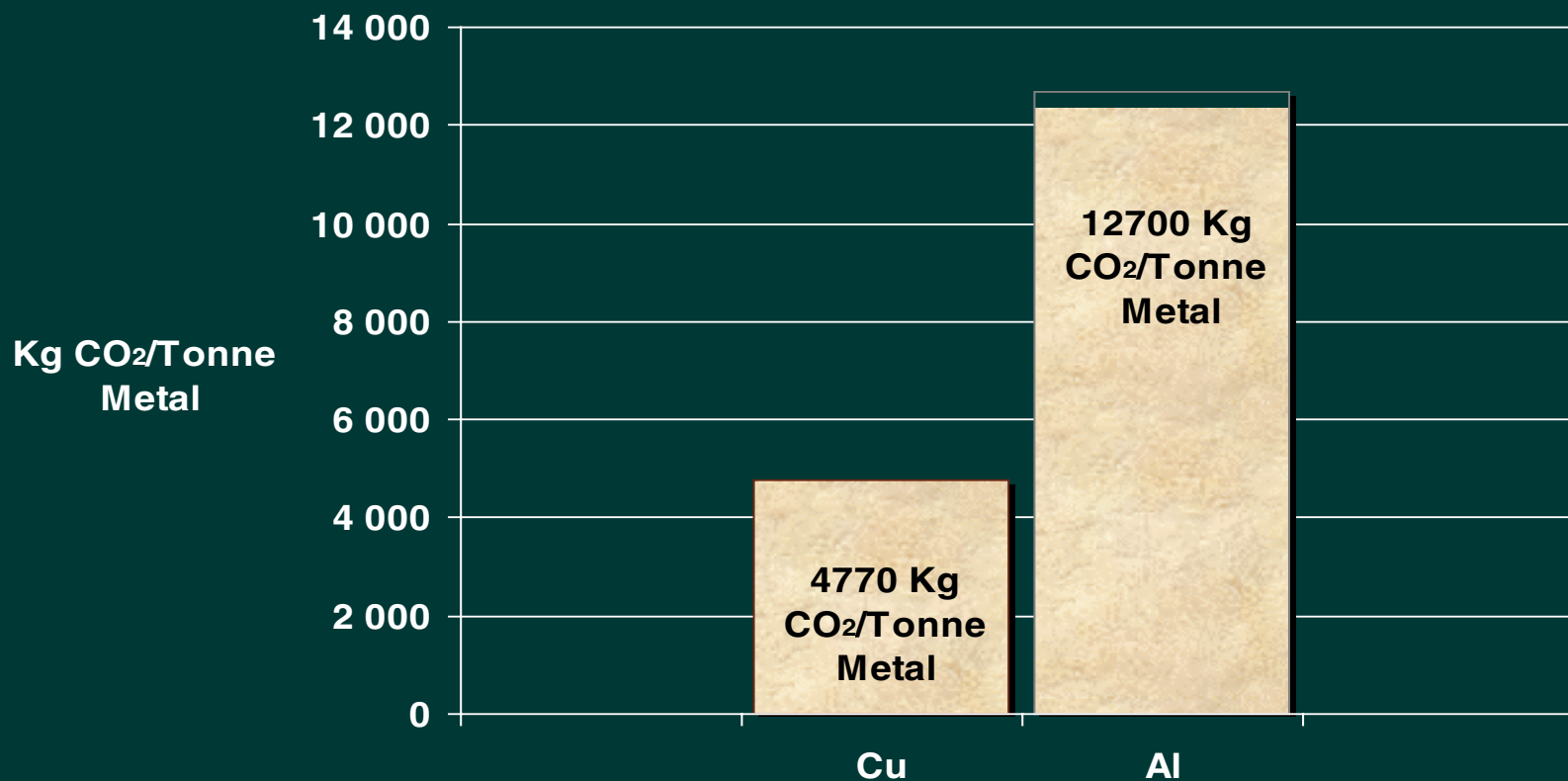


\* Source: Outokumpu Copper

\*\*Source: International Aluminium Institute, LCI, May 2000

# Copper and the Environment

CO<sub>2</sub> Equivalent Emission to Produce 1 Tonne of Primary Metal\*



\*Source: International Aluminium Institute, LCI, May 2000

# *CuproBraze*® and the Environment

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## Mobile Heat Exchanger

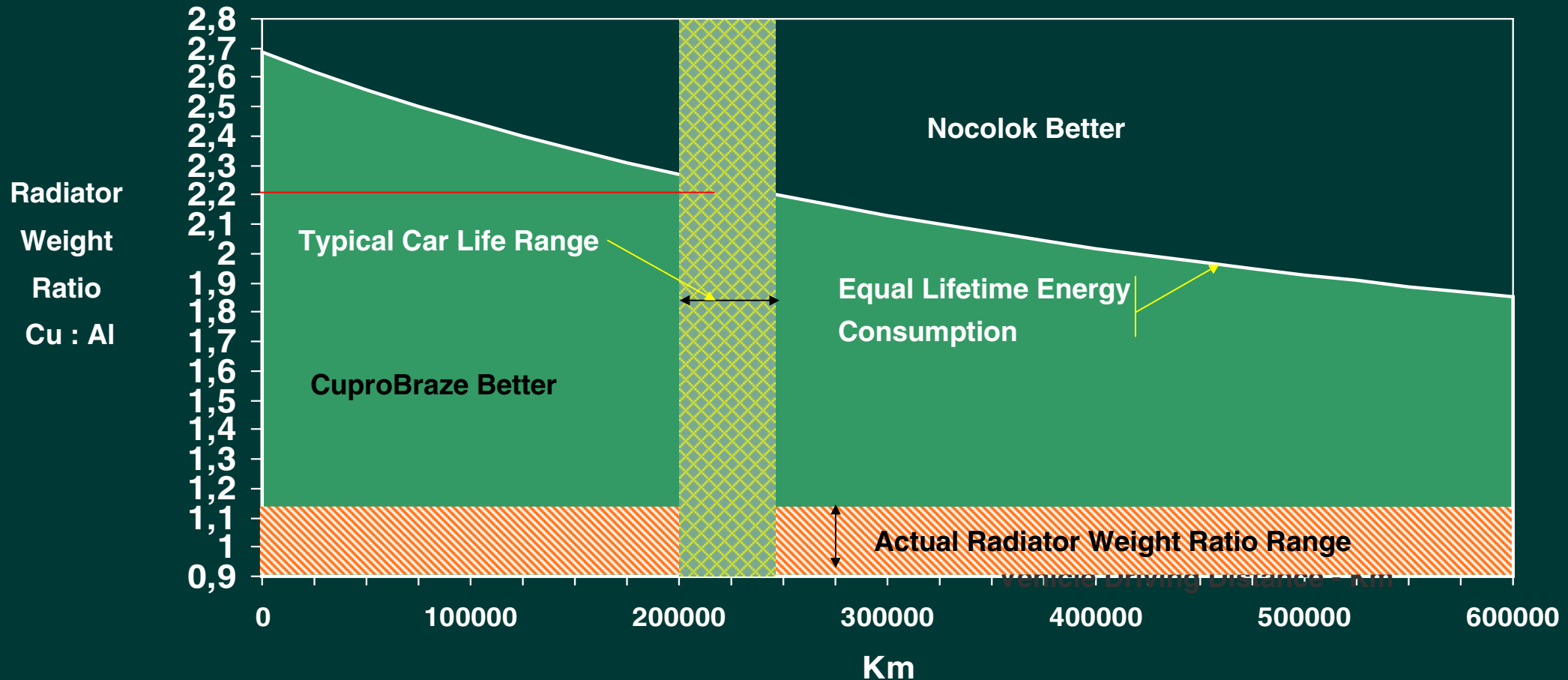
**Lifetime Energy and Greenhouse Gas Emissions:**

**Two Factors - both Heat Exchanger Weight Related:**

- **Materials Mining and Manufacturing**
- **Contribution to Lifetime Fuel Consumption**

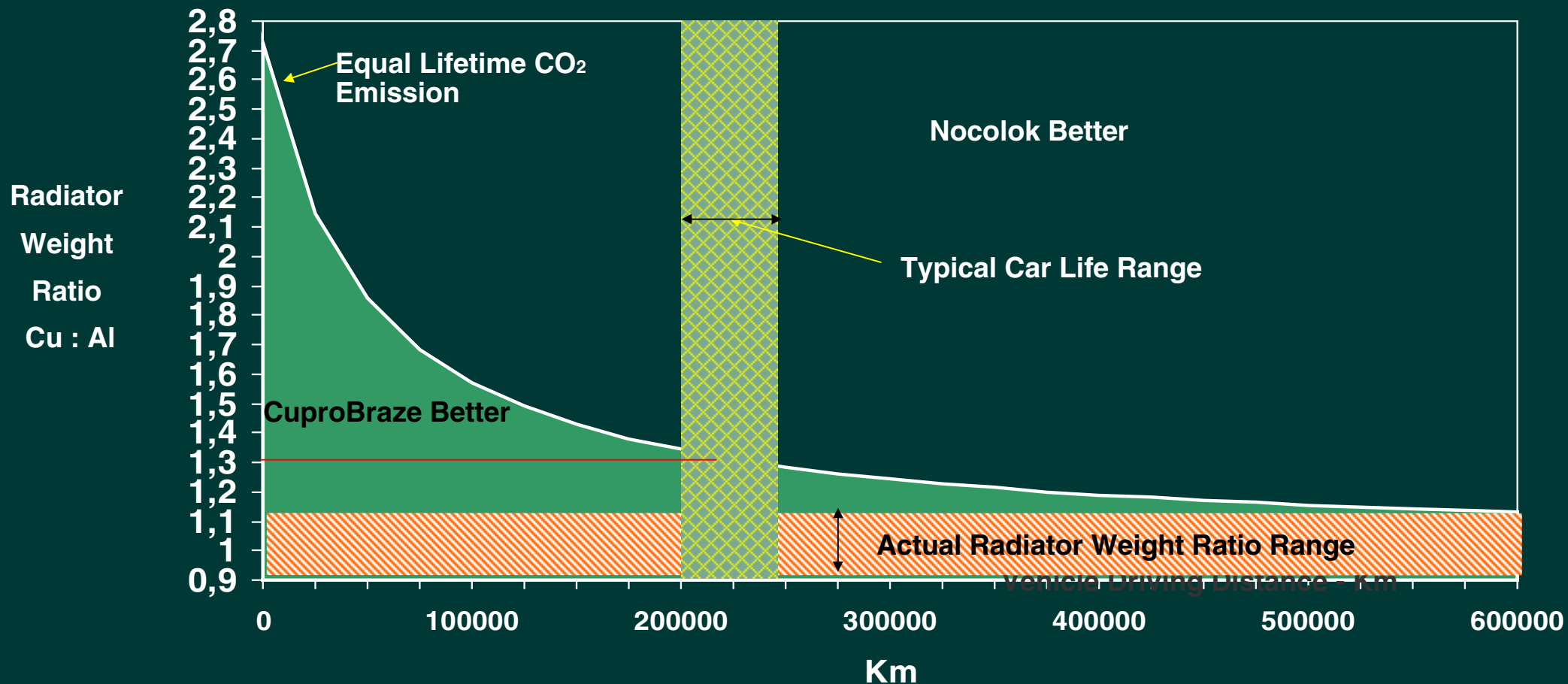
# CuproBraze® and the Environment

## Heat Exchanger Lifetime **Energy Consumption** - Cu vs. Al



# CuproBraze® and the Environment

Heat Exchanger Lifetime **CO<sub>2</sub> Equivalent Emission** - Cu vs. Al



# Copper and the Environment – Summary

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- **Copper is a Modern Metal**
- **Copper is a Sustainable Resource**
- **Copper is Essential to the Human Body**
- **Copper is a Friend to the Environment**
- **CuproBraze is a Friend to the Environment**

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