

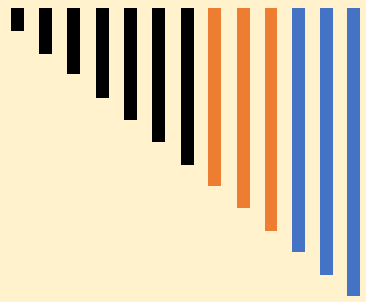


# Circular Economy towards Sufficiency Economy: Case of P. R. China

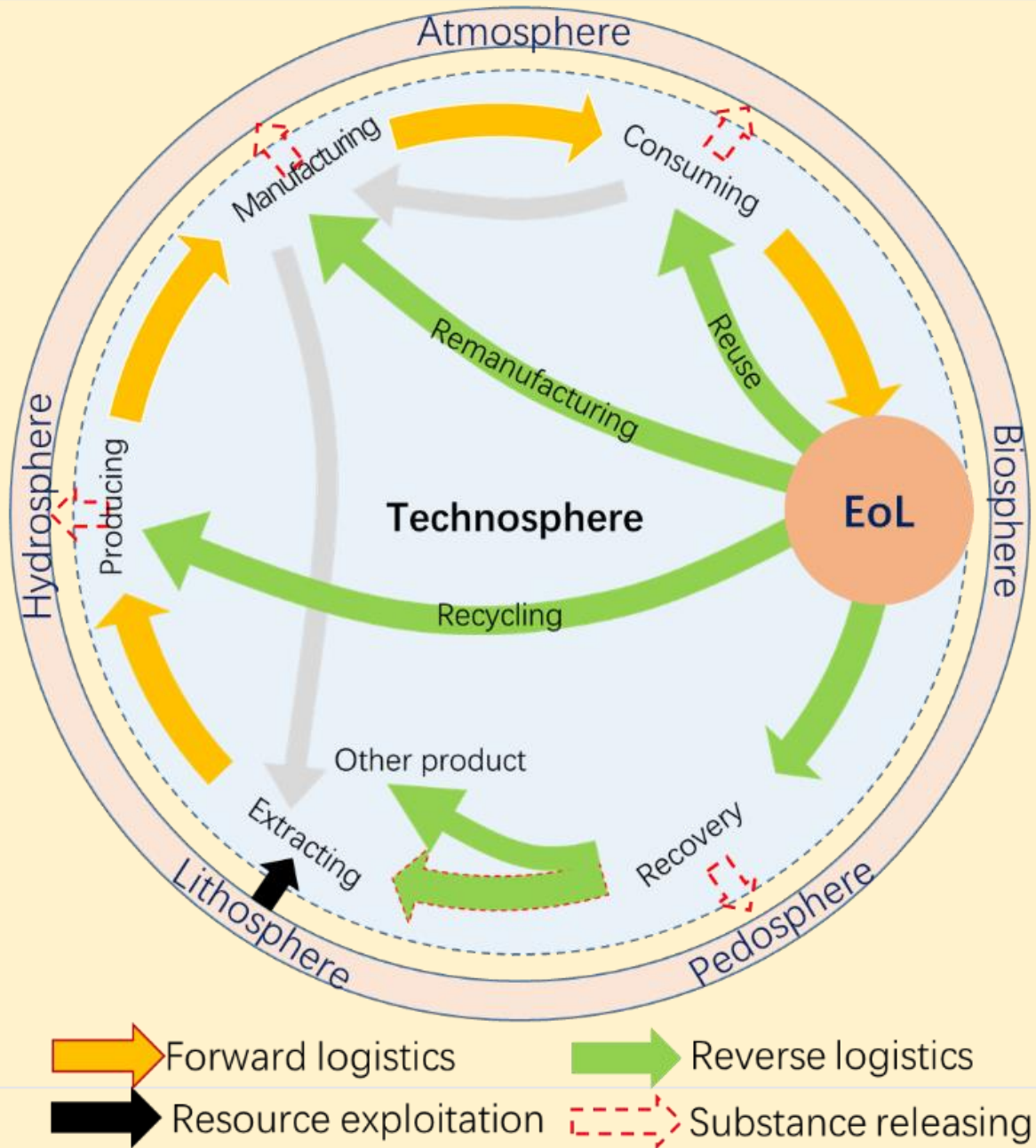
**Prof. Jinhui Li**  
BCRC China  
School of Environment, Tsinghua  
University, P.R. China

**Dr. Xianlai Zeng**  
Associate Professor, Tsinghua  
University, China  
Fulbright Fellow, Yale University, USA

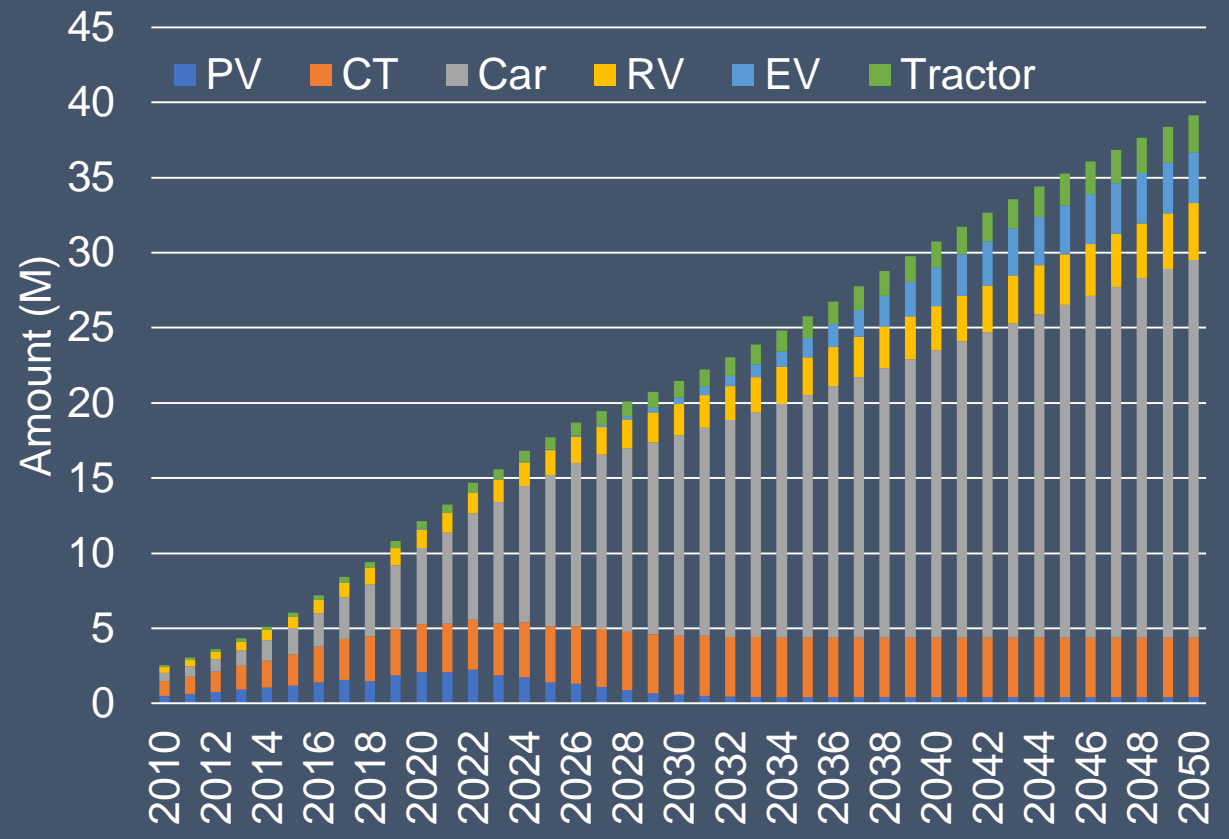
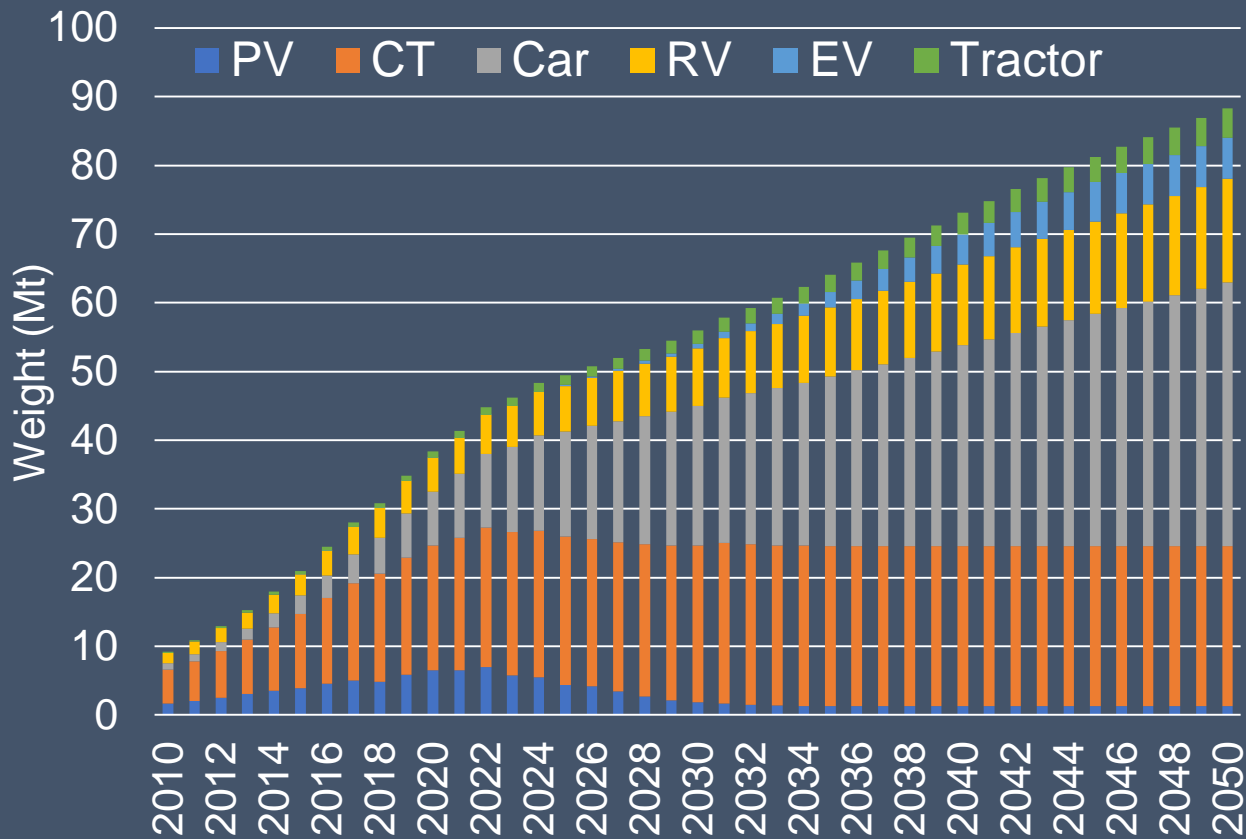
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# Circular economy approach in the material flow framework



# The projected ELV generation in P.R. China from 2010 to 2050





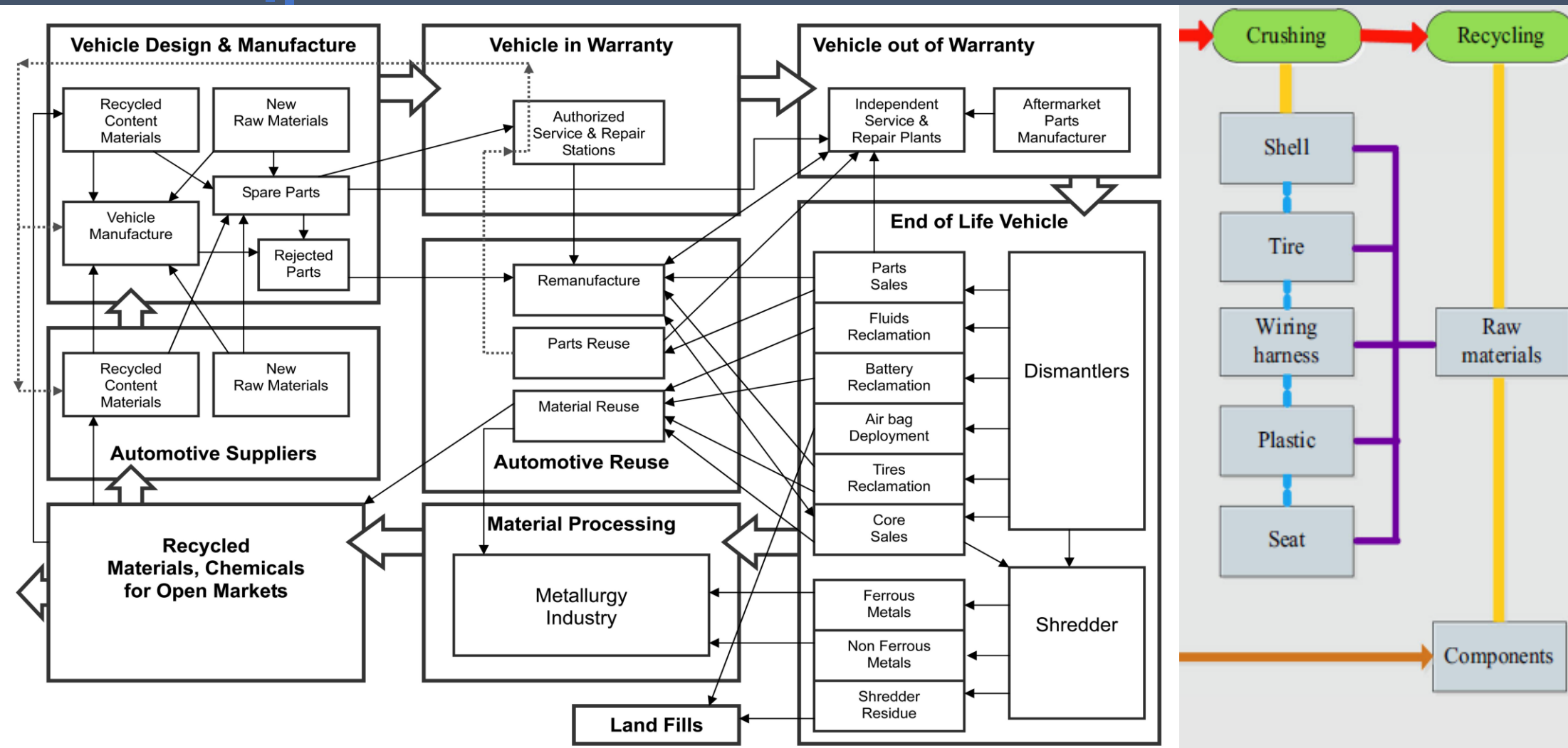
# ELV Generation Amount distribution



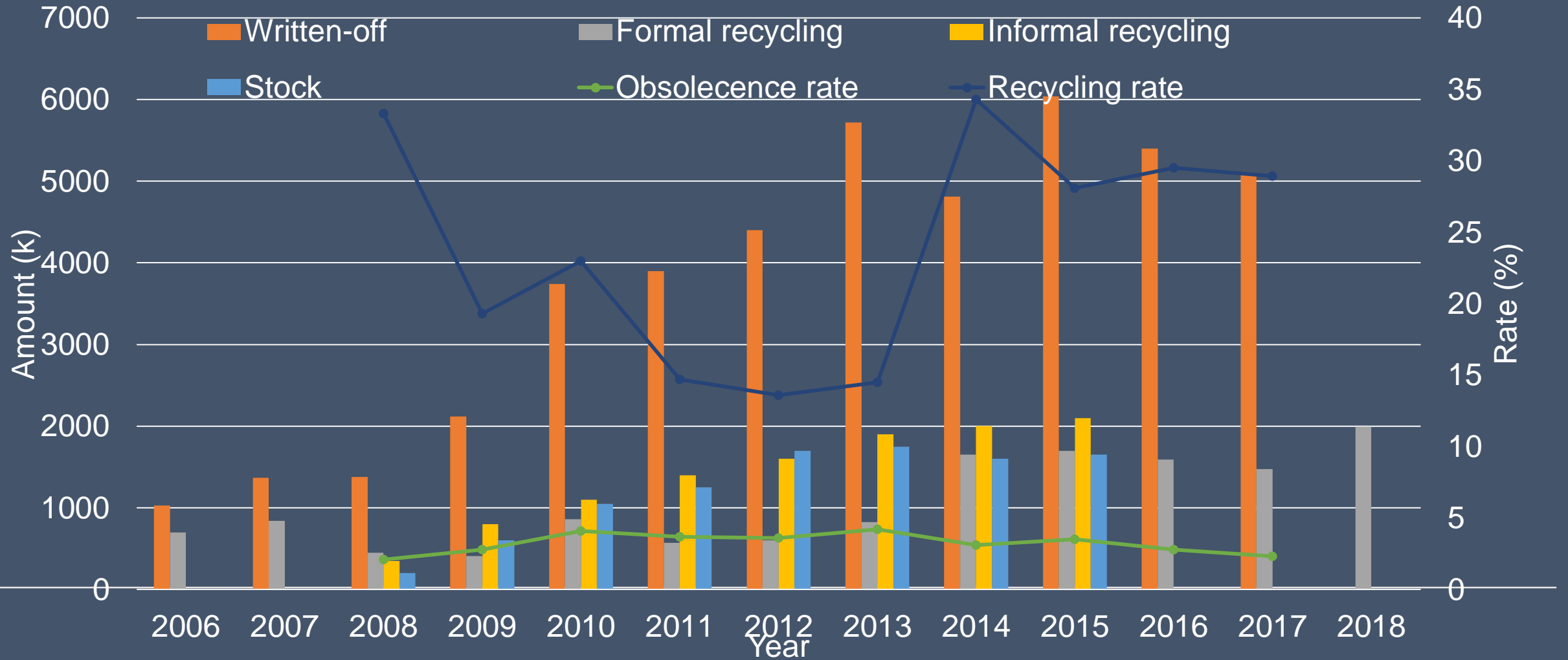
# The management system of ELV in regulations, standard, and measures

| June 2001  | February 2006   | April 2007   | March 2008  | November 2008   | January 2019  | May 2013  | June 2015  | October 2015  | April 2016  | September 2016  |
|--|---|--|---|---|---|---|--|---|---|---|
| <ul style="list-style-type: none"> <li>State Council : Administrative Measures on the Recovery of ELV</li> </ul> | <ul style="list-style-type: none"> <li>NDRC: Technical Policy of Vehicle Product Recycling</li> </ul> | <ul style="list-style-type: none"> <li>MEE: Technical Standard of Environmental Protection in ELV Dismantling</li> </ul> | <ul style="list-style-type: none"> <li>NDRC: Administrative Measures on Remanufacturing Pilot of Vehicle Parts</li> </ul> | <ul style="list-style-type: none"> <li>MEE: Technical Standard of Dismantling Recycler for ELV</li> </ul> | <ul style="list-style-type: none"> <li>NPC: Circular Economy Promotion Law</li> </ul> | <ul style="list-style-type: none"> <li>MOC: Regulation on Mandatory Scrap of Vehicle</li> </ul> | <ul style="list-style-type: none"> <li>MIIT: Management Requirements of Hazardous Substances and Recycling Utilization in Vehicle</li> </ul> | <ul style="list-style-type: none"> <li>Five ministries: Notice on Pushing the Yellow Label Vehicles Discarding</li> </ul> | <ul style="list-style-type: none"> <li>2016 Working Regulation Plan of State Council : initial the revision for Administrative Measures on the Recovery of ELV</li> </ul> | <ul style="list-style-type: none"> <li>State Council : Draft for Comment on Administrative Measures on the Recovery of ELV</li> </ul> |

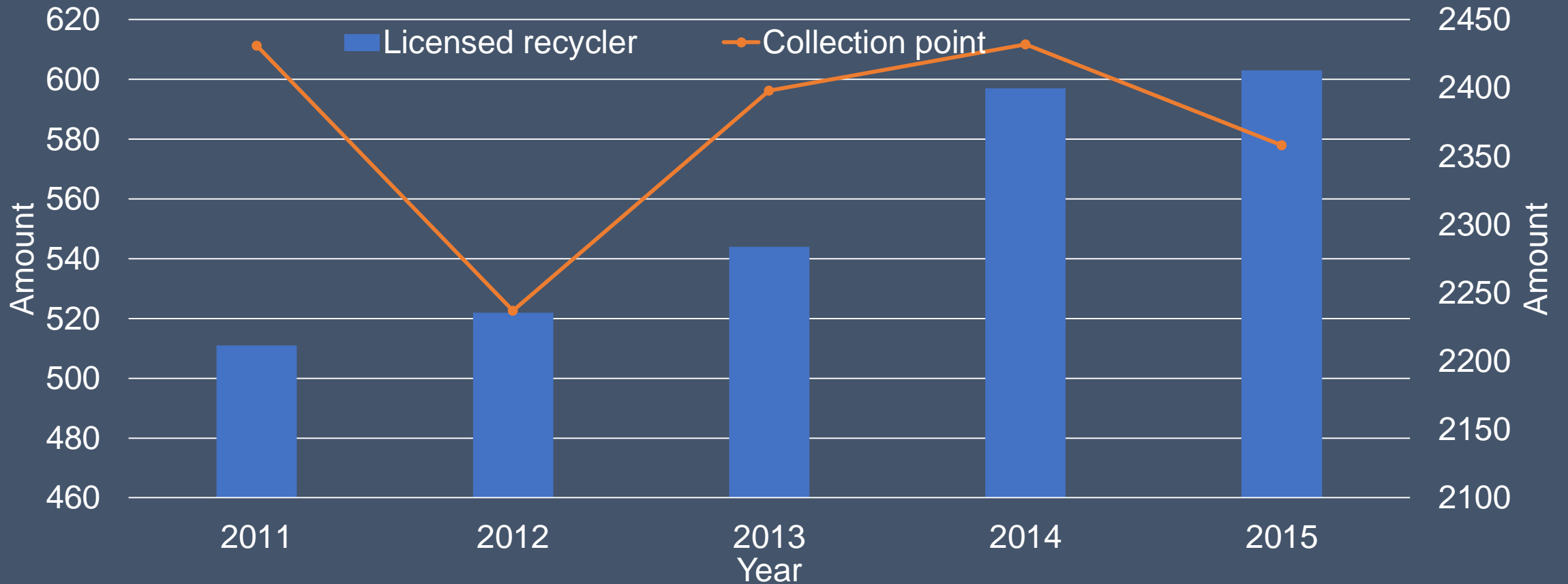
# ELV recycling flow diagram in P.R. China



# Flow of vehicle in the year of 2008-2015



# Recycling enterprises amount and collection point







## The total cost and benefit of one ELVs recycling enterprise operation (million CNY)

| Cost                       |             | Benefit    |              |
|----------------------------|-------------|------------|--------------|
| Item                       | Value       | Item       | Value        |
| Raw and auxiliary material | 7.00        | Steel      | 5.829        |
| Fuel and power consumption |             |            |              |
| Depreciation               | 0.38        | Copper     | 2.208        |
| Human resources cost       | 0.35        | Aluminum   | 2.672        |
| Equipment repairing        | 0.20        | Lead       | 0.304        |
| Management                 | 0.53        | Zinc       | 0.219        |
| Sales cost                 | 0.50        | Non-metal  | 1.239        |
| <b>Sum</b>                 | <b>8.96</b> | <b>Sum</b> | <b>12.29</b> |



# Main Experience

- The most effective regulatory core is the economic incentives to ensure the high collection rate.
- China needed to develop its own approach to handle the ELV, not simply duplicate other countries' experience.
- The management information system, including reception, reporting, auditing, and funding subsidy, is quite helpful to support the ELV recycling.



# Critical Lessons

- ❑ Multi-ministries involving is not beneficial for ELV management.
- ❑ Singular economic benefit cannot make the formal recycling enterprise survive as the informal sector.
- ❑ The extended producer responsibility (EPR) implementation in P.R. China is not smooth and lacks very close relationship between the producers and the recycler.
- ❑ Low recycling technology has declined the recycling efficiency.



# The Way Forward

- The integrated framework of circular economy for ELV management should be initially built and supervised by the high government
- The revision of Administrative Measures on the Recovery of ELV needs to be promptly enforced.
- The collection and recycling network for ELVs should be more effective and standardized
- To green the vehicle industry, cost internalization and EPR principle should be strengthened for producer of vehicle
- The ELV recycling industry is confronting the technology and pollution control upgrading



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More info.

Xianlai ZENG

Rm 805, Sino-Italian Ecological Energy Efficient Building, Tsinghua University  
Beijing 100084, China

Tel: +86-10-6279-7163 | Fax: +86-10-6277-2048

E-mail: [xlzeng@tsinghua.edu.cn](mailto:xlzeng@tsinghua.edu.cn); [xianlzeng@hotmail.com](mailto:xianlzeng@hotmail.com)

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