

e-Waste Responsible Recycling



PERRY JOHNSON REGISTRARS
PJR



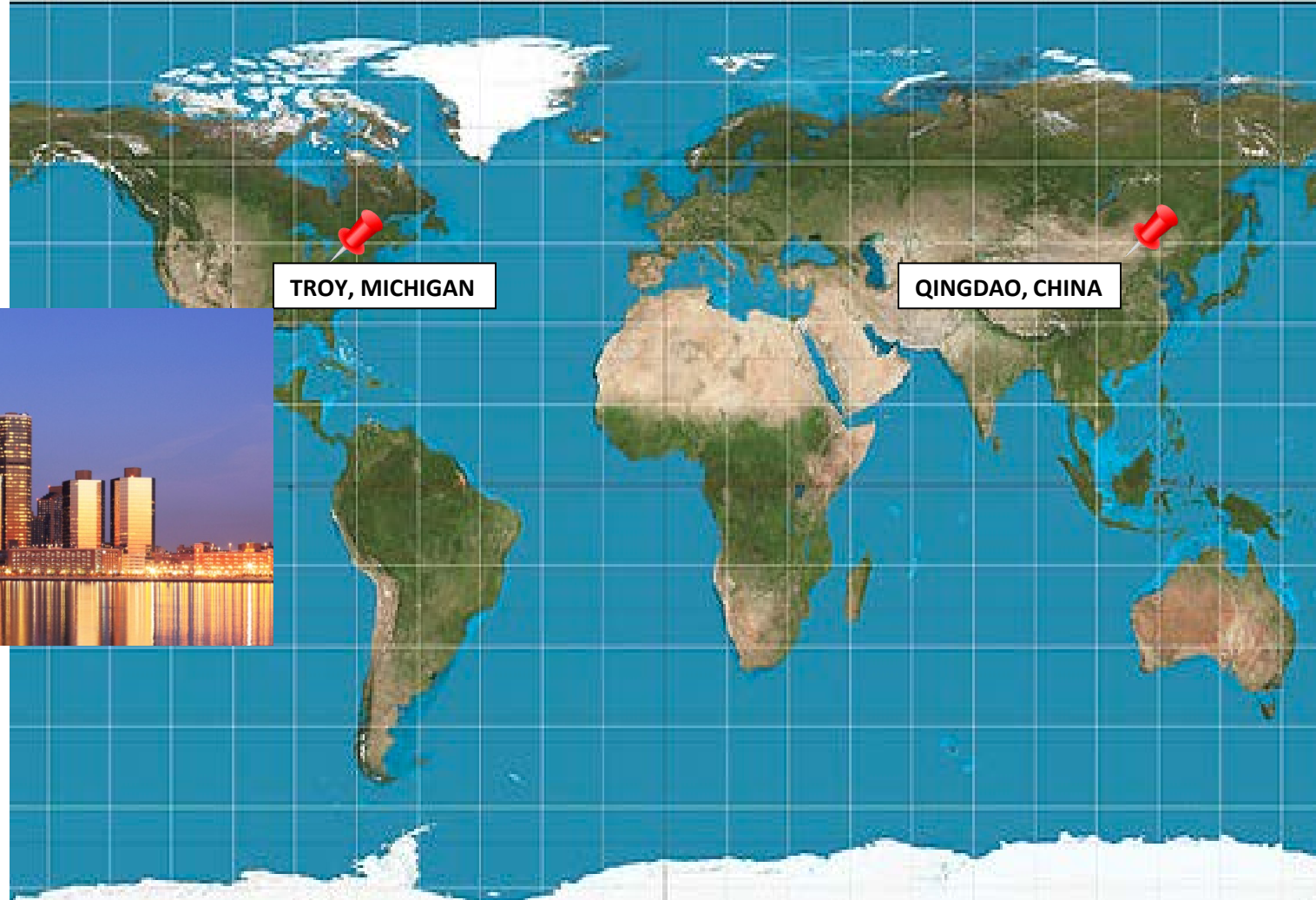
Presented by:
Terry Boboige
President
Perry Johnson Registrars, Inc.



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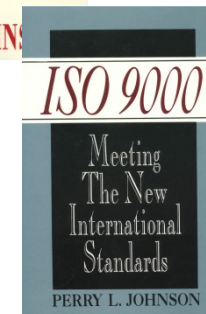
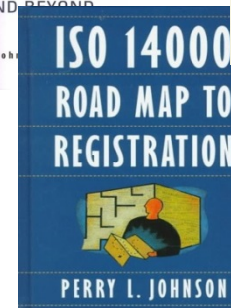
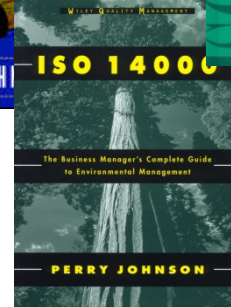
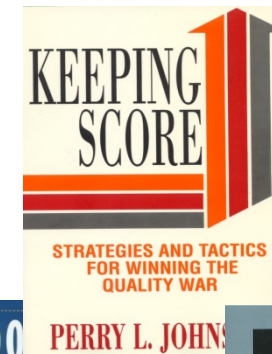
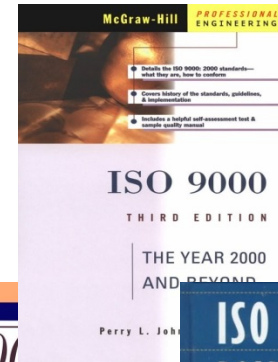
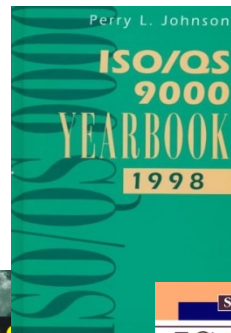
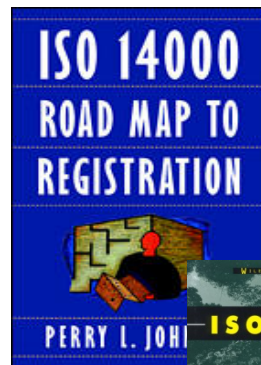
From Motown to Your Town





About Perry L. Johnson

- Perry L. Johnson is one of the world's top experts on ISO 9000, ISO 14000 and AS9100 consulting and training, and a leading educator on the theories and practices of Total Quality Management (TQM). A former Fortune 500 executive, he is globally recognized as an expert on ISO 9000 and on statistical and motivational methods for the improvement of quality and productivity. In particular, Mr. Johnson is also known for his successful pioneering efforts to expand the use of statistical scorekeeping methodologies into short-run, administrative and service operations.





PJR History

- PJR is the #1 R2 registrar in the world.
- We also offer QMS, EHS OHSAS, ISMS, IATF 16949, AS 9100, 9110, 9120, TL 9000, ISO 13485 and Rios.
- Countries where PJR has certified companies to R2:
 - Australia
 - Canada
 - Hong Kong
 - Brazil
 - India
 - Ireland
 - Japan
 - Malaysia
 - Mexico
 - Thailand
 - Singapore
 - European Union
 - United States





PJR Accreditations



ANSI-ASQ National Accreditation Board



United Kingdom Accreditation Service



Certification and Accreditation Administration of the People's Republic of China



Japanese Accreditation Board



Entidad Mexicana De Acreditacion





e-Waste Responsible Recycling

- About 44.7 million tons of e-waste were generated in 2016.
- It is estimated that only 8.9 million tons were recycled.
- That's only 20%
- e-Waste production by region in 2016:
 - Africa: 2.2 million tons
 - Americas: 11.3 million tons
 - Asia: 18.2 million tons
 - Europe: 12.3 million tons
 - Oceania: 0.7 million tons

Source: *The Global E-waste Monitor 2017*



Worldwide Disposal of e-Waste

Source : THE GLOBAL E-WASTE MONITOR 2014

GLOBAL QUANTITY OF E-WASTE GENERATED			
Year	E-waste generated (Mt)	Population (billion)	E-waste generated (kg/inh.)
2010	33.8	6.8	5.0
2011	35.8	6.9	5.2
2012	37.8	6.9	5.4
2013	39.8	7.0	5.7
2014	41.8	7.1	5.9
2015	43.8	7.2	6.1
2016	45.7	7.3	6.3
2017	47.8	7.4	6.5
2018	49.8	7.4	6.7

Data 2015 onwards are forecasts

- **Lamps.** Typical equipment comprises straight fluorescent lamps, compact fluorescent lamps, fluorescent lamps, high intensity discharge lamps and LED lamps).

- **Small IT and telecommunication equipment.** Typical equipment comprises mobile phones, GPS, pocket calculators, routers, personal computers, printers, telephones).

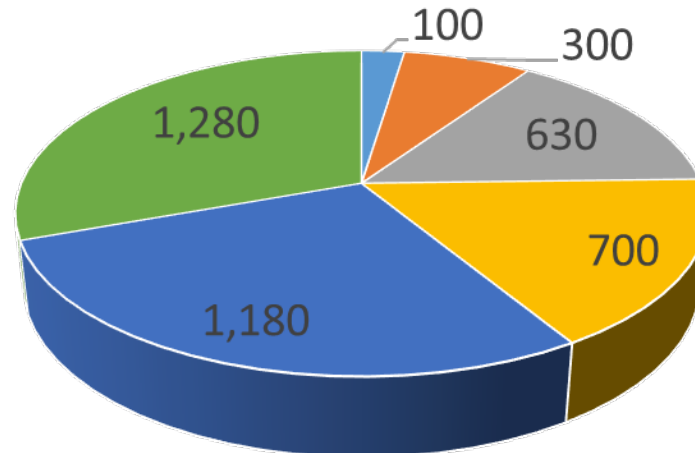
- **Screens, monitors.** Typical equipment comprises televisions, monitors, laptops, notebooks, and tablets.

- **Temperature exchange equipment.** Also more commonly referred to as, cooling and freezing equipment. Typical equipment is refrigerators, freezers, air conditioners, heat pumps.

- **Large equipment.** Typical equipment comprises washing machines, clothes dryers, dish washing machines, electric stoves, large printing machines, copying equipment and photovoltaic panels.

- **Small equipment.** Typical equipment comprises vacuum cleaners, microwaves, ventilation equipment, toasters, electric kettles, electric shavers, scales, calculators, radio sets, video cameras, electrical and electronic toys, small electrical and electronic tools, small medical devices, small monitoring and control instruments).

- Lamps
- Small IT
- Screens
- Temperature Exchange equipment
- Large Equipment
- Small Equipment





Export of e-Waste

- Roughly 50-80% of the e-waste recyclers collect, ends up getting exported to developing nations.

Export of e-waste





Managing the e-Waste Problem

How to effectively manage the e-waste problem:

- Utilize an international standard of e-waste best practices.
- Hold organizations accountable to such a standard.

Existing international standards available:

- **Responsible Recycling (R2)**



- **E-Stewards**





About R2:2013

- R2 is one of the leading standards for electronics repair and recycling.
- The R2 Standard provides a common set of processes, safety measures, and documentation requirements for businesses that repair and recycle used electronics.
- Who Can get certified?
 - e-Waste recyclers.
 - e-Waste refurbishers.
 - End-of-life processors of e-Waste (e.g. smelter, refiner, etc.).
 - Brokers.
- **750+ facilities are currently R2 certified in 33 countries, with more added every day.**



About R2:2013

- PJR was part of an early partnership/collaboration with USA Environmental Protection Agency to develop the standard.
- The initial R2 Standard was published in 2008 (R2:2008). It was later revised to the current standard, R2:2013, effective July 1, 2013.
- Developed for international use.
- R2:2013 is not intended to be an EH&S Management System by itself.
- R2:2013 requires a company to meet one of the following requirements:
 - Certification to ISO 14001 **and** OHSAS 18001; **OR**
 - Certification to the Recycling Industry Operating Standard (RIOS).



R2 Statistics

Growth of R2 Certification Program



<https://resource-recycling.com/e-scrap/2017/11/30/story-r2-standards-evolution/>



About e-Stewards

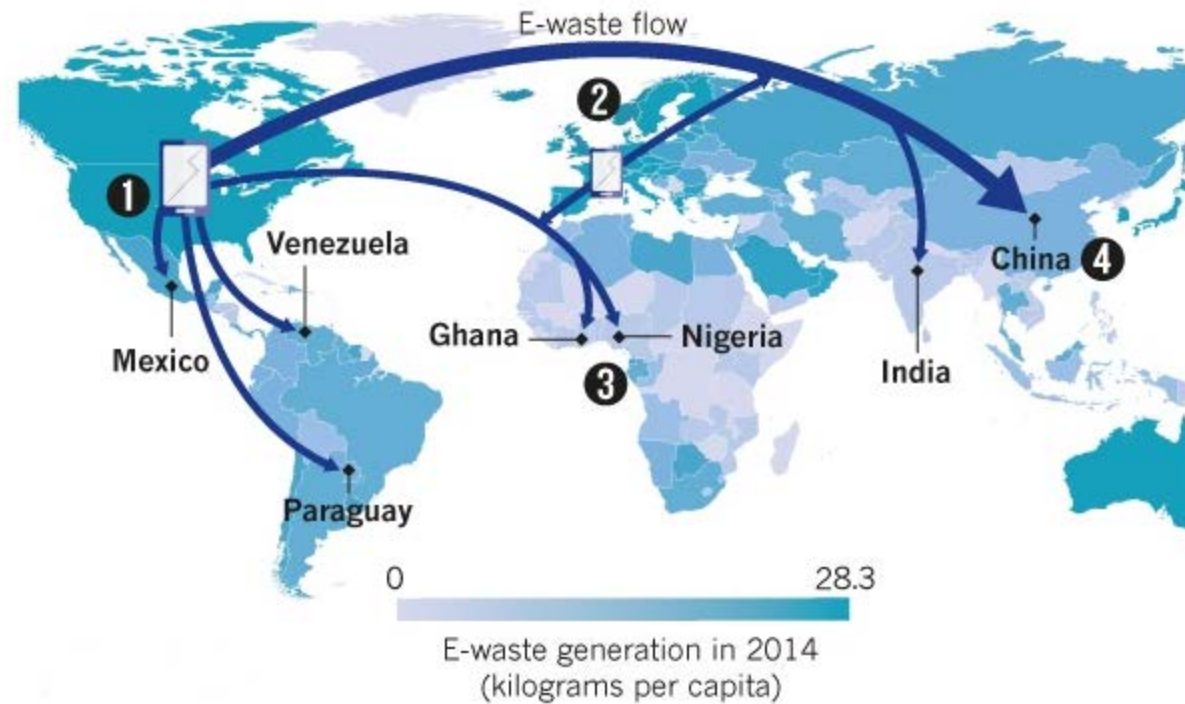
- Encompasses the globally recognized certification **ISO 14001** environmental management system.
- Prohibits all toxic waste from being disposed of in solid waste landfills and incinerators.
- Requires full compliance with existing international hazardous waste laws and treaties for exports and imports of electronics, and specifically prohibits the export of hazardous waste to developing countries.
- Requires extensive baseline protections for and monitoring of recycling workers in every country, including developed nations where toxic exposures are routinely taking place.
- **97 Facilities Certified**



Growth in e-Waste Certification

- Regions with expected growth in e-waste certification:

- **China**
- India
- Africa
- Latin America





Selecting A Registrar

- When selecting a registrar you will want to make sure they are “accredited.”
- Experience in the industry. How many certifications do they have?
- Auditor qualifications and availability
- Customer service / support
- Technical support and knowledge from the registrar
- Guidance (some offer free webinars, etc..)
- All Registrars are not the same



Certification Steps

Step 1: Establish Documentation to meet standard requirements

- Role of Consultants

Step 2: Training to standard requirements

Step 3: Implement standard requirements

- Conduct internal audits of system
- Conduct compliance evaluation
- Conduct review of system based on input from internal audit

Step 4: Contract with a certification body

Step 5: Complete S1 and S2 audits

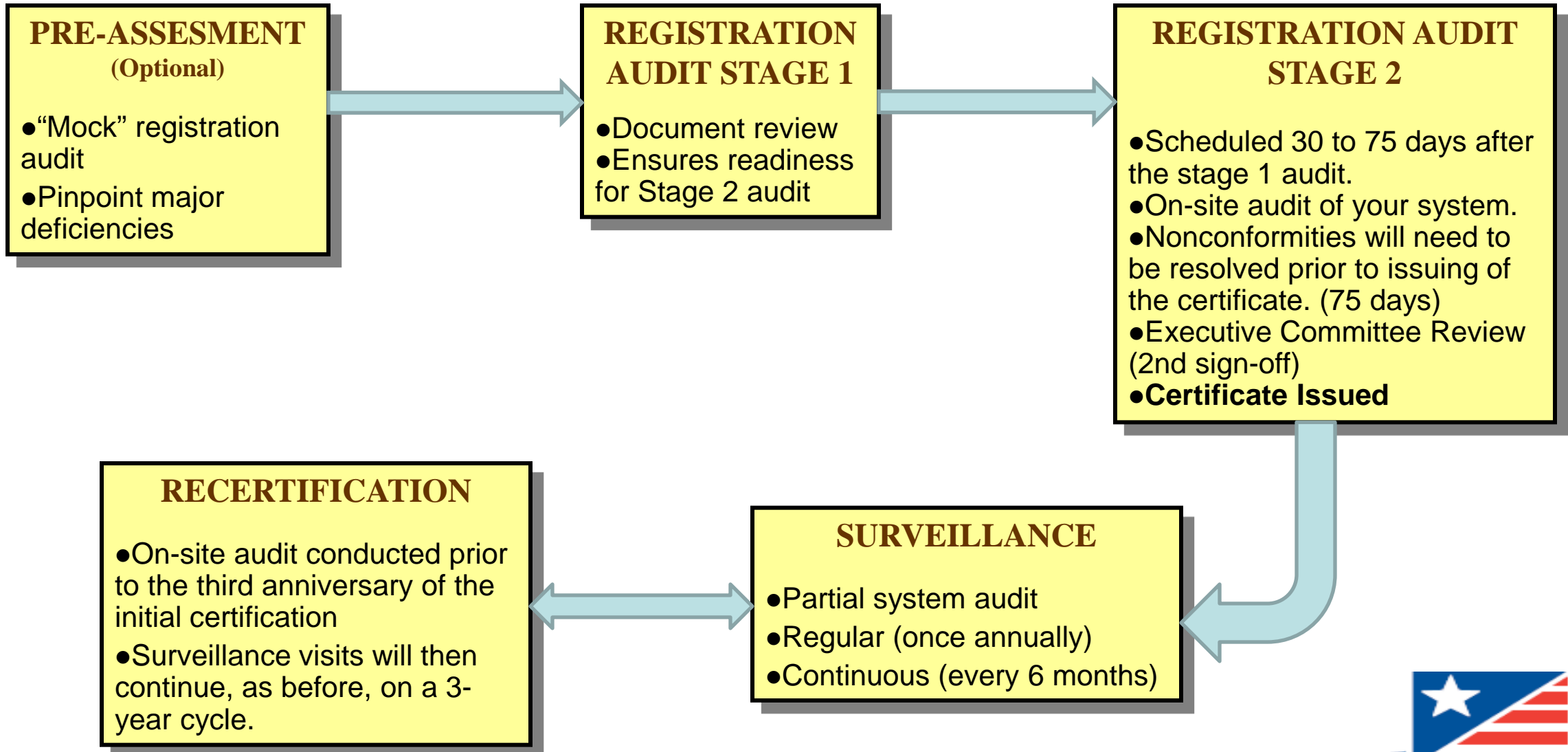
- Address any nonconformities →

Certification!





Certification Process





Certification Process





R2 Certification Results

- What benefits can I get from being certified to R2?
 - Chinese recyclers gain exposure to USA stakeholders and large exporters.
 - The vast majority of certified recyclers reported that certification has increased their business. Independent research conducted in 2012 by Gracestone, Inc. & Arcadian Solutions (small consultancies with in-depth expertise on global End-of-life-electronics management) found that:
 - 95% of certified recyclers reported increased demand for responsible recycling.
 - 70% of certified recyclers reported that certification had increased their business.
 - 31% reported increases of more than an 11%
 - 25% reported increases of 6-10%
 - 14% reported an increases up to 5%
 - 36% reported reduced insurance premiums due to better EH&S practices

<https://sustainableelectronics.org/about-seri/faq>



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PJR Goals

- Educate the China marketplace (end users, government oversight bodies, recyclers) regarding USA e-waste standards – R2, e-Stewards, Rios.
- Provide training to consultants and end users.
- Conduct 3rd party audits using local Chinese auditors.
- Build staff & recruit auditors to service Chinese clients.





e-Waste Responsible Recycling

