Risk Based Regulatory System for Electrical and Electronic Equipment Safety

Lucy He

WorkSafe New Zealand

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Content

- New Zealand's Electrical and Electronic Equipment (EEE) Regulatory System and Risk Engine

- Applications of the Risk Engine principles

New Zealand EEE Regulatory system and Risk Engine

WTO Expectations

When Good Regulatory Practice is being applied to regulatory systems, the WTO expects risk management techniques to be applied

Likewise, the WTO expects that International Standards are used as the basis for assessing compliance with regulatory objectives, and,

That Mutual Recognition Agreements (MRA) are encouraged to reduce the impact of regulatory intervention on traded goods – technical barriers to trade.

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Role of the Risk Engine

The risk engine (the Engine) is one part of the regulatory architecture, its role is to have a predictive look through the 'fog' into the marketplace

It should not be used as a sole driver of the regulatory controls

Its value is to provide a predictive risk assessment that reduces the errors that can come from relying on incident information which can be dominated by careless use of equipment

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Engine Design

The Engine was therefore designed to inform regulatory decision making by giving guidance on the relative ranking of products for pre-market controls.

The system is based on an assessment of the combined effects of two factors using the fundamental risk equation –

Risk = Probability x Consequence

$$R = P \times T$$

Probability of non compliance (P) x Technical safety hazard (T)

Regulation

It is recognised that the principal function of Regulation is to influence the probability that a societal objective is achieved

To offset the level of risk that is present without the intervention

Where a standard is available to be applied, the regulation would normally be focussed on influencing compliance with that Standard, i.e. changing the probability of compliance.
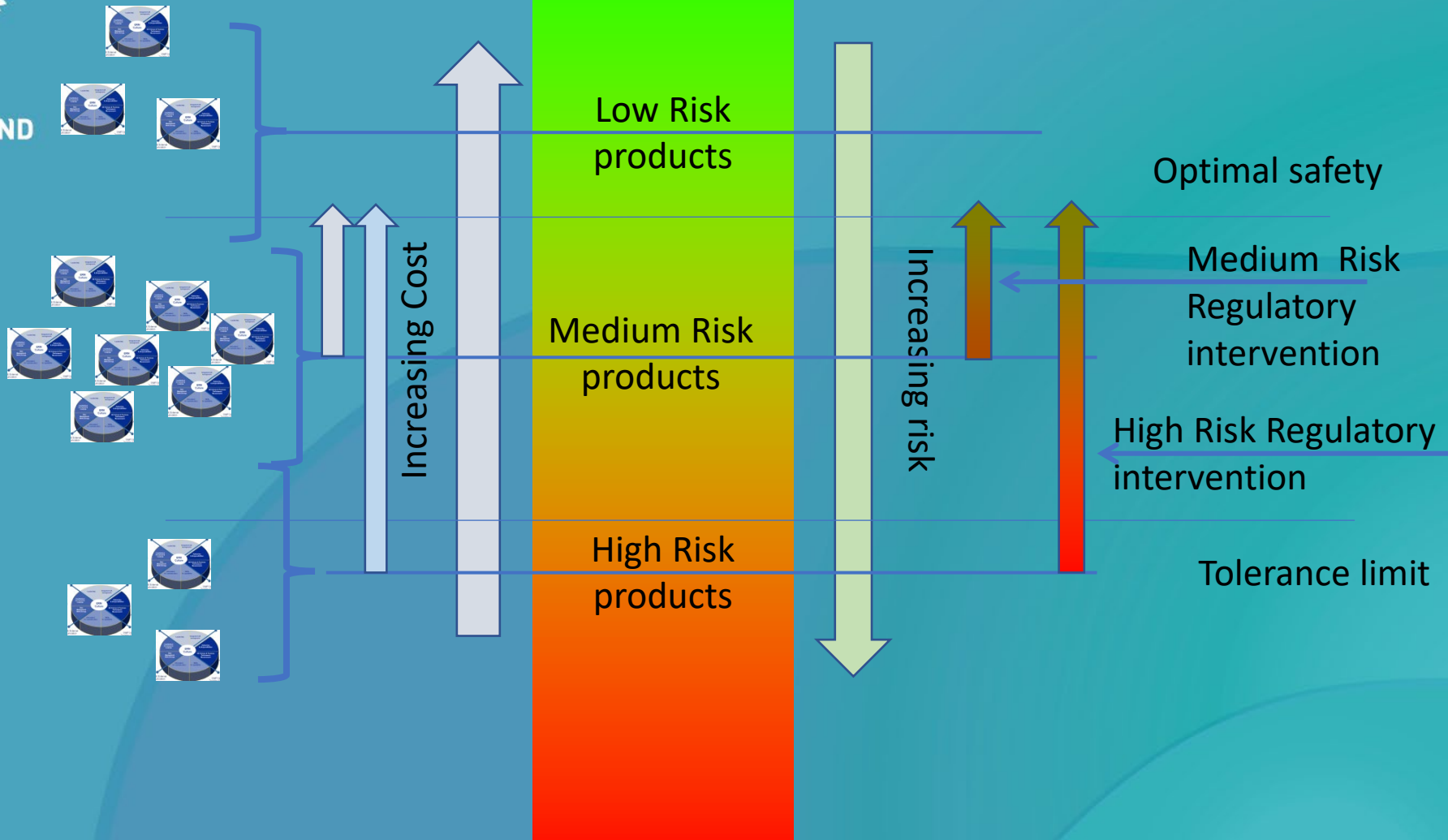
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NZ's Regulatory Regime

New Zealand has an electrical and electronic product safety regime that has three risk driven pre-market regulatory intervention categories:

- For all products, Essential Safety is required, and Standards that are 'deemed to be safe' are provided in the Regulations

- For Medium Risk products, a Supplier Declaration of Conformity (SDoC) is required to have been completed by the supplier and available to the purchaser. A supporting test report has to be available to the Regulator

- For High Risk products, an approval by regulatory or recognised certification is required

The Engine is used to determine which risk intervention category applies to a particular product.

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Low Risk products

Medium Risk products

High Risk products

Increasing Cost

Increasing risk

Optimal safety

Medium Risk Regulatory intervention

High Risk Regulatory intervention

Tolerance limit

Probability factors

10 probability factors that influence non-compliance have been identified and built into the Engine, for example:

- The product standard has recently been updated to address a significant safety issue.

- The product uses new technology or lacks a relevant international standard.

- Testing is expensive, difficult, or not readily available

Consequence (Technical) Factors

24 consequence, "technical", factors have been identified and built into the Engine, for example:

- Product is likely to be used by unsupervised children

- Product commonly used in damp locations or where the skins resistance is bypassed.

- Product providing an electrical safety function

- Product likely to be moved during or between uses.

Graphical Presentation

A graphical representation has been adopted to depict the output of the Engine plotting probability and consequence on the two axes

This has two advantages; in that it allows the influence of P and T to be individually seen and considered, and it also allows products with very high technical hazard levels or compliance probability factors to be considered on that factor alone

The graphical representation is also advantageous as it allows societal tolerance to be taken into account.
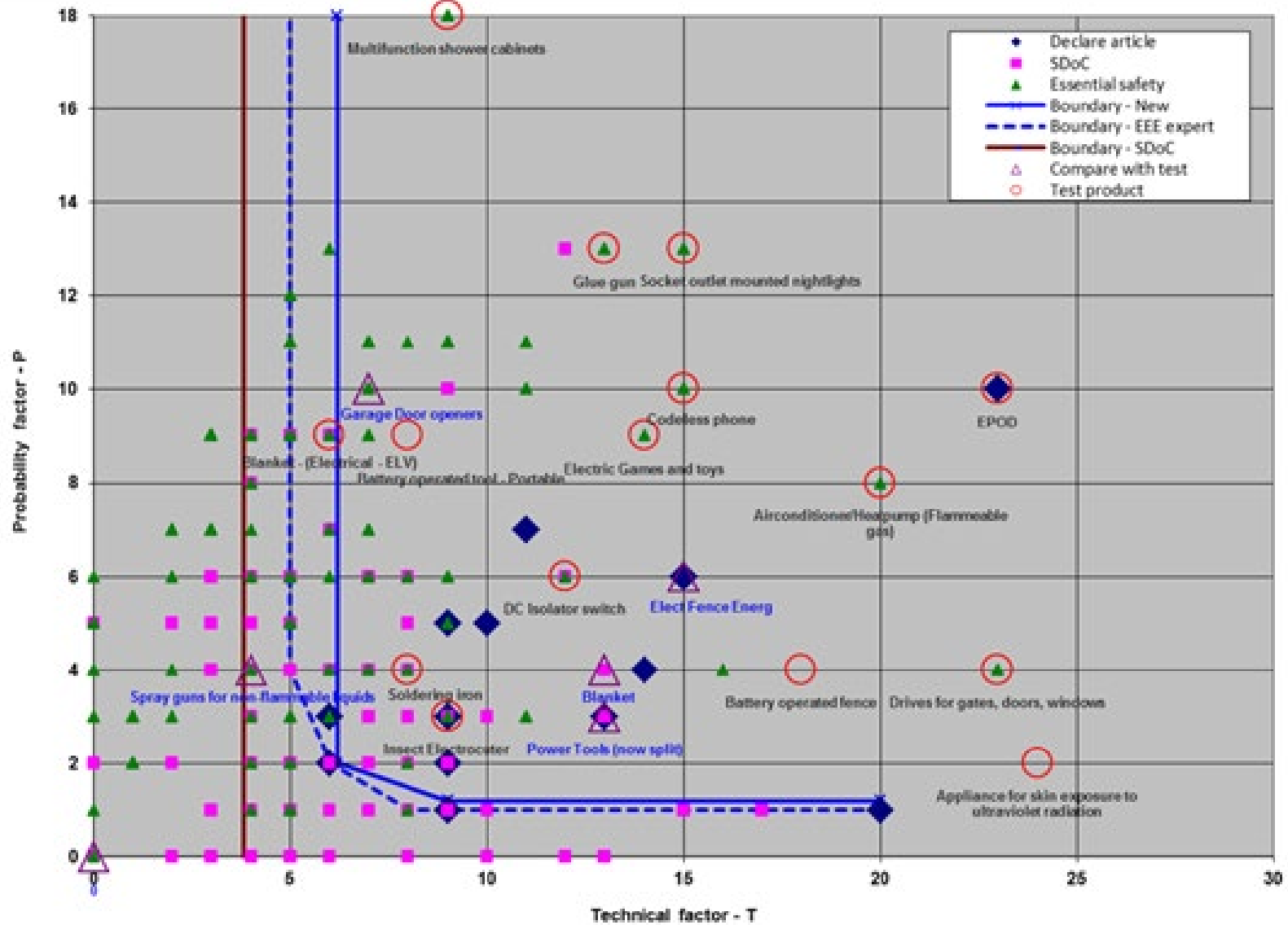
Delineation of Interventions

The results of a ranking given by a group of experts was used to derive a set of delineation lines for each of the three regulatory intervention categories

A statistical analysis was then carried out to verify the delineation points for each of the regulatory interventions being employed and to verify the reliability of the process

Applications of
the Risk Engine principles
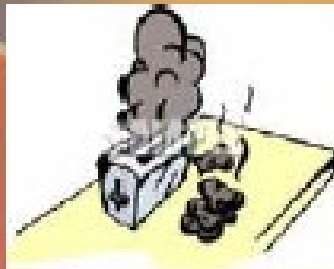
ASEAN EEE RISK ASSESSMENT GUIDELINES

$$R = C \times P \times N$$

The consequence of non-compliance

Hazard is the intrinsic property of the product that may cause an injury to the consumer who uses the product. It can appear in the following forms

Electric

Extreme Temp

Fire

Mechanical

Special

ASEAN EEE RISK ASSESSMENT GUIDELINES

$$R = C \times P \times N$$

Probability of non-compliance

✓A number of probability factors **"P"** have been identified that contribute to the probability of non-compliance. Factors that improve or reduce compliance have been identified.

✓Using the "Probability of Non-compliance Table", Annex G the product is evaluated by assigning a value to each factor.

✓A scale of 1 – 5 will be used, 1 being the lowest and 5 the highest probability of non-compliance.

✓The average of the scores of all the factors to get the value of the Probability of non-compliance.

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ASEAN EEE RISK ASSESSMENT GUIDELINES

$$R = C \times P \times N$$

Population of Product in Marketplace

✓Population "**N**" of product in market place refers to the quantity of electrical and electronic equipment purchased and utilized within the economy.

The value for population of product "**N**", referring to is set as:

N= 1.00   for item normally used in most household
N= 0.75   for item commonly used in most households
N= 0.5   for item used in many households
N= 0.25   for item occasionally used in many households
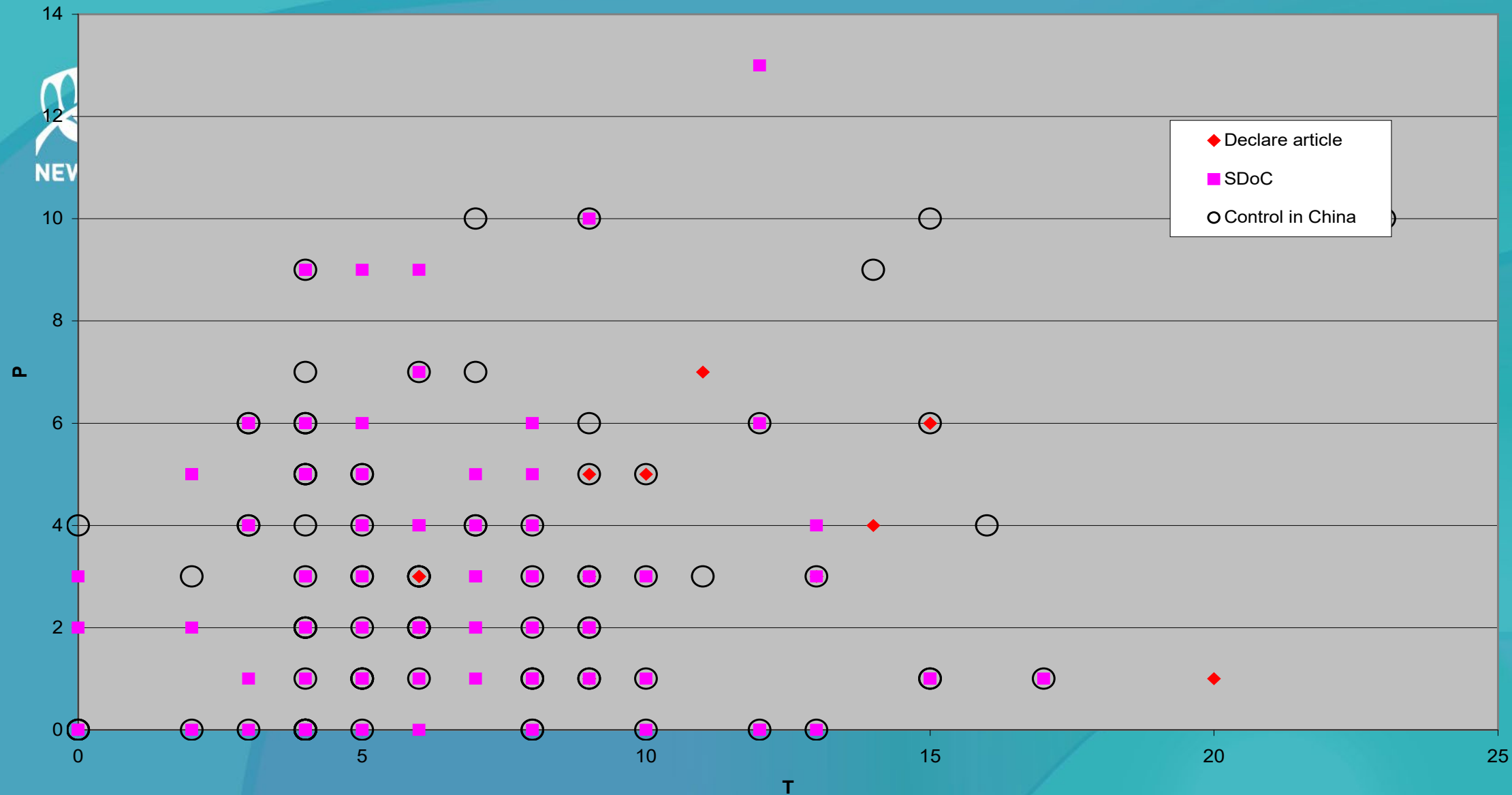N= 0.1   for item occasionally used in some households

Comparisons

The Engine allows a comparison to be made between the New Zealand regulatory controlled EEE products and the controlled products of the ASEAN members and the Chinese CCC system

NZ P& T

Legend:
- Declare article (red diamond)
- SDoC (magenta square)
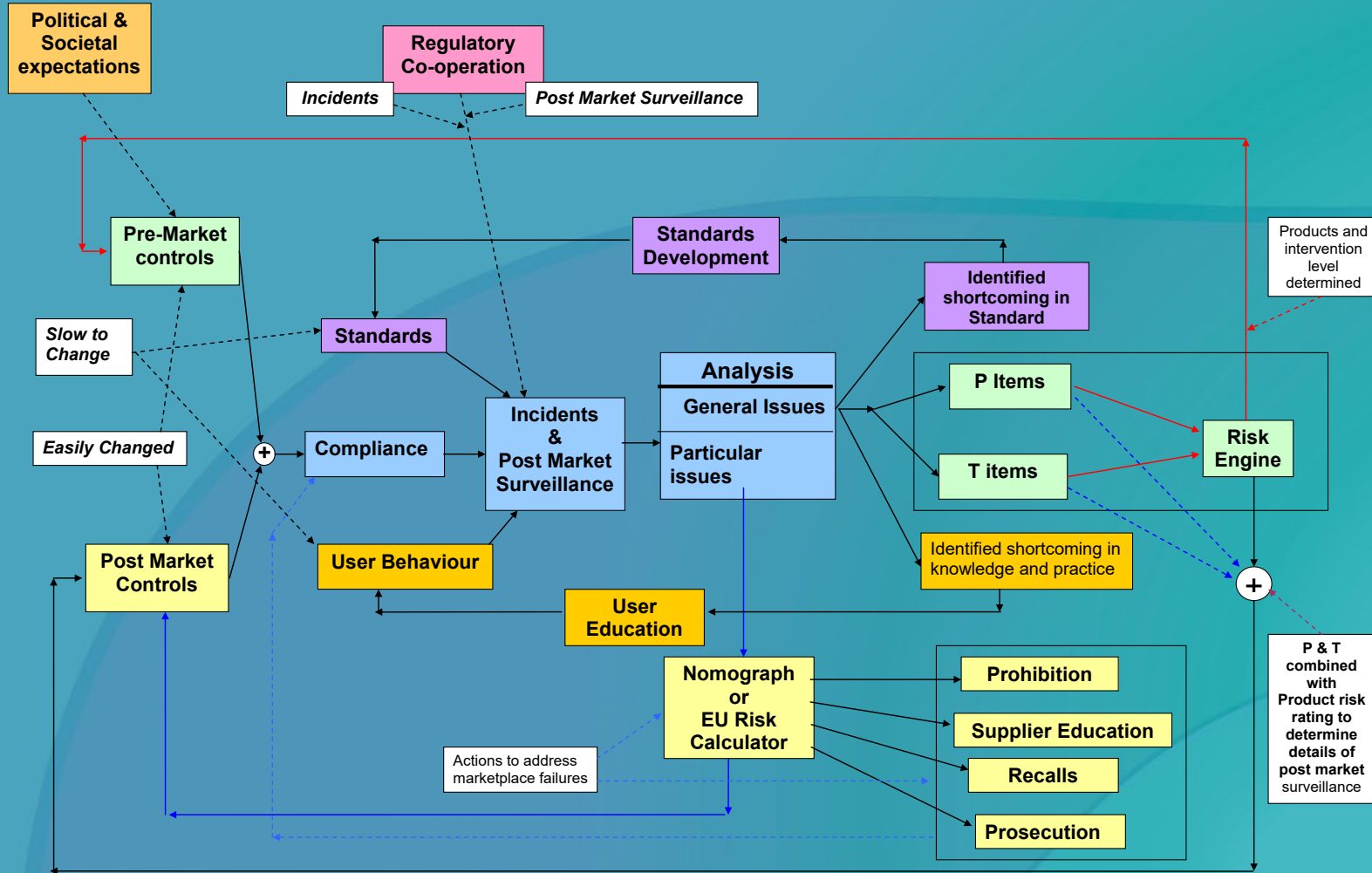- Control in China (open circle)

Trans-Tasman Alignment

The regulatory system of majority of the Australian State and Territory regulatory agencies is almost identical to the system operated in New Zealand

And a final picture to show where all of the bits fit

Thank you!