



Risk Perception: Science, Public Debate and Policy Making

**Session III
Risk Perception of GM agri-food
Stakeholder forum**

An “Industry” Perspective

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Risk

“Perception”

and **Consumers**

- **Scene “setting”**
- **French “perspective”**
- **German “perspective”**
- **“Academic” overview**

Advances

in the understanding of Risk ***“Perception”***
and its importance in importance in public
policy making

- **Experts providing expertise**

Risk “*perception*” of GM agri-food Stakeholder forum

- **Industry “perspective”**
- **Farmer/producer “perspective”**
- **Retailer/distributor “perspective”**
- **NGO “perspective”**
- **Consumers “perspective”**
- **GM agri-food - a societal and scientific “overview”**

Outlook on Risk “*perception*” of GM agri-food Stakeholder forum

- **Reports from sessions**
- **Where from here?**
- **Policy formation - bridging the gap**

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- A look at **words** we are using here today
 - The agri-food **industry**
 - Bridging the **gap** - policy formation




The assumption is already made that,
somewhere there is
a gap

What is this gap?
Where is this gap?



Some “P” words:

“*Perspective*”

- ***art of drawing solid objects on ...***
 - ***a picture drawn in this way ...***
 - **a mental view of the relative importance of things (keep in the right perspective)**
- 

“*Perception*”

- **the intuitive recognition of truth**
- **etc.....**
- ***philosophically*: the ability of the mind to refer sensory information from an external object (activity) as the cause of ..**



My task today:

To provide a *perspective* of the *perception* of

... the risk of GM foods

“Policy”

- a course of or principle of action adopted or proposed by a government, party, business or individual...


- from an industry “*perspective*”

- long term

- the Lisbon Declaration
- the “Life Sciences and Biotechnology Action Plan”

- short to mid-term

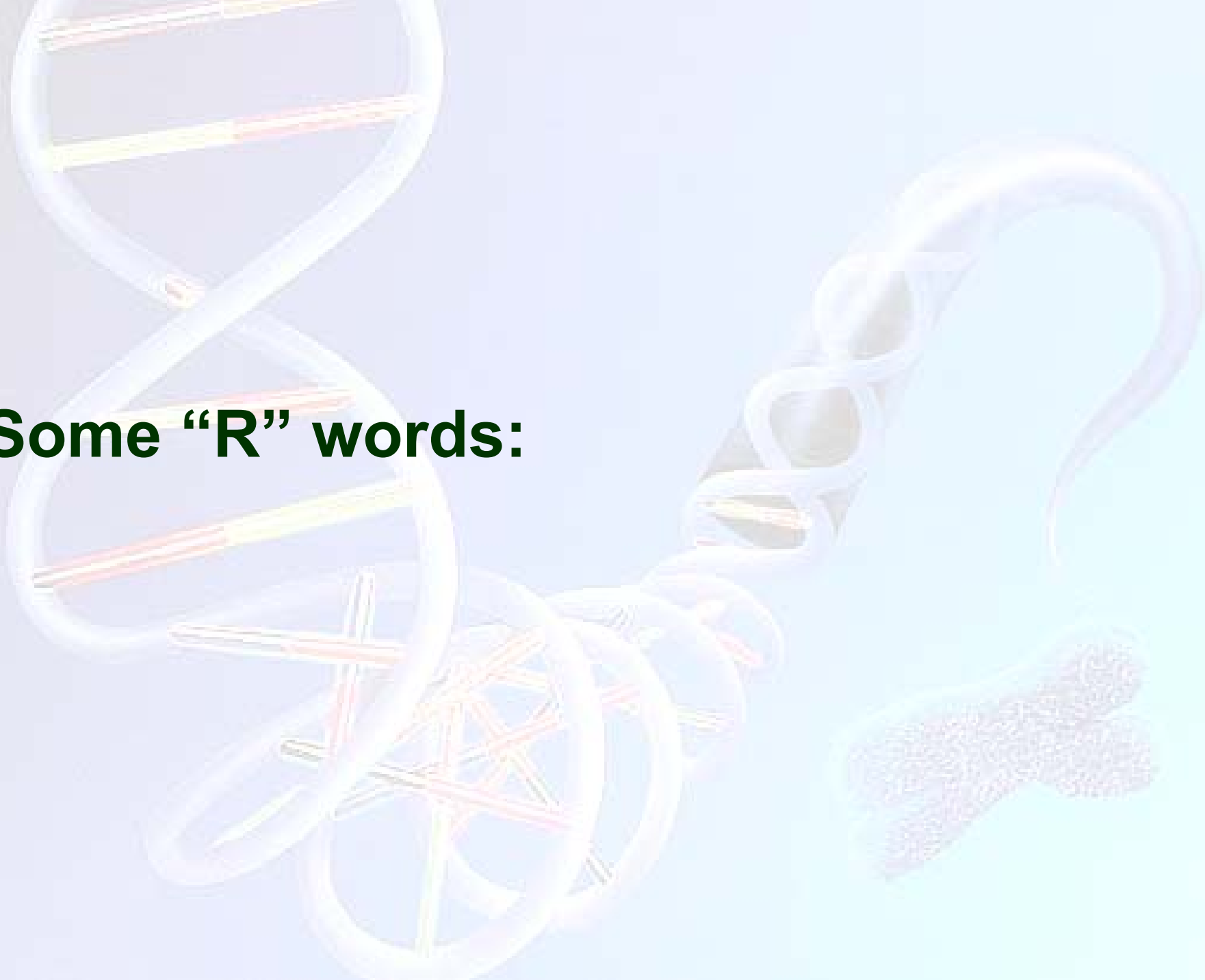
- regulations requiring safety assessment prior to commercialisation
- international harmonization



In the “risk perception” *melange*, what about these?

- **Politics?**
- **Have we heard a political “*perspective?*”**
- **Have we heard a politician’s “*perspective?*”**
- **Does “politics” influence “*risk perception?*”**
- **Do politicians influence “*risk perception?*”**

Some “R” words:





- **Risk**

- **Risk = hazard x exposure**

- hazard – a harmful event
- exposure – the chance of experiencing that harmful event

- **Regulation**

- **Governing activities through application of rules, limits**

- **Risk Regulation**

- **Controlling risk through the application of rules**

- **Real Risk (reality)**

- **Reason**

- **Responsibility**

“Risk” - what is risk (focussing on agri-food and plant breeding)?

- risk that a ***new crop*** results in **harm** when consumed as a food or an animal feed (risk = hazard x exposure - dependent on baseline information)
- risk that a ***new crop*** behaves differently from conventional counterparts resulting in **harm** to the environment (risk = hazard x exposure - dependent on baseline information)
- risk that a ***new crop*** results in “*international differences in acceptability of GM crops and foods*” (risk = ??????????????????)

What is GM crop/food “risk” regulation?

- International “risk” regulation – **science based approval mechanisms**
Participation in science based risk assessment activities
 - OECD – regulatory harmonisation
 - UN – Biosafety Protocol (under CBD)
- National “risk” regulatory regimes – **science based approval mechanisms**
Many national regimes, e.g.:
 - Argentina
 - Canada
 - EU Member States
 - Japan
 - USA
 - etc.....



Three aspects of Risk Regulation

- **Development (law making – 3 EU institutions)**
- **Interpretation (guideline interpretation)**
- **Implementation (in EU by Member States)**

Some “S” words:

- **Science** – “factual” knowledge
- **Scientific method** – observation: hypothesis: testing: hypothesis proved or disproved

- **Seed**

-
- **Sausage**
 - **Schizophrenia**

What is the *Industry*?

- Fertilizer industry
- Crop Protection Industry
- Farmer and grower community (plants and livestock)
- Food and commodity traders
- Food processors
- Retailing industry
- Restaurant industry

• Seed –

LONG TERM research and development commitment:

- Basic plant research – genomics, etc.
(public and private)
- Plant breeders (public and private)

Seed

High yielding, high quality, disease resistant crop varieties providing human foods and animal feeds are the base supporting the majority of the world's population today

These varieties must grow well (*agronomic traits*) for the farmers, and exhibit the required quality (*output traits*) for the purchaser

Developing these varieties is a long term resource intensive business

Seed is the vehicle that carries these essential qualities to the farming community that provides this food and feed

Plant Breeding Paradigm

INPUT TRAITS

NEEDS

Farmers

Local environment
Varietal performance



Plant breeders



**Seed of
Crop Varieties**



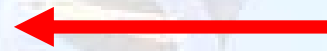
**Food Retailers
Food Processors**

OUTPUT TRAITS

NEEDS

Consumers

Quality
Safety
Consistency
Value



Plant Breeding Paradigm

INPUT TRAITS

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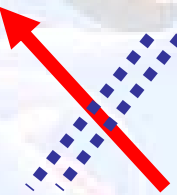
**Seed of
Crop Varieties**

OUTPUT TRAITS

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**Food Retailers
Food Processors**

Perspective and reality:

One UK Retail Chain (from the www):

- 2377 stores across 11 markets
- 2003 - 24 weeks to Sept 2003
- Group sales (£m - including value added tax)
- UK sales grew by 14.2% to

£14,9bn*
(\$25.6bn)
£12.0bn
(\$20.6bn)

World Seed Trade (ISF - International Seed Federation):

- Annual (52 week) seed trade

\$30.0bn

*December 4th, 2003, £1 = 0.5816 US\$

GM Crops - what is the reality?

- ***Genetic Modification*** is ONE tool used by plant breeders to achieve the traditional goals of input and output traits
- 25 years of international collaboration (OECD, FAO etc.) has resulted in a science based GM safety assessment procedure that “developed nations” have incorporated in their biosafety, food and feed safety assessments – Many approved GM crops over the past ten years
- Is there report of evidence based harm from the millions of hectares of these approved GM crops grown by 6 million farmers globally?

The *natural* world - what is the reality?

One example:

- plants are food substrates for micro-organisms
- fungal micro-organisms infecting plants produce mycotoxins (fumonisin, aflatoxin, etc)
- these fungal mycotoxins are “toxic” – carcinogenic, etc
- GM technology can help prevent this - insect resistant crops, fungus resistant crops
- “old fashioned” production methods may encourage an increase in fungal infections
- voluntary withdrawal of “organic” maize products from shops in UK because of very high fumonisin levels

“P” words again:

- **How would this have been *perceived* if the crops were GM?**
- **In this instance – how do we apply the “precautionary principle?”**
- **How can the “PP” mean anything if not applied proportionately?**

So from the innovative *Seed industry's* “perspective”, risk-regulation should:

- ensure safety
- be proportionate rather than disproportionate
- enable rather than disable innovation
- not discriminate rather than discriminate
- be practical rather than impractical
- be consistent rather than inconsistent
- be transparent rather than opaque

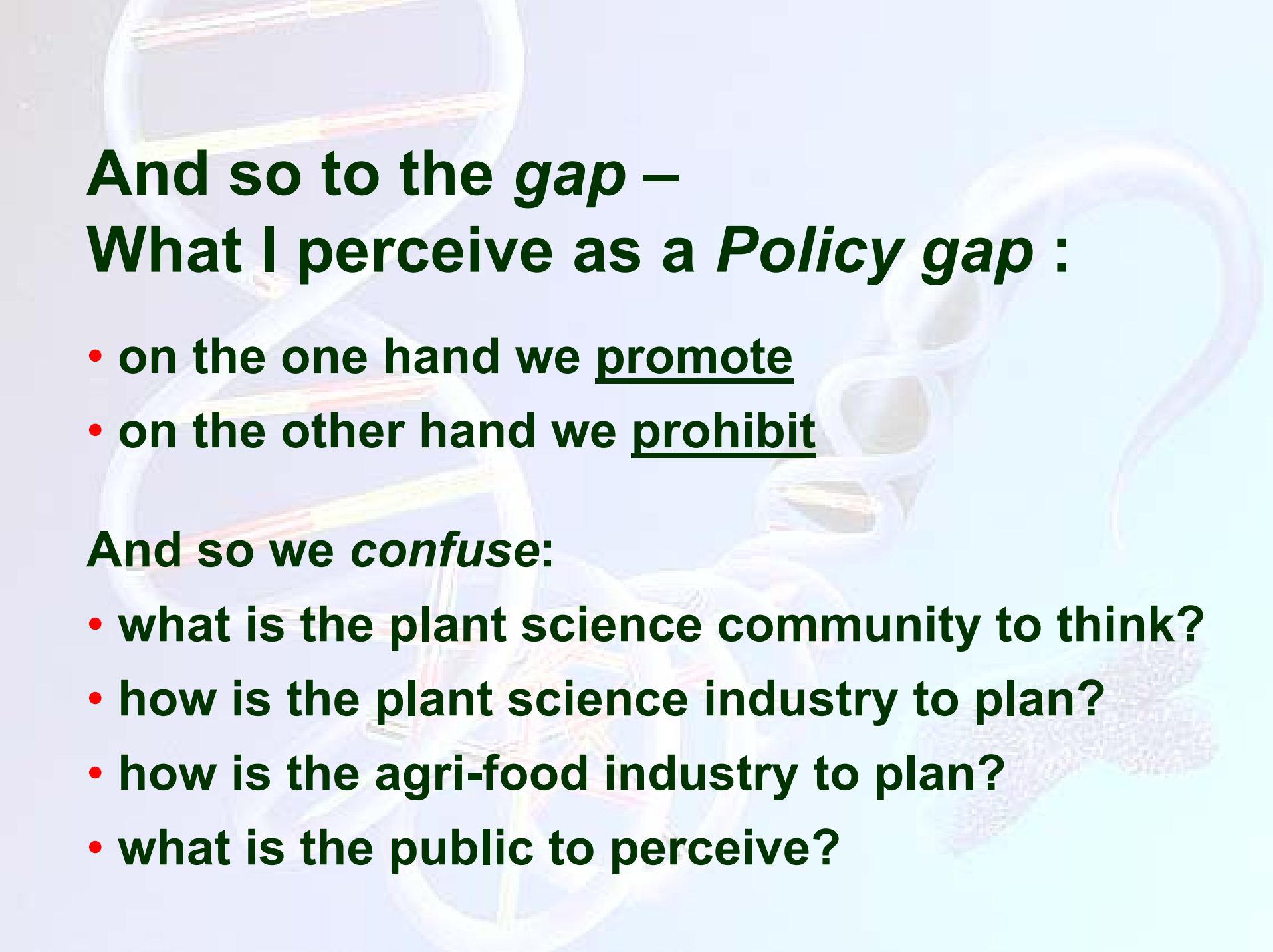
Remember - developing plant varieties is a long term, resource intensive business

And so to *sausages* – my perception:

Otto von Bismark

“you are better off not knowing”

- I am concerned that these criteria for risk based regulation are not considered in the development of safety based legislation
- I am concerned that the some use the safety assessment regulatory procedure to stop the use of GM technologies
- I am concerned that inconsistent regulatory development and implementation will result in the “*perception*” that the safety based regulatory principles are untrustworthy



**And so to the *gap* –
What I perceive as a *Policy gap* :**

- on the one hand we promote
- on the other hand we prohibit

And so we *confuse*:

- what is the plant science community to think?
- how is the plant science industry to plan?
- how is the agri-food industry to plan?
- what is the public to perceive?



There is a Real Risk that:

- **we lose our plant scientists**
- **we lose our innovative plant science industry**
- **we lose the ability to chose socio-economic and environmental benefits the technology can provide**

Bridging the *GAP*

“R” words again Reason and Responsibility

- I don't have all the answers
- we must collectively act responsibly
- we must not discard reason
- yet we can not disregard public perception
- we must work to balance these



Thank You

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