



Panel Discussion Sustainable Animal Diets

Panelists

Prof. Mark Powell, University of Wisconsin-Madison, USA

Dr. M.R. Garg, NDDB, India

Harinder Makkar, FAO, Rome, Italy



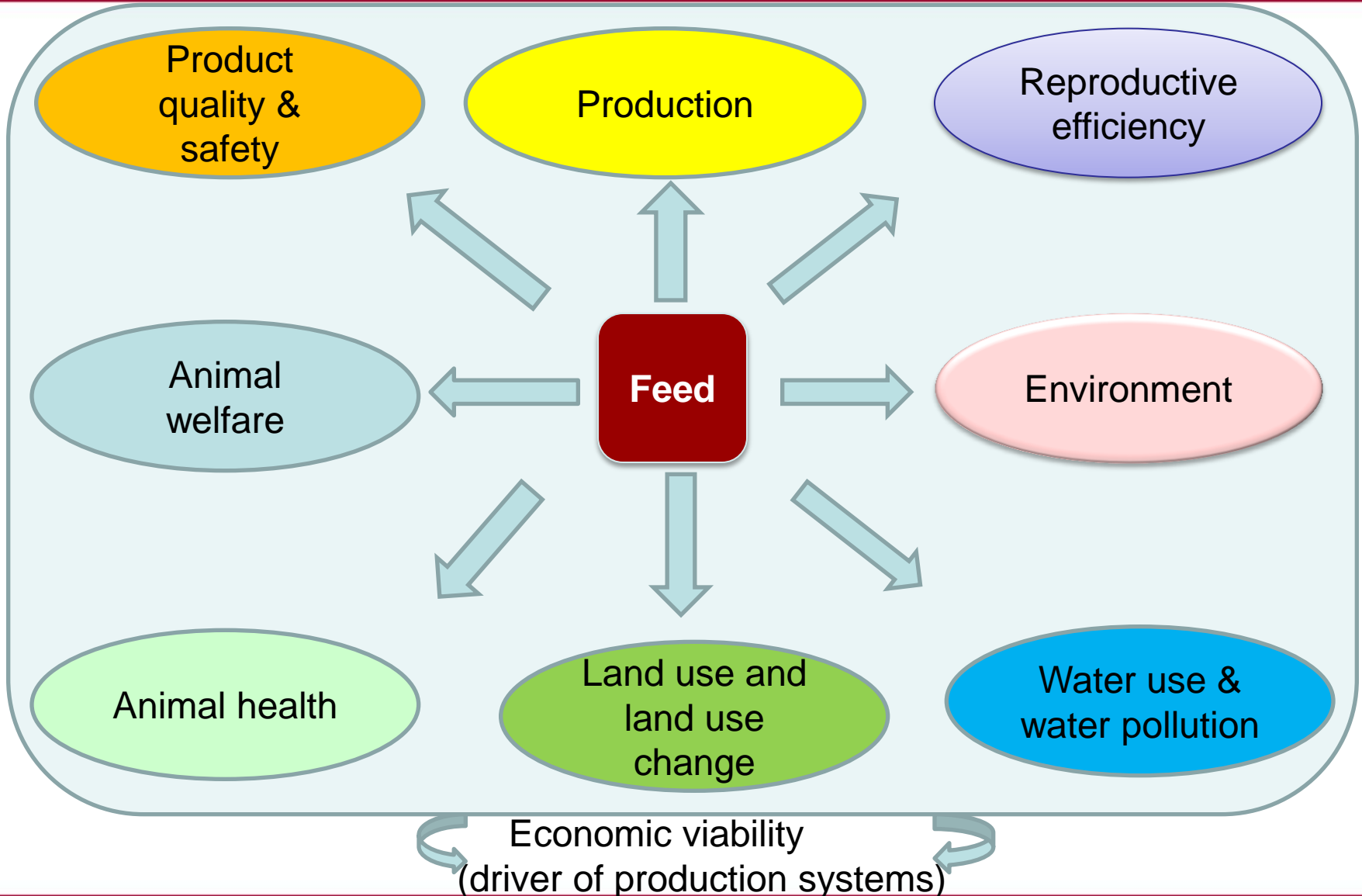
How the Panel Discussion will be run?

1. Harinder Makkar, FAO, Rome – A 15 min presentation
2. Q & A session and opening statements
 - Dr. M.R. Garg – 8 min
 - Prof. Mark Powell – 5 min
3. Open discussion – Questions from the floor to panelists
4. Constructive comments and suggestions
5. Summary



Sustainable Animal Diets: Survey results and the way forward

Why the need of sustainable animal diets?





Feed Production and the environment

- Area dedicated to feed-crops
 - 33% of total arable land
- Irrigation of feed crops consumes
 - Over 90% of total global human water use in livestock sector
- Production, processing and transport of feed account
 - 45% of GHG from livestock sector
- N₂O through the fertilization of feed crops & deposition of manure on pastures
 - represent together 50% of feed emissions = 25% of livestock sector's total emissions
- An increase in feed digestibility of 10% units
 - decrease GHG emission/kg of milk or meat by 25%



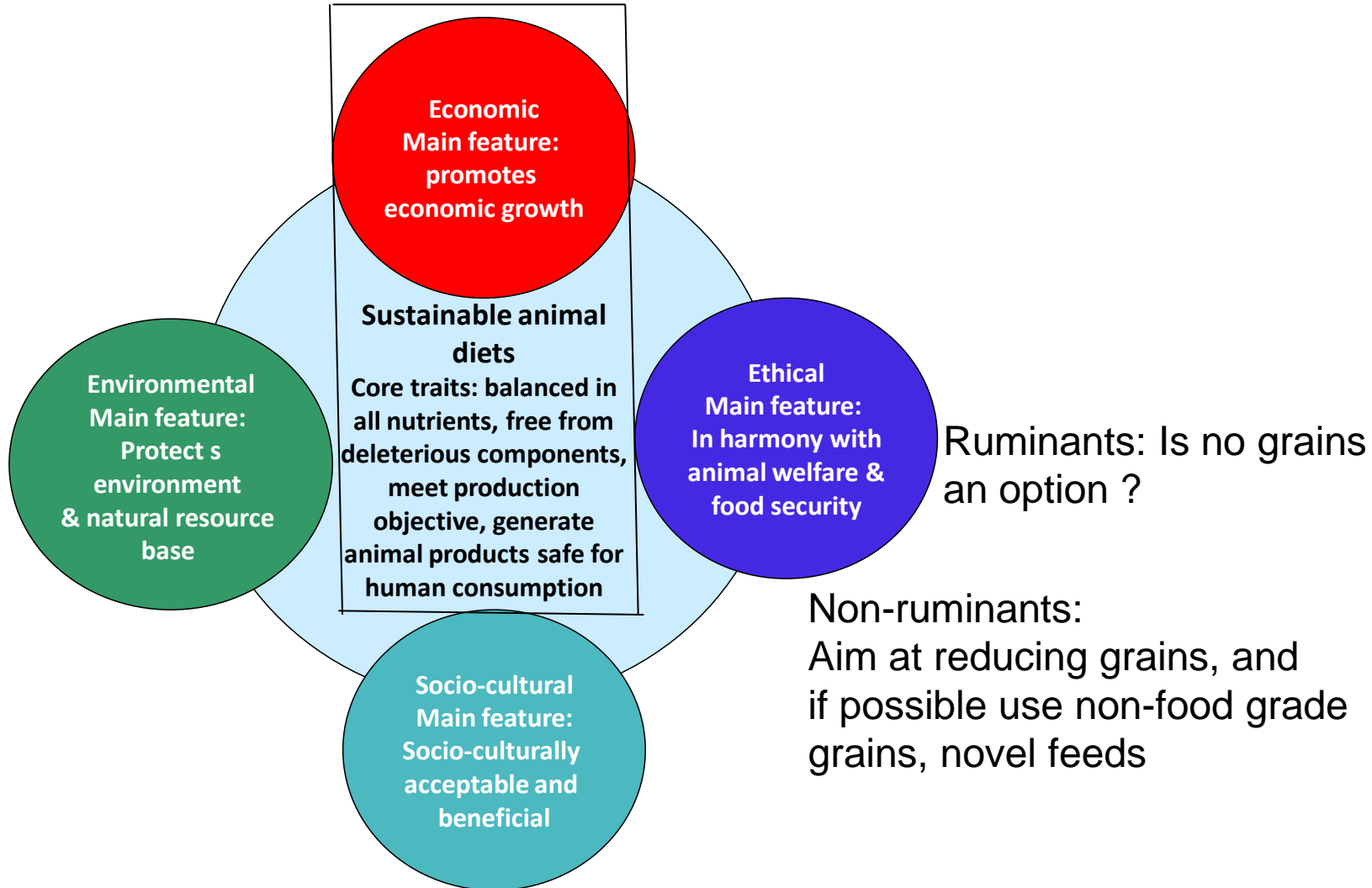
IS STATUS QUO AN OPTION?

- Approximately 140 million tons of coarse grains used for biofuel production
- Increased volatility in price of feed
- High cost of feed
- Feed driven huge land use and land use change

*Feed and feeding must change
but a holistic view of how this should happen is necessary*

Framework of sustainable animal diets

Current status in most situations





What is new in the SAD concept

- a thematic focus -- improving feed (nutrient) use efficiency while conserving the environment, biodiversity and natural resources;
- multi-dimensional scope, embracing socio-cultural, ethical and environmental dimensions in addition to the economic one;
- an action-oriented holistic approach, targeting change in practices; and
- multi-stakeholder participation, harnessing synergies and complementarities.



Objectives of the survey

- Prioritise the main constituent elements of the concept; and
- Take opinion on how to translate this concept into action by integrating its elements/components into sound management practices.



Outline of the presentation

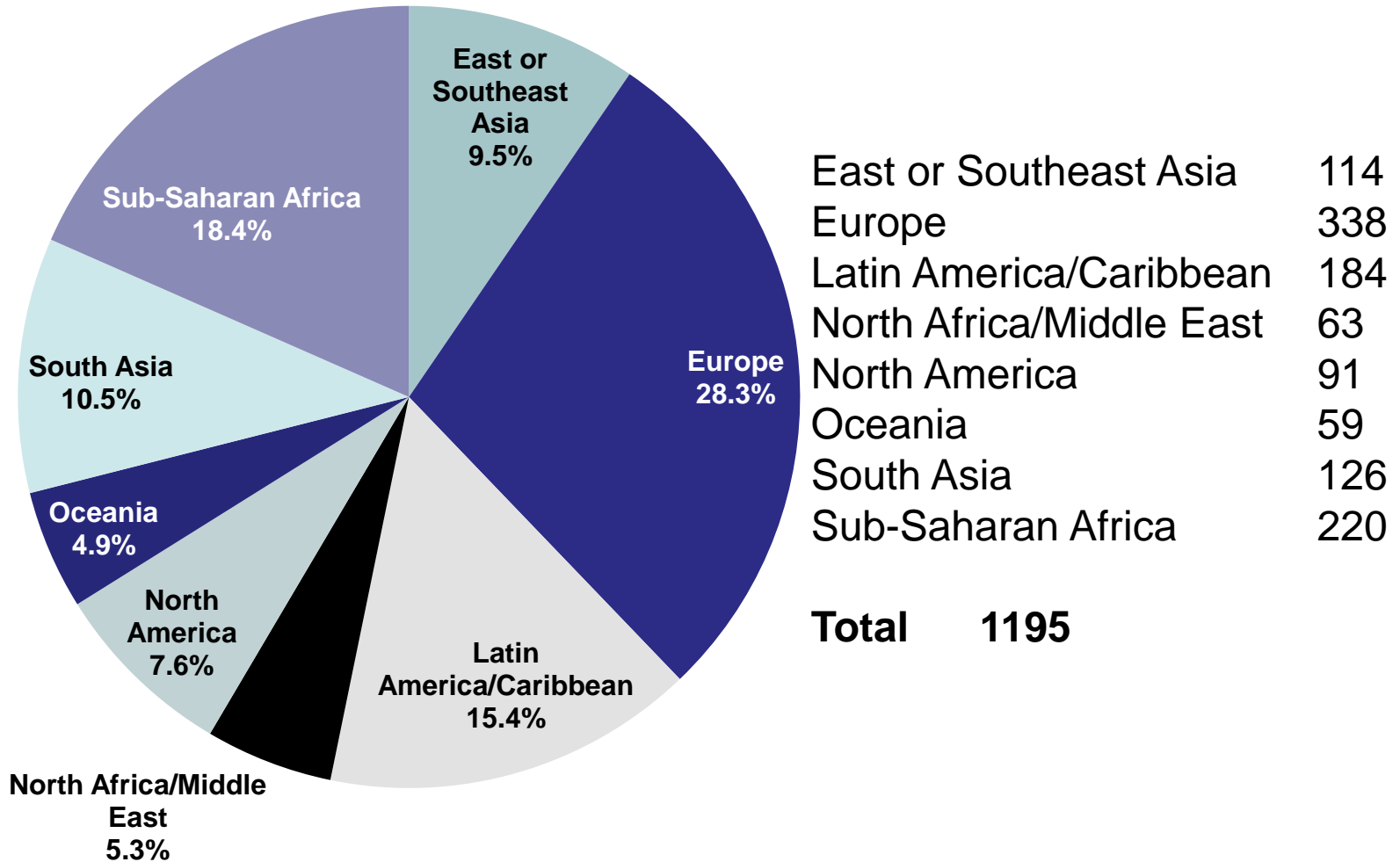
Survey results

- Global analysis
- Region-wise analysis
- Sector-wise analysis



Global analysis

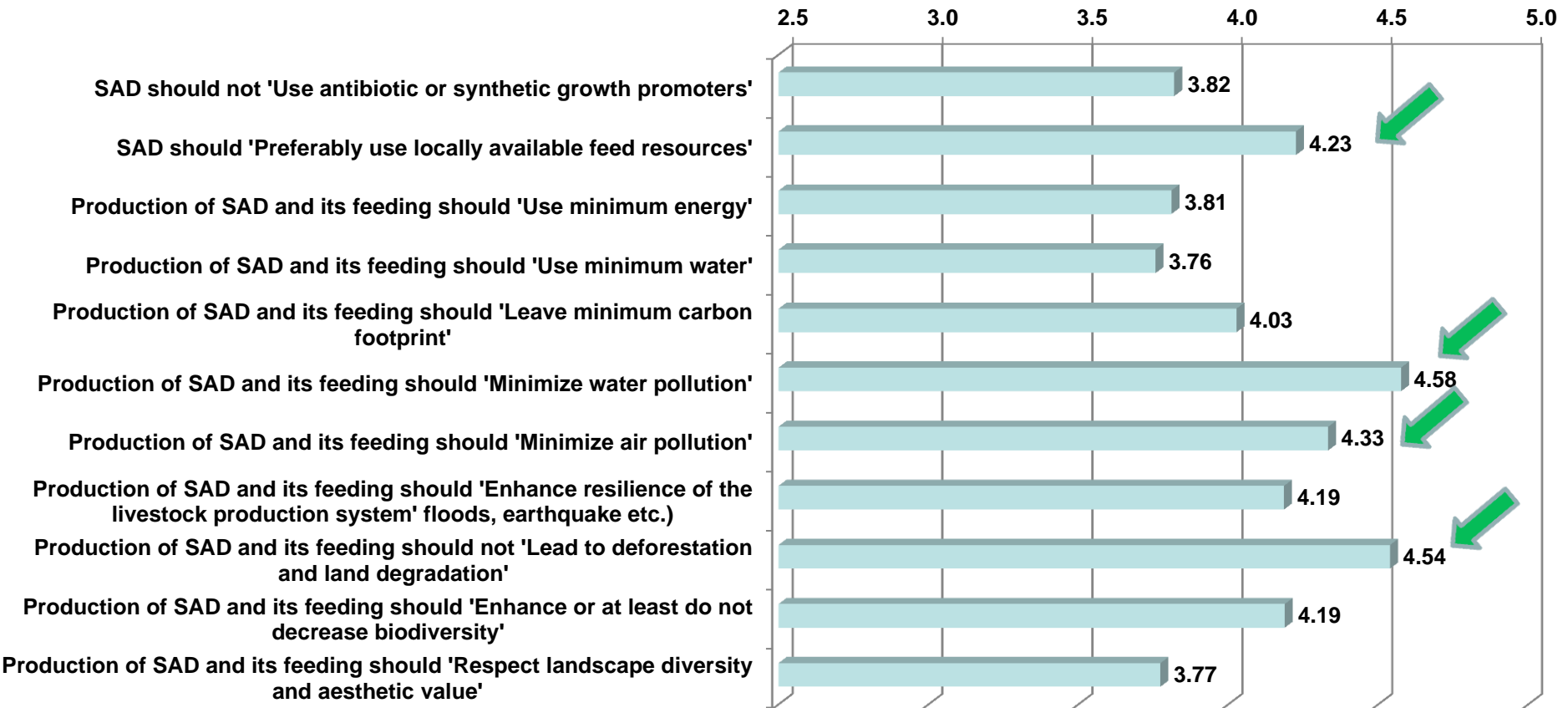
Region-wise Distribution of Respondents





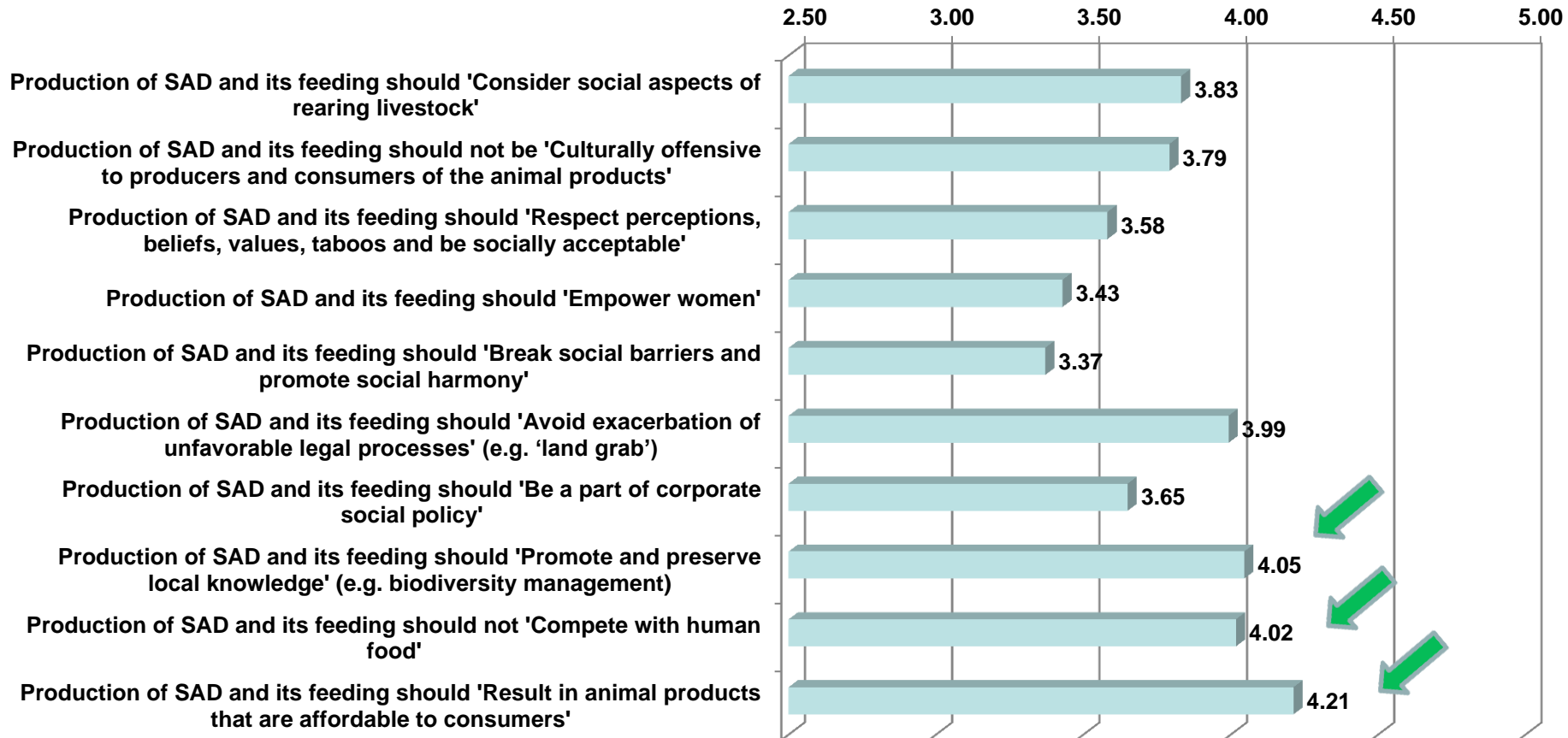
Relative importance of SAD elements that aim to protect environment and natural resource base (Planet dimension of the sustainability)

1=Not important 2=Some what Important 3=Reasonably important 4=Important 5=Extremely Important



Relative importance of socio-cultural elements of SAD that provide benefits for people (People dimension of the sustainability)

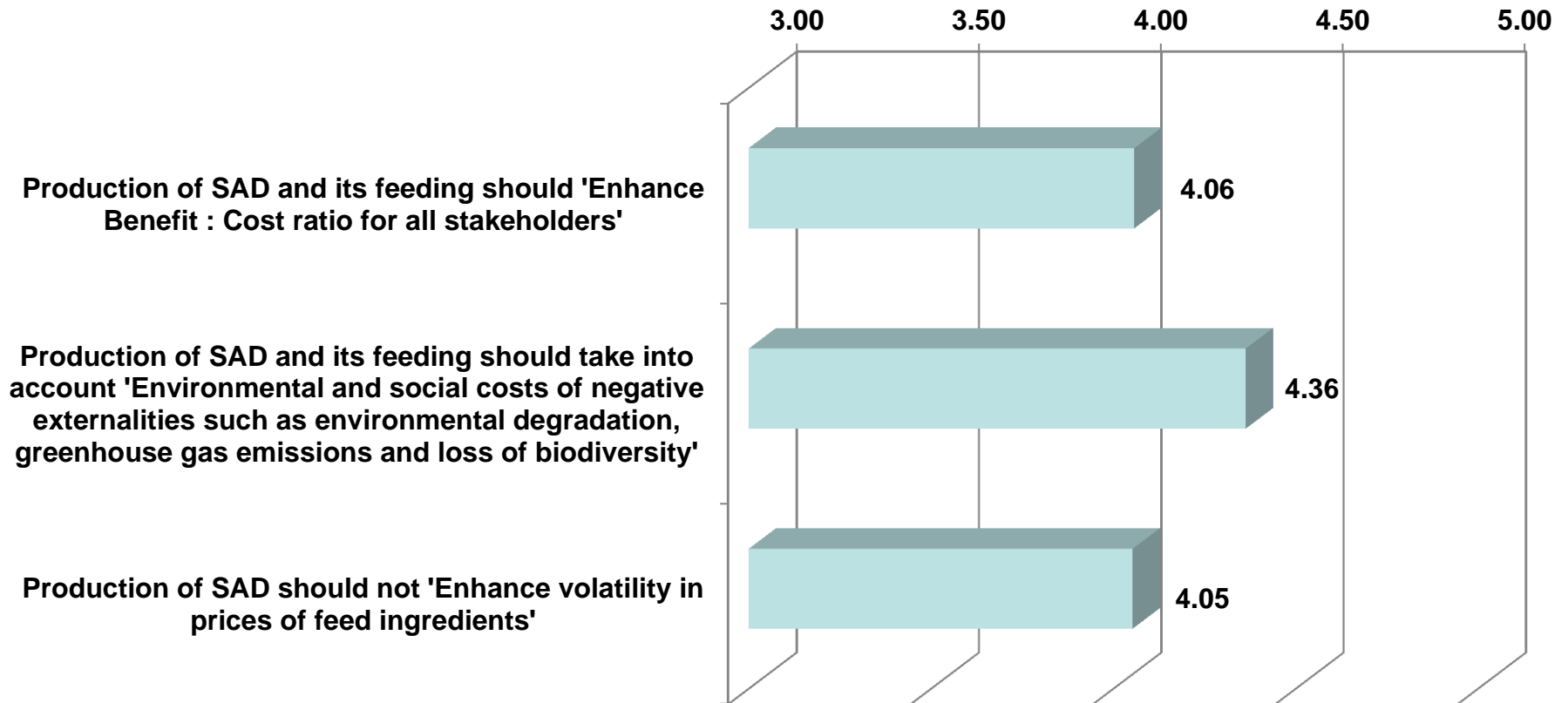
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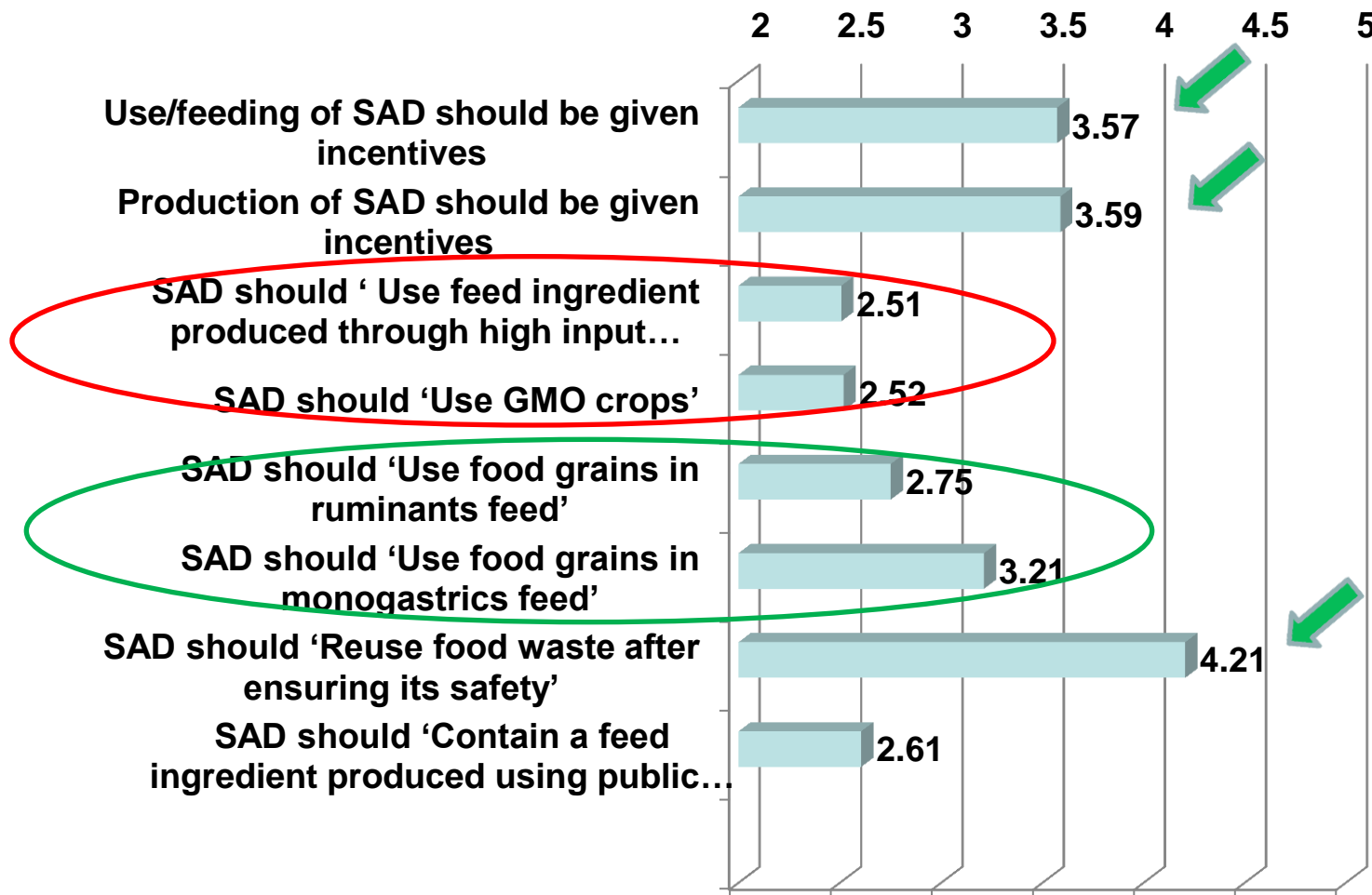
Relative importance of economic elements of SAD (Profit dimension of the sustainability)

1=Not important 2=Some what Important 3=Reasonably important 4=Important 5=Extremely Important



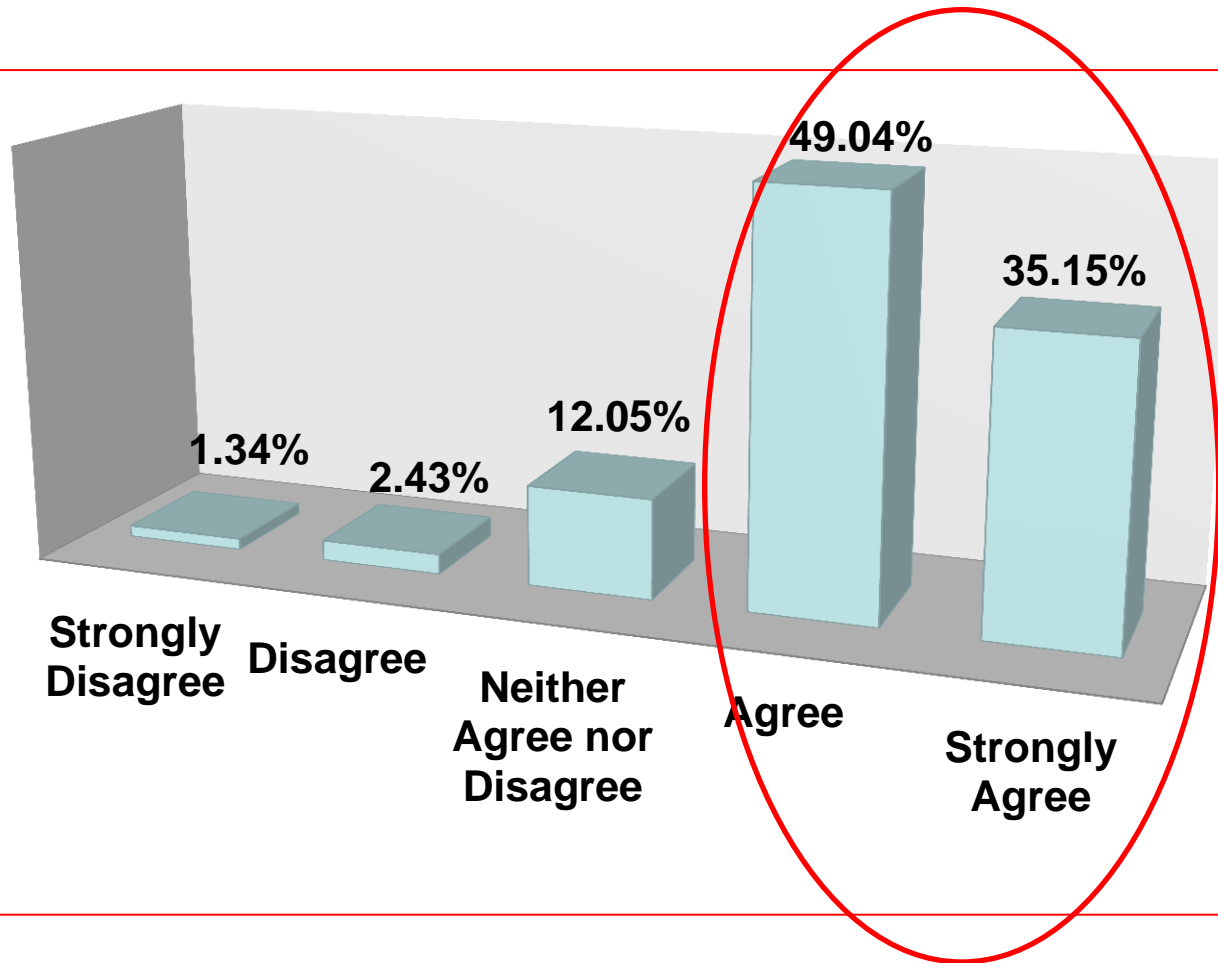
Relative importance of other elements of SAD

1=Not important 2=Some what Important 3=Reasonably important 4=Important 5=Extremely Important





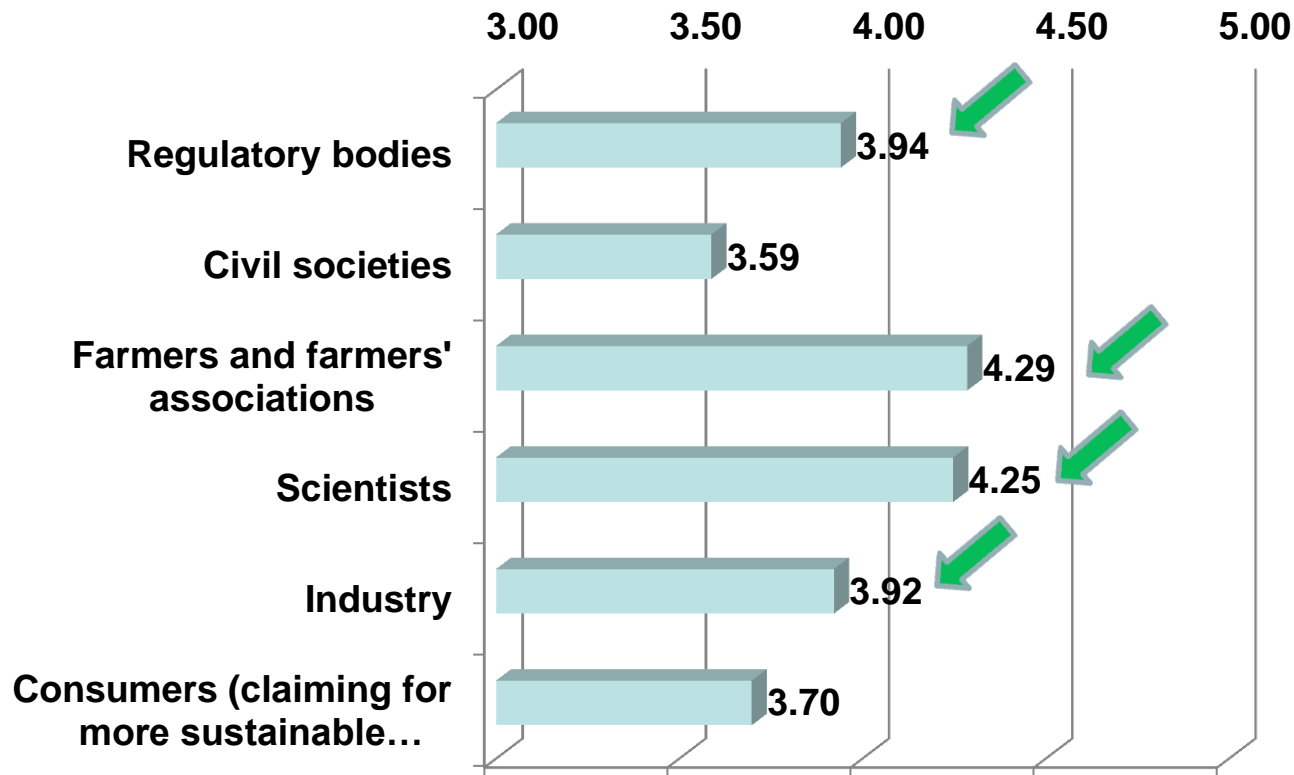
Extent of agreement on integration of the ethical dimension into SAD





Who should take initiative first to restructure feed production and use system to meet requirements for SAD?

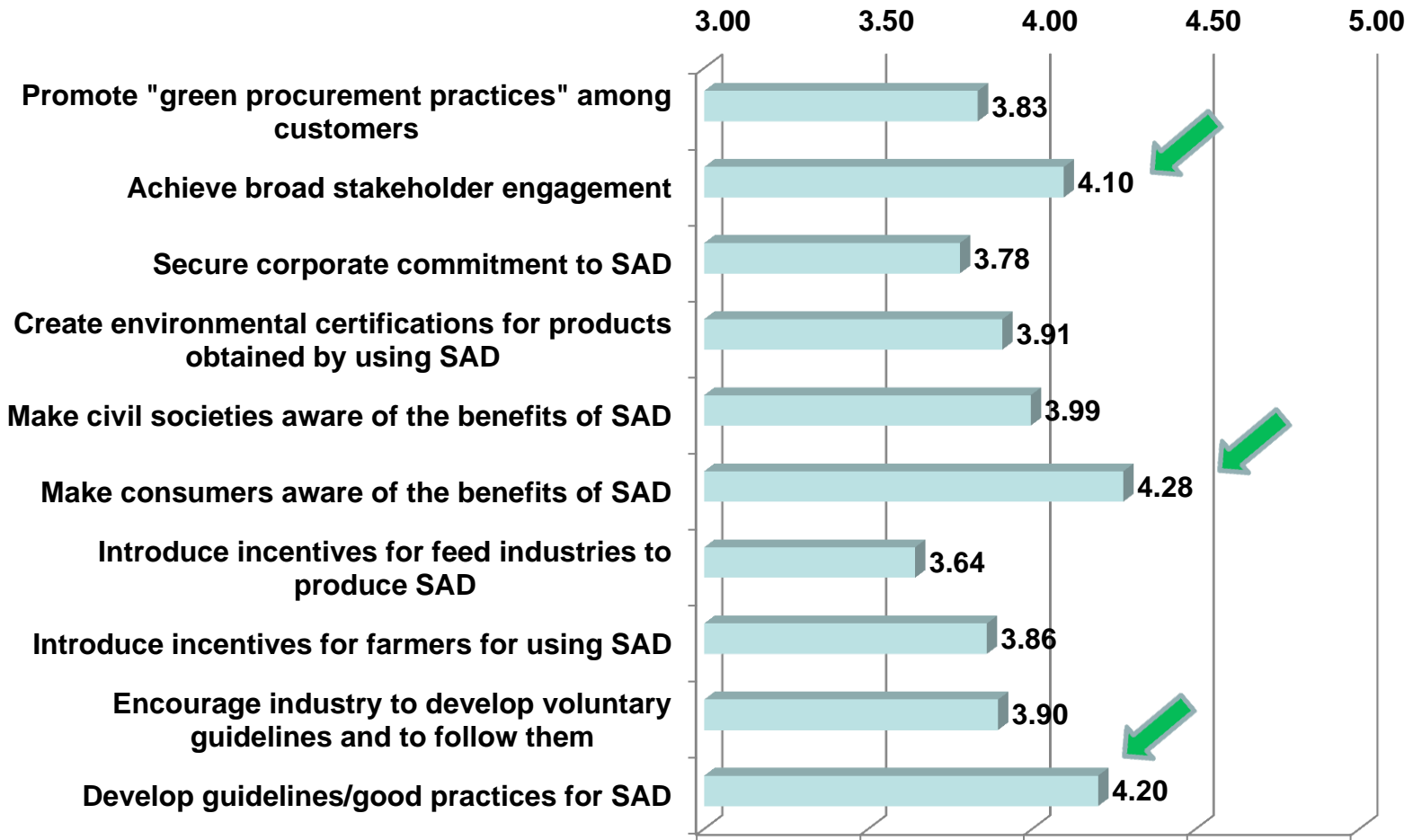
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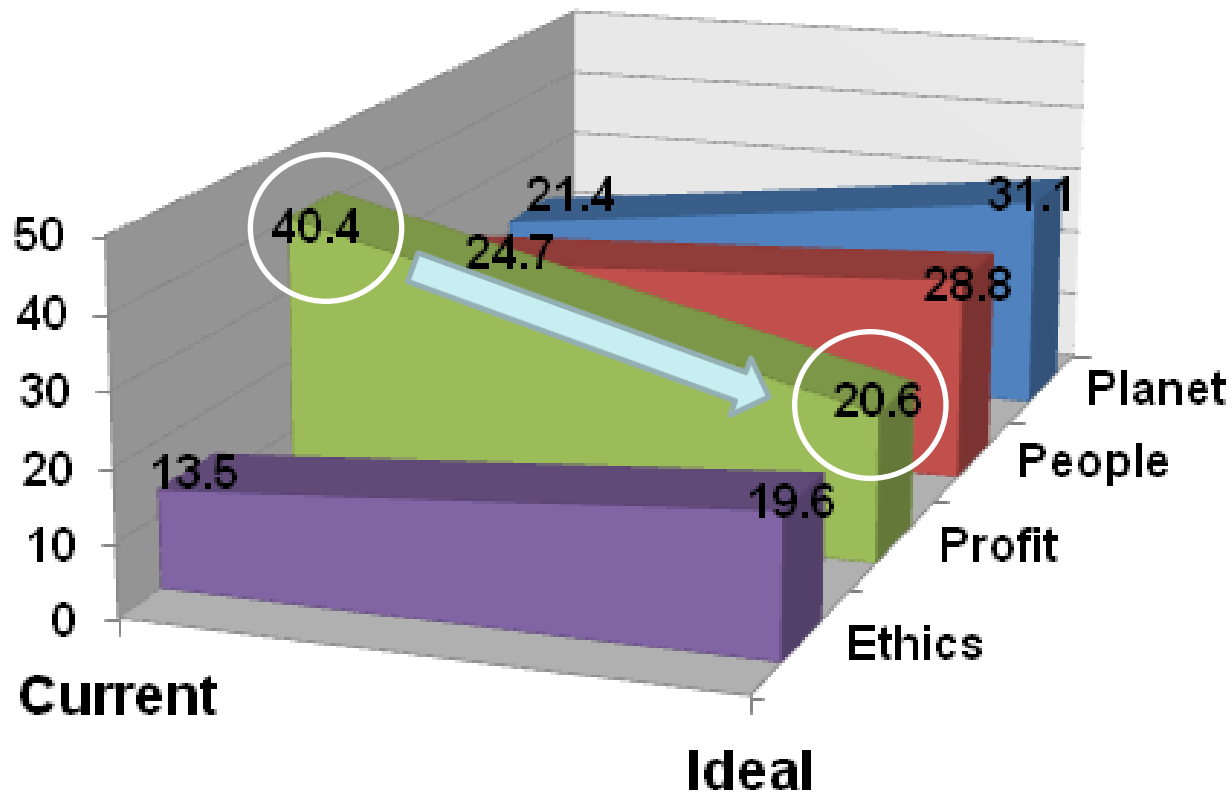
How to operationalise SAD?

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Casting of 100 votes to sustainability dimensions of SAD

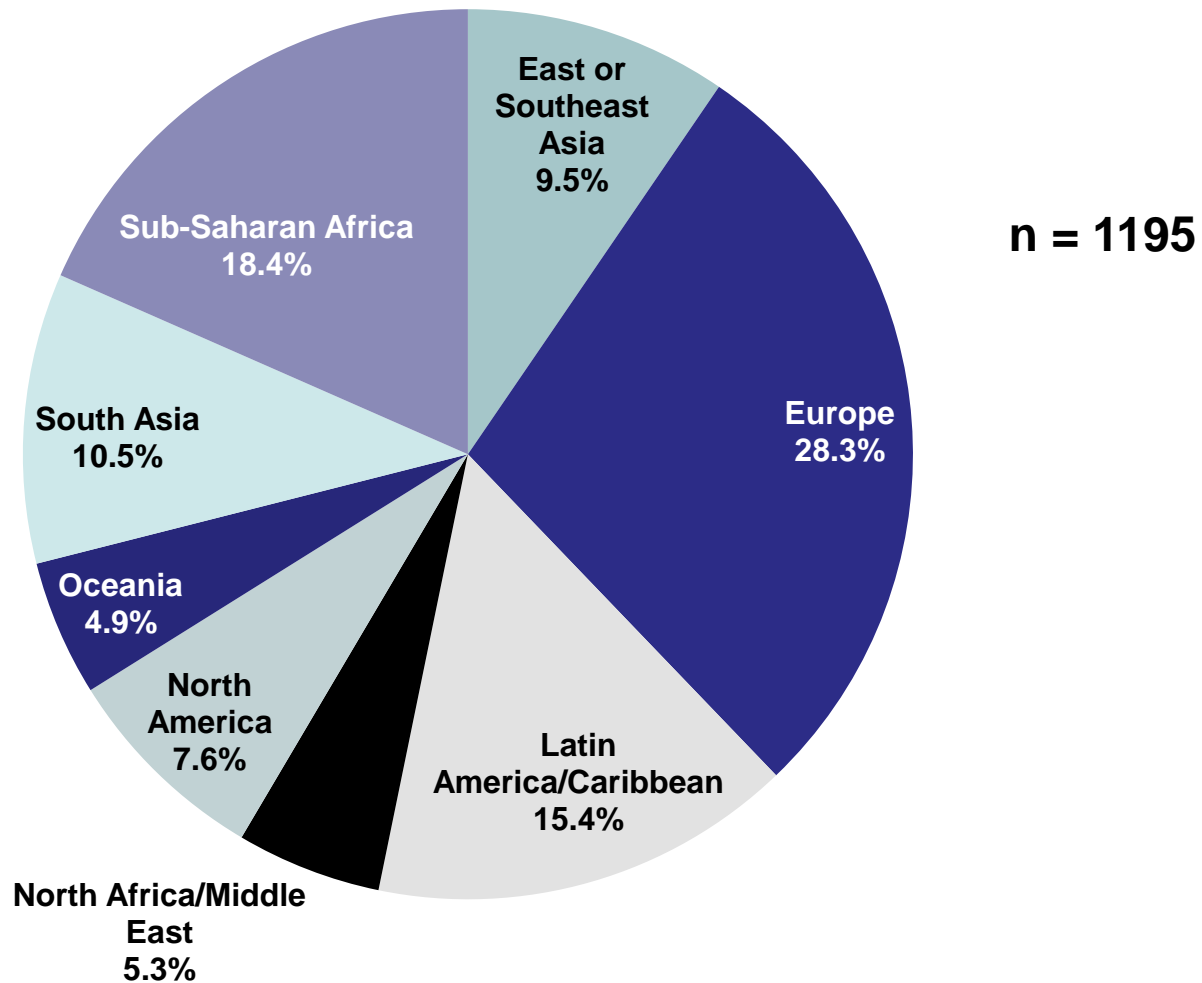




Region-wise analysis



Region-wise distribution of respondents





How different regions perceived relative importance of SAD elements that aim to protect environment and natural resource base (Planet dimension)

1/2

Elements	Regions that gave higher importance than the average	Region that gave least importance
Preferably use locally available feed resources	Sub-Saharan Africa, South Asia, East or Southeast Asia, Latin America & Caribbeans	North America (next Oceania)
Not use antibiotics and synthetic growth promoters	North Africa and Middle East, Europe, Latin America & Caribbeans, Sub-Saharan Africa	North America (next Oceania)
Use minimum energy	Latin America & Caribbeans, South Asia=Europe, Sub-Saharan Africa	North America (next Oceania)
Use minimum water	Latin America & Caribbeans, Europe, South Asia, Sub-Saharan Africa	Oceania (next North America)
Minimum C-footprint	South Asia, Latin America/Caribbeans, Sub-Saharan Africa, East or Southeast Asia, Europe	Oceania (next North Africa and Middle East)
Minimise water pollution	Latin America & Caribbeans, Sub-Saharan Africa, North Africa and Middle East	Oceania (next North America)



How different regions perceived relative importance of SAD elements that aim to protect environment and natural resource base (Planet dimension)

2/2

Elements	Regions that gave higher importance than the average	Region that gave least importance
Minimise air pollution	Sub-Saharan Africa, Latin America & Caribbean, North Africa and Middle East, East and Southeast Asia, South Asia	Oceania (next North America)
Enhance resilience of livestock production system	Sub-Saharan Africa, Latin America & Caribbean, North Africa and Middle East	North America
Not lead to deforestation and land degradation	Sub-Saharan Africa, Latin America & Caribbean, North Africa and Middle East, Europe	Oceania (next North America)
Enhance or at least do not decrease biodiversity	Sub-Saharan Africa, Latin America & Caribbean, North Africa and Middle East, South Asia	Oceania (next North America)
Respect landscape diversity and aesthetic value	Latin America & Caribbeans, Sub-Saharan Africa, South Asia, East and Southeast Asia	Oceania (next North America)



How different regions perceived relative importance of socio-cultural elements of SAD that provide benefits for people (People dimension)

1/2

Elements	Regions that gave higher importance than the average	Region that gave least importance
Consider social aspects of rearing livestock	Sub-Saharan Africa, Latin America & Caribbeans, South Asia	Oceania (next North America)
Not be culturally offensive to producers and consumers	Sub-Saharan Africa, South Asia, Latin America & Caribbeans, North Africa and Middle East	Oceania (next North America)
Respect perceptions, beliefs, values, taboos and be socially acceptable	North Africa and Middle East, Sub-Saharan Africa, South Asia	Oceania (next North America)
Empower women	South Asia, Sub-Saharan Africa, North Africa and Middle East	Oceania (next North America)
Break social barriers and promote social harmony	Sub-Saharan Africa, South Asia, Latin America & Caribbeans, North Africa and Middle East	Oceania (next North America)

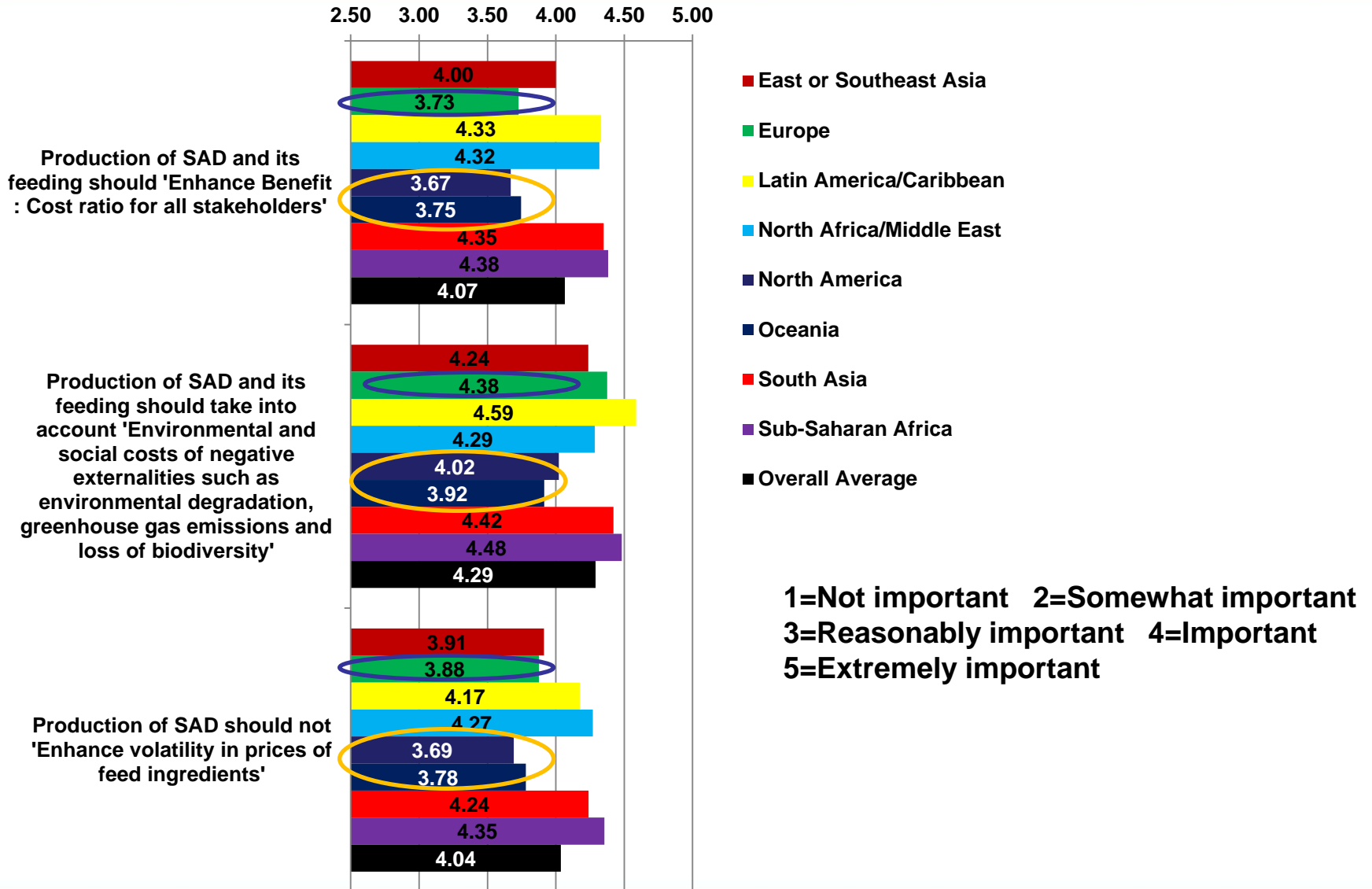


How different regions perceived relative importance of socio-cultural elements of SAD that provide benefits for people (People dimension)

2/2

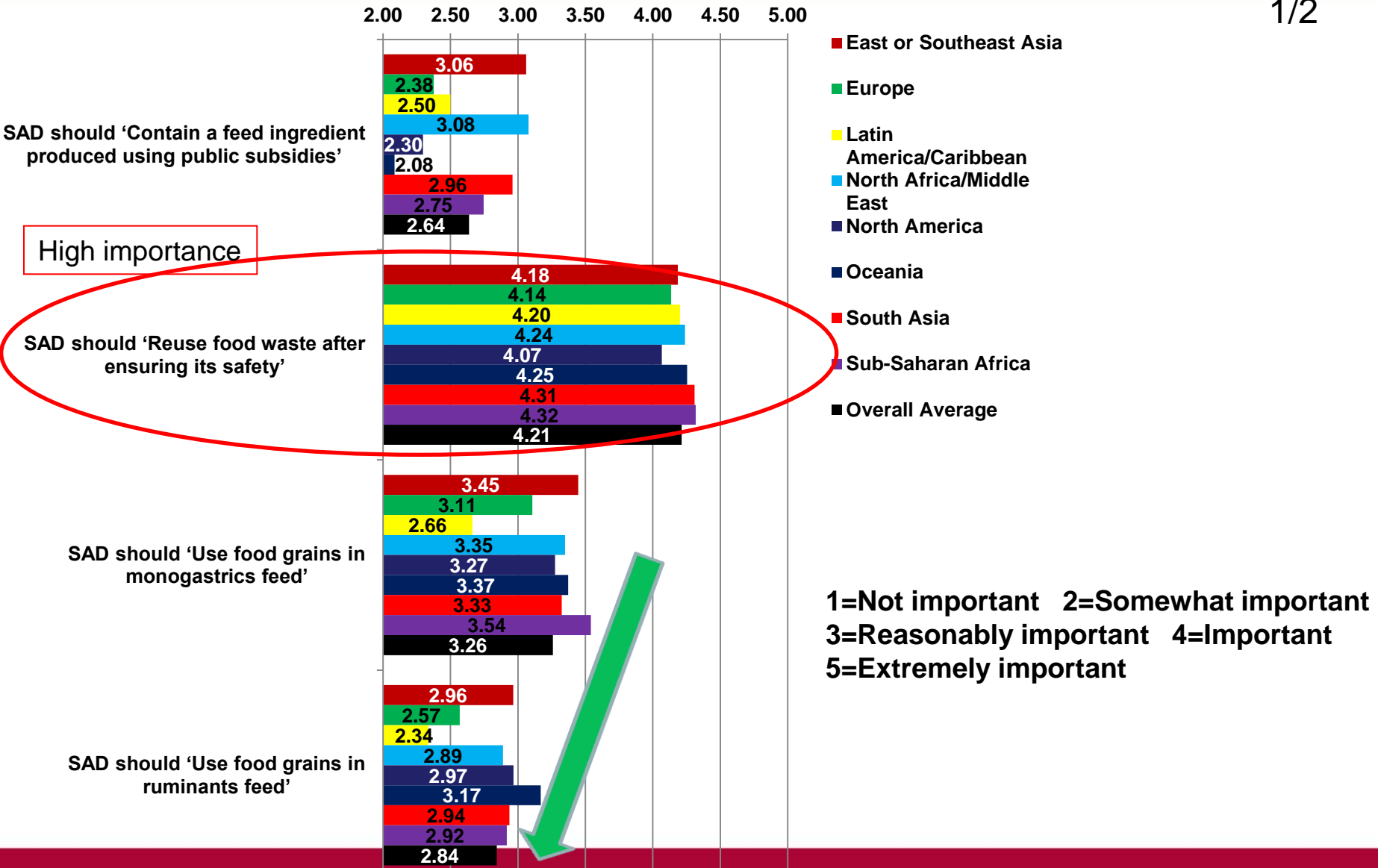
Elements	Regions that gave higher importance than the average	Region that gave least importance
Be a part of corporate social policy	Latin America & Caribbean, Sub-Saharan Africa, South Asia, North Africa and Middle East	Oceania (next North America)
Promote and preserve local knowledge	Sub-Saharan Africa, Latin America & Caribbean, South Asia, North Africa and Middle East, Europe	Oceania (next North America)
Not compete with human food	North Africa and Middle East, South Asia, Sub-Saharan Africa, East and Southeast Asia, Latin America & Caribbean	Oceania (next North America)
Animal products affordable to consumers	North Africa and Middle East, Sub-Saharan Africa, South Asia, Latin America & Caribbean	North America (next Oceania)

How different regions perceived relative importance of the economic elements of SAD (Profit dimension)

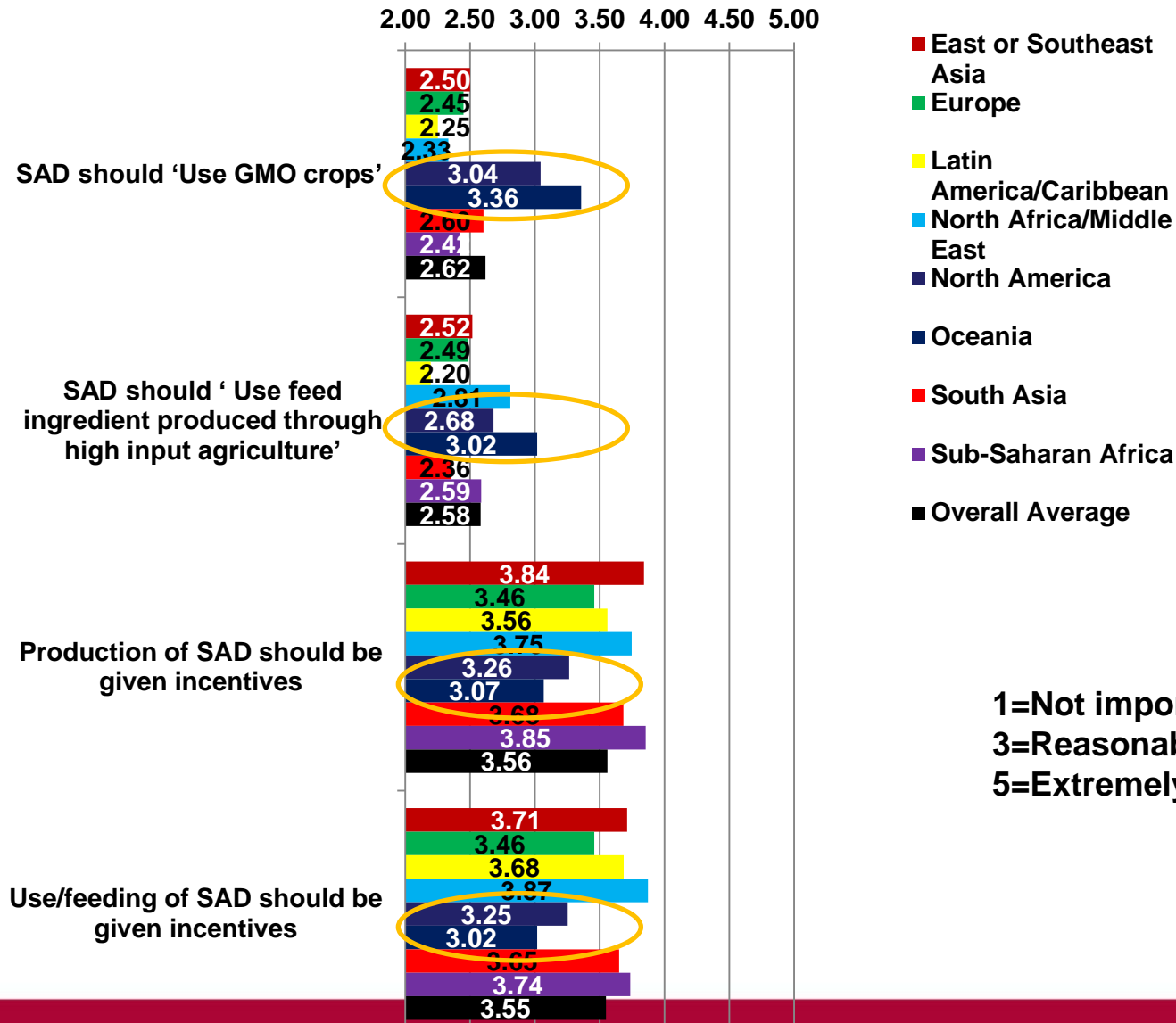




How different regions perceived to other elements of SAD

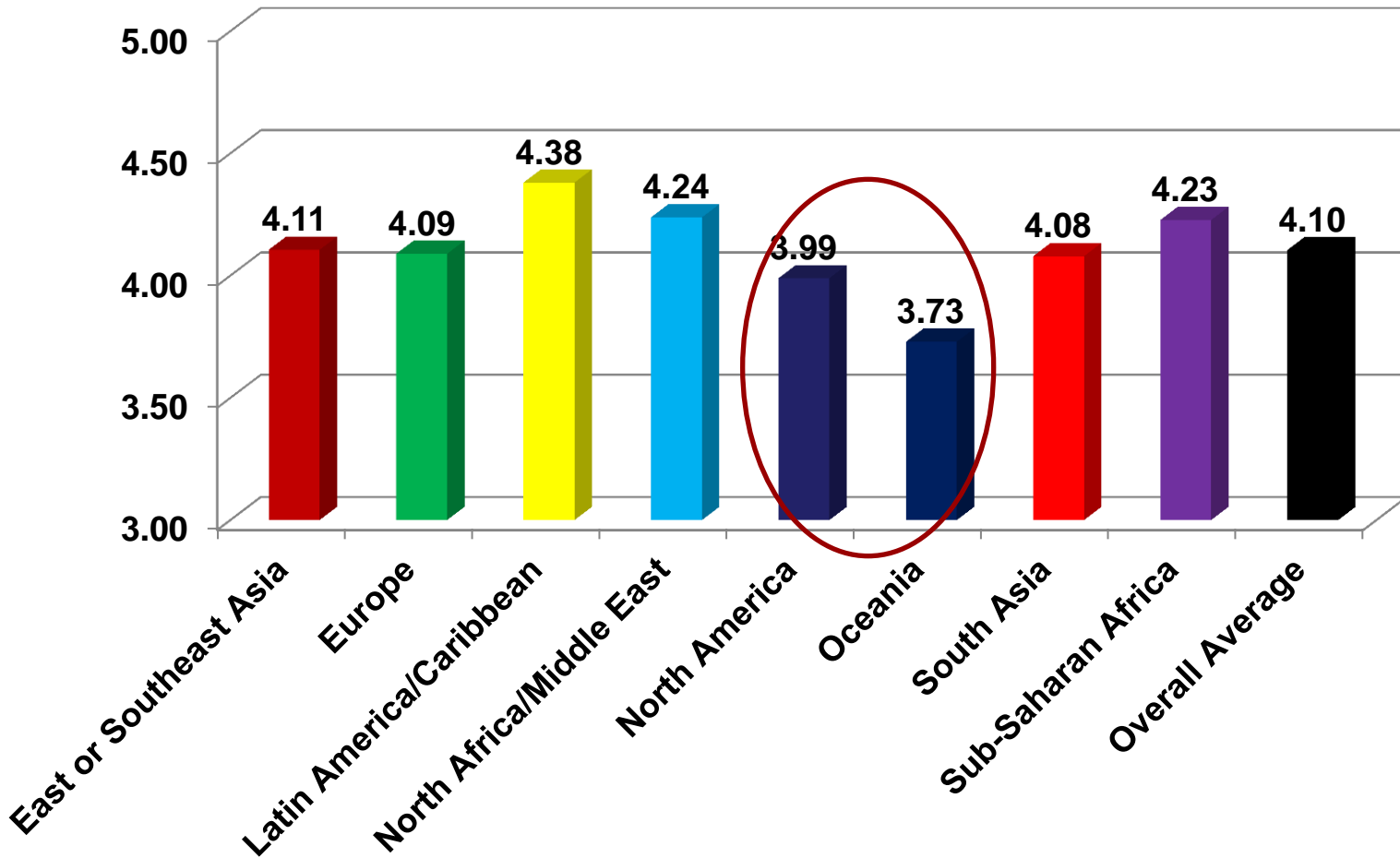


Region-wise importance to other elements of SAD



1=Not important 2=Somewhat important 3=Reasonably important 4=Important 5=Extremely important

Extent of agreement on integration of the ethical dimension into SAD



1=Not important 2=Some what Important 3=Reasonably important 4=Important 5=Extremely Important



Region-wise presentation of 3 bodies that should take initiative first to meet the requirements of SAD

Region	Body 1	Body 2	Body 3
East and Southeast Asia	Scientists	Farmers and farmers' associations	Regulatory bodies
→ Europe	Farmers and farmers' associations	Scientists	Industry
Latin America-Caribbean	Farmers and farmers' associations	Scientists	Regulatory bodies
North Africa-Middle East	Scientists	Farmers and farmers' associations	Regulatory bodies
→ North America	Farmers and farmers' associations	Scientists	Industry
→ Oceania	Farmers and farmers' associations	Industry	Scientists
South Asia	Scientists	Regulatory bodies	Farmers and farmers' associations
Sub-Saharan Africa	Scientists	Farmers and farmers' associations	Regulatory bodies



Region-wise presentation of top 3 modes for SAD operationalisation

Region	Mode 1	Mode 2	Mode 3
East and Southeast Asia	Develop guidelines / good practices	Make consumers aware of the benefits of SAD	Create environmental certification for products obtained by using SAD
Europe	Make consumers aware of the benefits of SAD	Develop guidelines and good practices	Achieve broad stakeholder engagement
Latin America-Caribbean	Make consumers aware of the benefits of SAD	Make civil societies aware of the benefits of SAD	Achieve broad stakeholder engagement
North Africa-Middle East	Make consumers aware of the benefits of SAD	Develop guidelines / good practices	Create environmental certification for products obtained by using SAD
North America	Develop guidelines and good practices	Achieve broad stakeholder engagement	Encourage industry to develop voluntary guidelines & to follow them
Oceania	Make consumers aware of the benefits of SAD	Achieve broad stakeholder engagement	Develop guidelines / good practices
South Asia	Make consumers aware of the benefits of SAD	Develop guidelines / good practices	Make civil societies aware of the benefits of SAD
Sub-Saharan Africa	Develop guidelines / good practices	Make consumers aware of the benefits of SAD	Achieve broad stakeholder engagement



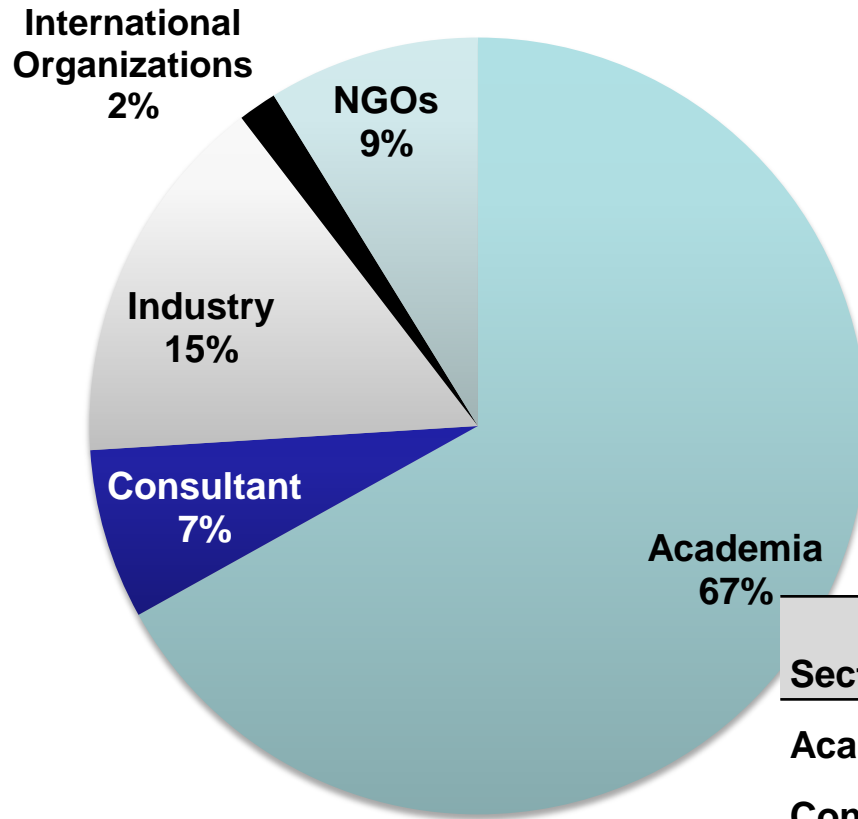
Region-wise percent unit shift from current to an ideal situation

Region	Planet		People		Profit		Ethics	
	Current	Ideal	Current	Ideal	Current	Ideal	Current	Ideal
East and Southeast Asia	20.5	29.2 + 8.7	27.5	30.2 + 2.7	39.0	23.9 - 15.1	13.0	16.7 + 3.7
Europe	21.5	33.4 + 11.9	21.9	28.0 + 6.1	43.1	18.3 -24.8	13.5	20.3 + 6.8
Latin America-Caribbean	20.7	30.4 + 9.7	21.9	27.7 + 5.8	44.7	19.8 - 24.9	12.8	22.1 + 9.3
North Africa-Middle East	20.5	29.5 + 9.0	24.8	29.1 + 4.3	41.6	22.7 - 18.9	13.1	18.7 + 5.6
North America	18.3	31.3 + 13.0	22.8	25.5 + 2.7	45.1	20.9 - 24.2	13.8	22.2 + 8.4
Oceania	22.7	30.4 + 7.7	26.6	27.5 + 0.9	36.2	22.9 - 13.3	14.5	19.2 + 4.7
South Asia	23.0	30.0 + 7.0	29.3	31.5 + 2.2	34.5	21.4 - 13.1	13.3	17.1 + 3.8
Sub-Saharan Africa	22.6	30.2 + 7.6	27.6	30.2 + 2.6	35.6	21.2 - 14.4	14.2	18.5 + 4.3



Sector-wise analysis

Sector-wise distribution of respondents



Sector	Number of respondents
Academia	623
Consultant	66
Livestock sector Industries	145
International organizations	15
NGOs	82
Total	931



Sector-wise relative importance of SAD elements that aim to protect environment and natural resource base (Planet dimension)

1/2

Elements	Sectors that gave higher importance than the average	Sector that gave least importance
Preferably use locally available feed resources	NGOs, Academia, Consultants	Industry
Not use antibiotics and synthetic growth promoters	International organizations, NGOs	Industry
Use minimum energy	NGOs, International organizations	Industry
Use minimum water	NGOs, International organizations	Industry
Minimum C-footprint	International organizations, NGOs, Academia, Consultants	Industry
Minimise water pollution	International organizations, Academia	Industry



Sector-wise relative importance of SAD elements that aim to protect environment and natural resource base (Planet dimension)

2/2

Elements	Sectors that gave higher importance than the average	Sector that gave least importance
Minimise air pollution	International organizations, Academia	Industry
Enhance resilience of livestock production system	All sectors except Industry	Industry
Not lead to deforestation and land degradation	All sectors equal to global average except International organizations	International organizations
Enhance or at least do not decrease biodiversity	NGOs, other sectors equal to global average except Industry	Industry
Respect landscape diversity and aesthetic value	International organizations, NGOs, Consultants	Industry



Sector-wise relative importance of socio-cultural elements (People dimension)

1/2

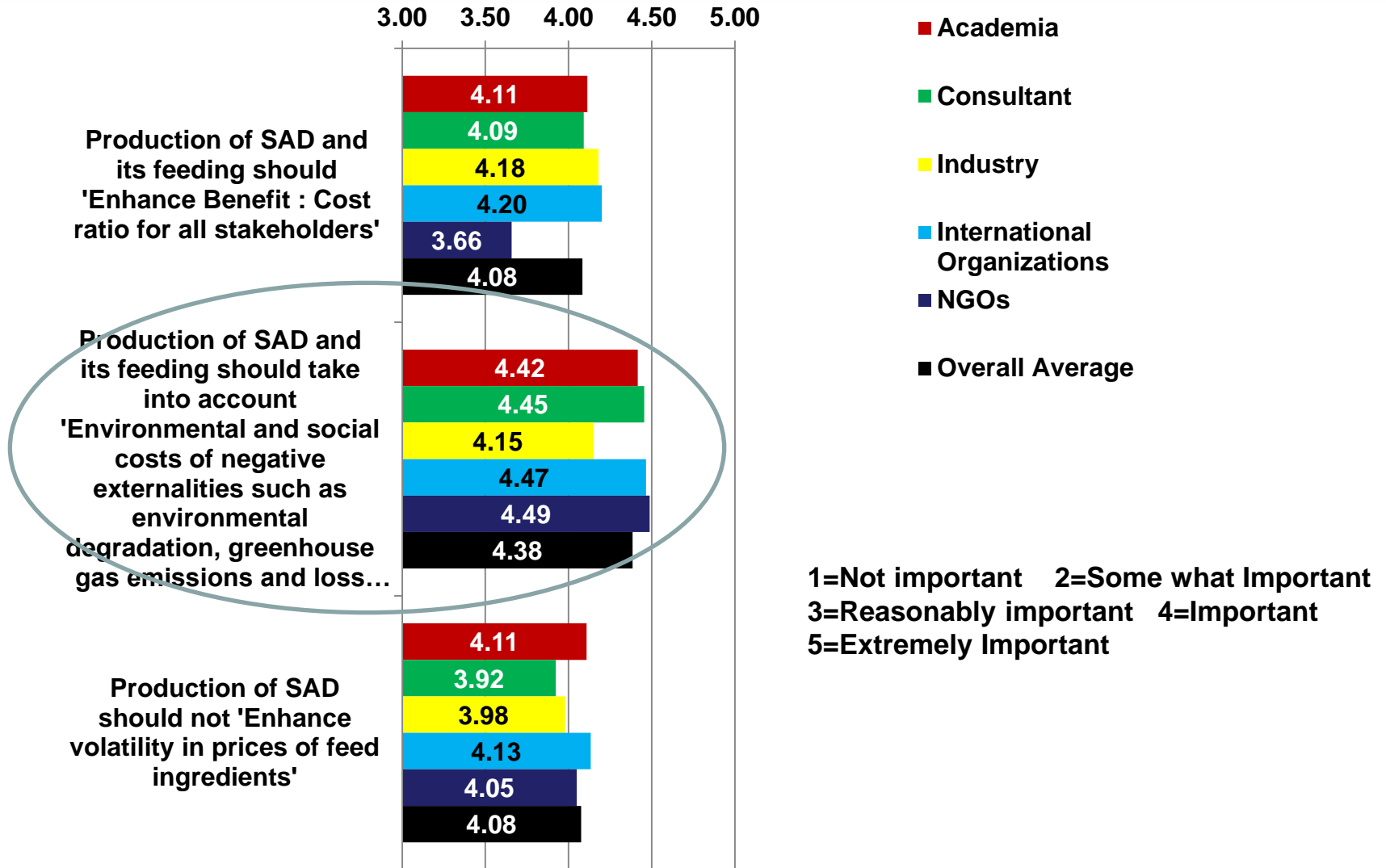
Elements	Sectors that gave higher importance than the average	Sector that gave least importance
Consider social aspects of rearing livestock	NGOs, International organizations, Academia, Consultants	Industry
Not be culturally offensive to producers and consumers	All sectors except Industry very close to global average	Industry
Respect perceptions, beliefs, values, taboos and be socially acceptable	All sectors except Industry very close to global average	Industry
Empower women	International organizations, NGOs, Consultants, Academia	Industry
Break social barriers and promote social harmony	NGOs, Academia, International organizations	Industry



Sector-wise relative importance of socio-cultural elements (People dimension)

Elements	Sectors that gave higher importance than the average	Sector that gave least importance
Avoid exacerbation of unfavorable legal process (e.g. land grab)	NGOs, Consultants,	Industry
Be a part of corporate social policy	Academia, other sectors except Industry close to global average	Industry
Promote and preserve local knowledge	NGOs, International organizations, Academia	Industry
Not compete with human food	Academia, NGOs	Industry
Animal products affordable to consumers	Academia, Industry	NGOs

Sector-wise relative importance of economic elements (Profit dimension)

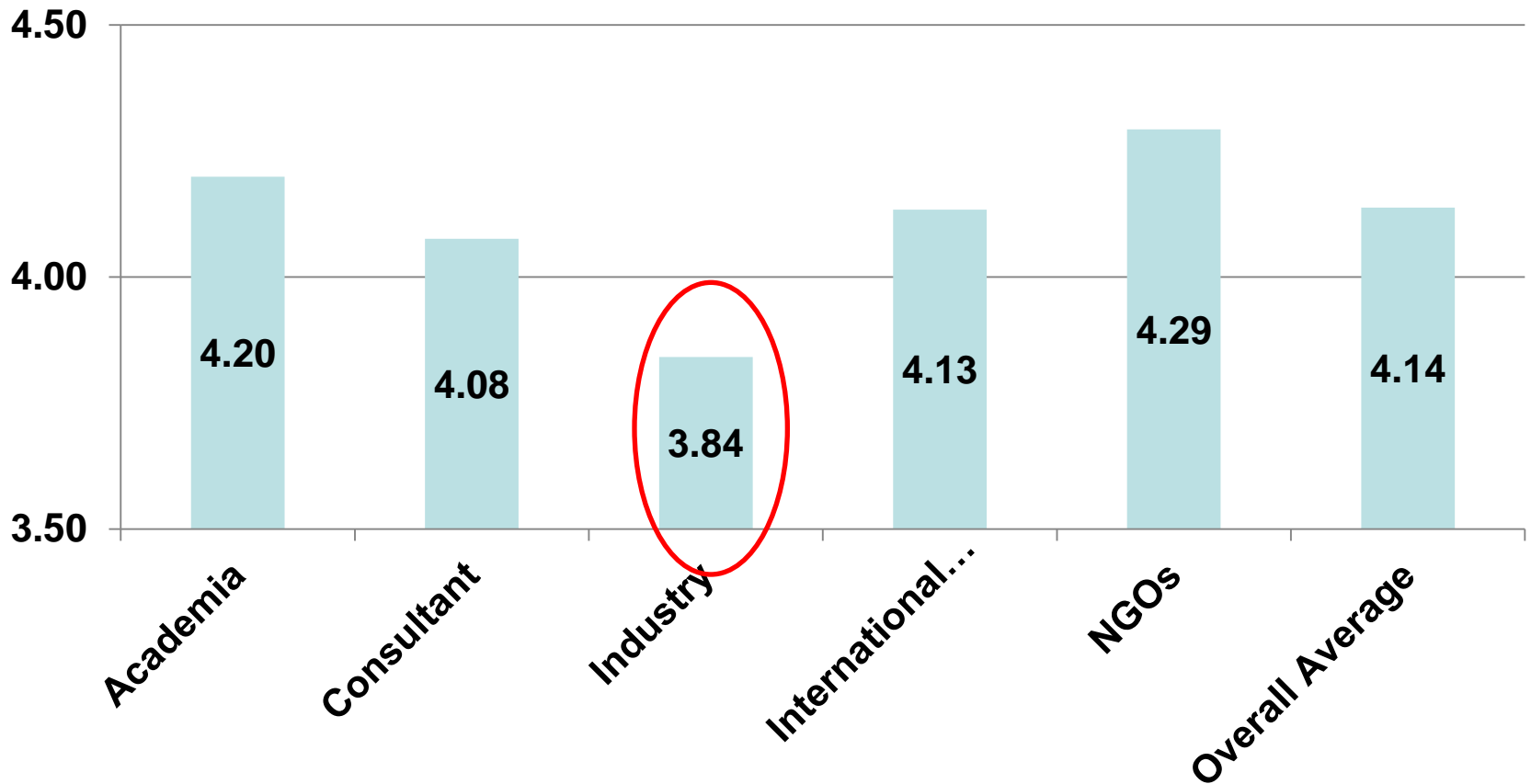




Sector-wise relative importance of other elements of SAD

Elements	Sector that gave higher importance than the average	Sector that gave least score
Contain a feed ingredient produced using public subsidies	Overall low scores, suggesting that SAD should not contain a feed produced using public subsidies	
Reuse food waste after ensuring its safety	NGOs, Academia, Industry	Consultants
Use food grains in monogastric feed	Industry	NGOs
Use food grains in ruminant feed	Industry	NGOs
Should use GMO	Industry	NGOs
Should use feed ingredients produced through high input agriculture	Industry	NGOs
Production of SAD be given incentives	Academia	NGOs
Use of SAD be given incentives	Academia	Consultants

Extent of agreement on integration of the ethical dimension into SAD



1=Not important 2=Some what Important 3=Reasonably important 4=Important 5=Extremely Important



Top three bodies that should take initiative first to restructure feed production meet the requirements of sustainable animal diets

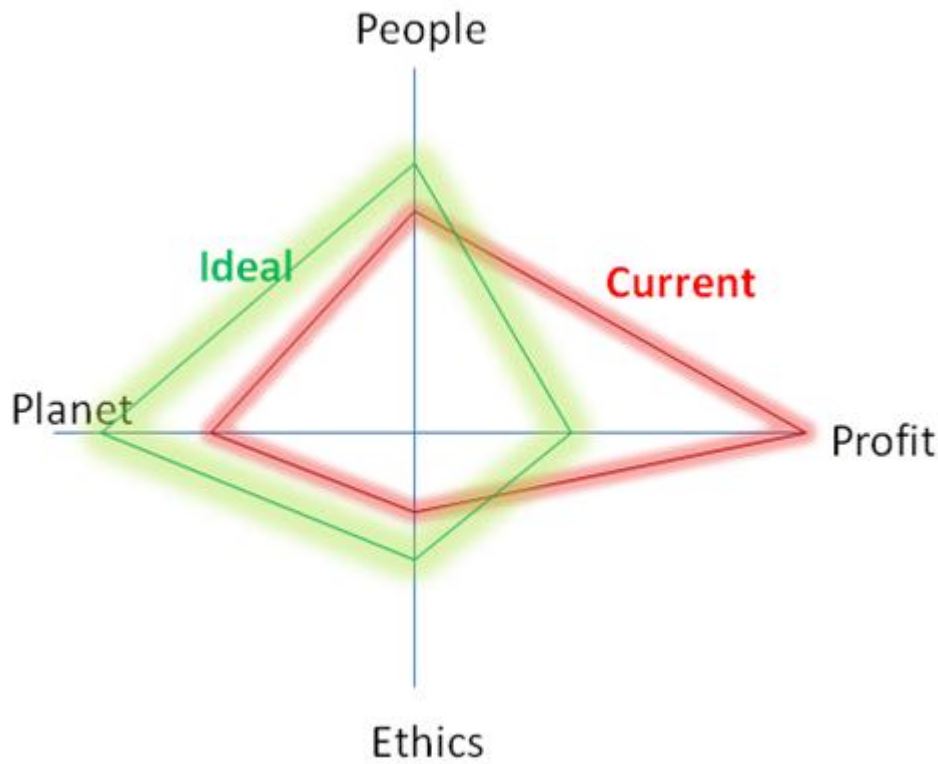
Sector	Body 1	Body 2	Body 3
Academia	Academia	Farmers and farmers associations	Regulatory bodies
Consultants	Academia	Farmers and farmers associations	Industry
Industry	Farmers and farmers' associations	Academia	Industry
NGOs	Farmers and farmers' associations	Regulatory bodies	Academia
International organizations	Farmers and farmers' associations	Regulatory bodies	Industry



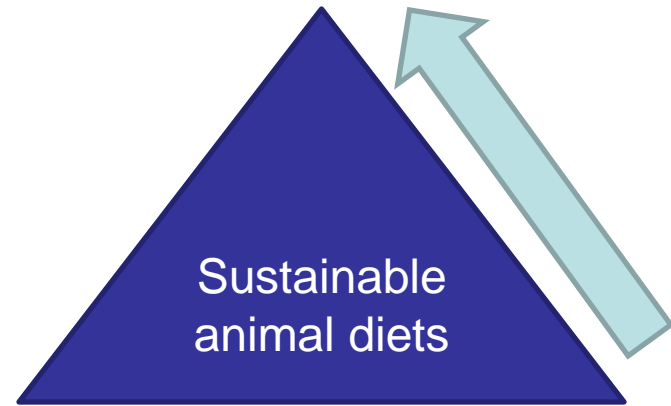
Sector-wise presentation of 3 top modes for operationalisation of SAD

Region	Mode 1	Mode 2	Mode 3
Academia	Make consumers aware of the benefits of SAD	Develop guidelines / good practices	- Encourage industry to develop voluntary guidelines and to follow them - Introduce incentives for farmers for using SAD
Consultants	Develop guidelines and good practices	Make consumers aware of the benefits of SAD	Encourage industry to develop voluntary guidelines and to follow them
Industry	Develop guidelines and good practices	Make consumers aware of the benefits of SAD	Encourage industry to develop voluntary guidelines and to follow them
International organizations	Develop guidelines and good practices	Make consumers aware of the benefits of SAD	Introduce incentives for farmers for using SAD
NGOs	Make consumers aware of the benefits of SAD	Develop guidelines / good practices	Introduce incentives for farmers for using SAD

Sustainability quadrant – Current and Ideal situations



A journey, following the desired change that all stakeholders agree



Aims at getting better and better with time



Survey has helped to:

- a) set direction of positive change
- b) priorities various elements
- c) identify sectors that should take initiative
- d) Identify modes to put the concept in practices



Thanks for your attention



Future work.....your comments/suggestion

- Indicators / proxy indicators? Methodology development?
- Tool development: good practices and guidelines?
- Case studies to identify impact of the elements identified through the survey?
- Buying-in of the general principles and framework of the concept and positive direction of change?
- Stakeholder-directed production of short briefs highlighting the benefits of SAD?
- Policy support?
- Any other point(s)? Would you like to comment?



Questions

Expectations from the concept:

➔ On one hand, livestock products should be affordable to customers. Benefit : cost ration should be high for all stakeholders -- farmers as well as feed industry. `

← On the other hand: cost of environment damage and loss of biodiversity should be taken into account in total cost of production.

These two phenomena may be considered opposite to each other, and there could be trade offs

Examples of win-win?