



**GHENT
UNIVERSITY**



**St. Kliment Ohridski
University
Bitola**

STRATEGY AND TACTICS FOR ADDRESSING WORSENING OF THE AIR QUALITY IN WESTERN BALKANS

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ADDRESSING THE PROBLEM OF:

Environmental pollution in Macedonia - more specifically, the air quality

BY ASSISTING:

One of the main stakeholders - the citizen - directly, both with managerial and technical solution.

CURRENT SITUATION AND BACKGROUND

- alarming beyond reason,
- especially the air pollution in Macedonia and in Western Balkans

complex problem that needs urgent action on many levels!

Air quality in Macedonia is unsuitable for healthy living. Amazing terrain rich with mountains and nature, not densely populated, but still, has very polluted towns and cities – for broad variety of reasons coming from lack of individual and collective awareness, efforts and action.

CURRENT SITUATION AND BACKGROUND

Why does it matter? (and how would you measure this or tell stories about it?)

- Health of citizens – oncology patients, respiratory diseases, ...
- Environmental degradation and pollution – PM10 particles, quality of soil, presence of pollutants in milk, wine, wheat
- Reproduction of the population – fertility, in vitro increase, having first child aged 35+
- Deforestation happens (legal and illegal) – as main resource for heating is wood, ...,

3. To whom does it matter? (who else cares?)

- Citizens in this geographic location
- Animals, plants, future generations, ... the ones to whom we initiate change and cannot do anything in return, except adapt
- Healthcare professionals

Incorporated sub-question: **Who doesn't give a damn?**

;))

CURRENT SITUATION AND BACKGROUND

Who needs to care more and how will you get them to give it more attention?

- Individual citizens who live in this geographic region, within their possibilities (heating alternatives, transportation, Reuse, Recycle, Reduce)
- Government (infrastructure, subsidizing, facilitation, regulations and evaluations of discrepancies, biggest pollutant businesses emphasis on proper solving, waste management, ...)
- Business (the business model shouldn't be just profit; big picture gives/takes, ...)
- International community (this pattern of doing stupid things because of lack of money, knowledge, consciousness, capability and proactivity on individual and collective level) exists in at least half of the global developing countries, if not all)
- EU and International community

The **attention and dedication** needs to be captured **on various levels** (mostly mentioned in brackets in the bulleted answers of this question): individuals need to start thinking that there are some things they can do to improve the situation by themselves within their possibilities and not use the excuse – ‘it is not worth it, it is just one drop in the ocean’. The government should have systems design of projects towards purpose and identify proper roles and accountabilities, and as next step populate those roles with various agents. The international community should exemplify economies that lead the way and facilitate functional exchange of information and resources towards co-evolving together; EU should step towards big picture system design of a project with a purpose of reducing pollution and making sure the ones who populate the roles are accountable and fulfill their accountability in the system, ...)

WHAT WE DID - COMBINE STRATEGY AND TACTICS FOR COMPLEXITY

Project **team of Ghent University Belgium, University St. Kliment Ohridski Macedonia** (bachelor and master students: Mihaela Atanasovska, Damjan Chkatroski, Martin Trajkovski - supervised and coordinated by Doc. dr. Renata Petrevska Nechkoska) within a **Harvard University CSI module for Problem Driven Iterative Adaptation (PDIA)** in the course of 12 weeks during the heating season of Autumn/Winter 2017.

Strategy for complexity: **Problem Driven Iterative Adaptation (PDIA)** (Building State Capability, Evidence, Analysis, Action; Andrews, Pritchett, Woolcock, 2017)

Tactics for complexity: **the Denica method (Petrevska Nechkoska, 2017)**, based on the Sense-and-Respond framework (Haeckel, 1999)

PROBLEM DRIVEN ITERATIVE ADAPTATION - COMPONENTS



Figure 6.1. How would you get from St Louis to Los Angeles
Source: Google Maps

The challenge of building (real) state capability for implementation



Figure 6.2. How would you get to the west coast from St Louis in 1804?

PROBLEM DRIVEN ITERATIVE ADAPTATION - COMPONENTS

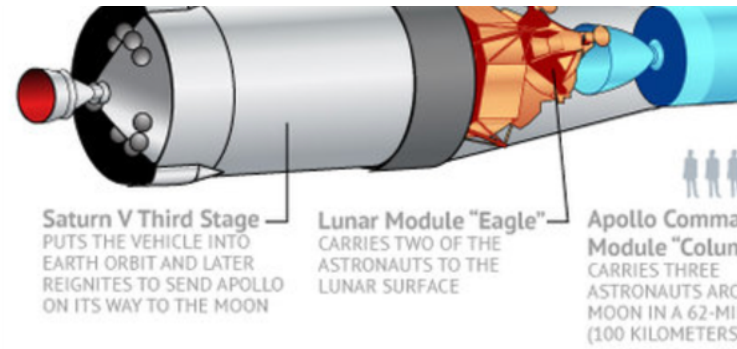


How the Apollo 11 Moon Landing Worked (Infographic)

By Karl Tate, SPACE.com Infographics Artist | September 12, 2012 03:13pm ET



MORE ▼



HISTORIC MONUMENTS & MONUMENTS

- 5 Early Soviet unmanned lunar missions (1958–1965)
- 6 Early U.S. unmanned lunar missions (1958–1965)
 - 6.1 Pioneer missions
 - 6.2 Ranger missions
- 7 Soviet unmanned soft landings (1966–1976)
- 8 U.S. unmanned soft landings (1966–1968)
- 9 Transition from direct ascent landings to lunar orbit operations
- 10 Soviet lunar orbit satellites (1966–1974)
- 11 U.S. lunar orbit satellites (1966–1967)
- 12 Soviet circumlunar loop flights (1967–1970)
- 13 Manned Moon landings (1969–1972)
 - 13.1 US strategy
 - 13.2 Soviet strategy
 - 13.3 Apollo missions
 - 13.4 Manned Moon landings
 - 13.5 Other aspects of the Apollo Moon successful landings
- 14 Late 20th century–Early 21st century unmanned crash landings
 - 14.1 Hiten (Japan)
 - 14.2 Lunar Prospector (USA)
 - 14.3 SMART-1 (ESA)
 - 14.4 SELENE (Japan)
 - 14.5 Chang'e 1 (China)
 - 14.6 Chandrayaan-1 and Chandrayaan-2 (India)
 - 14.7 LCROSS (USA)
 - 14.8 GRAIL (USA)
 - 14.9 LADEE (USA)
- 15 21st century unmanned soft landings
 - 15.1 Chang'e 3 (China)
- 16 Landings on moons of other Solar System bodies
- 17 Proposed future missions

Outcome
Launch failure
malfunction resulting
Launch failure
Launch failure
vn as Pioneer 1. ^[3]
Launch failure
Launch failure
ontrollers; third ometres (960 mi).
Launch failure
stage
Launch failure
3,600 mi). ^[8]
Launch failure
entric orbit, later
Partial failure
of instrument h. First U.S.
Launch failure

	Failed to orbit; guidance system malfunction ^[9]				
Luna 2 (E-1A No. 2)	12 September 1959	Luna	 OKB-1	Impactor	Success
	Successful impact at 21:02 on 14 September 1959. First spacecraft to reach lunar surface ^[12]				
Luna 3 (E-2A No. 1)	4 October 1959	Luna	 OKB-1	Flyby	Success
	Returned first images of the far side of the Moon ^[13]				
P-3 Able IVB	26 November 1959	Atlas-D Able	 NASA	Orbiter	Launch failure
	Failed to orbit; ^[14] payload fairing disintegrated due to design fault ^[9]				
E-3 No.1	15 April 1960	Luna	 OKB-1	Flyby	Launch failure
	Failed to orbit; premature third stage cutoff ^[15]				
E-3 No.2	16 April 1960	Luna	 OKB-1	Flyby	Launch failure
	https://en.wikipedia.org/wiki/Luna_E-3_No.2 Integrated ten seconds after launch ^[15]				
P-30 (Able VA)	25 September 1960	Atlas-D Able	 NASA	Orbiter	Launch failure
	Failed to orbit; second stage oxidiser system malfunction resulting in premature cutoff ^{[15][16]} payload fairing disintegrated due to design fault ^[9]				
Ranger 3 (P-34)	26 January 1962	Atlas LV-3 Agena-B	 NASA	Impactor	Spacecraft failure
	Partial launch failure due to guidance problem; attempt to correct using spacecraft's engine resulted in missing the Moon by 36,793 kilometres (22,862 mi) ^{[18][19]}				
Ranger 4 (P-35)	23 April 1962	Atlas LV-3 Agena-B	 NASA	Impactor	Spacecraft failure
	Failed to deploy solar panels, ran out of power ten hours after launch; incidental impact on the far side of the Moon on 26 April ^{[18][20]}				
Ranger 5 (P-36)	18 October 1962	Atlas LV-3 Agena-B	 NASA	Impactor	Spacecraft failure
	Solar panels erroneously disengaged from power system, failed 8 ¾ hours after launch when batteries were depleted. ^[18] Missed the Moon as course correction was not completed ^[21]				
E-6 No.2	4 January 1963	Molniya-L	 OKB-1	Lander	Launch failure
	Failed to depart Low Earth orbit; ^[22] guidance system power failure prevented upper stage ignition ^[23]				
E-6 No.3	3 February 1963	Molniya-L	 OKB-1	Lander	Launch failure
	Failed to orbit; guidance failure ^[23]				
					Spacecraft

PROBLEM DRIVEN ITERATIVE ADAPTATION - COMPONENTS



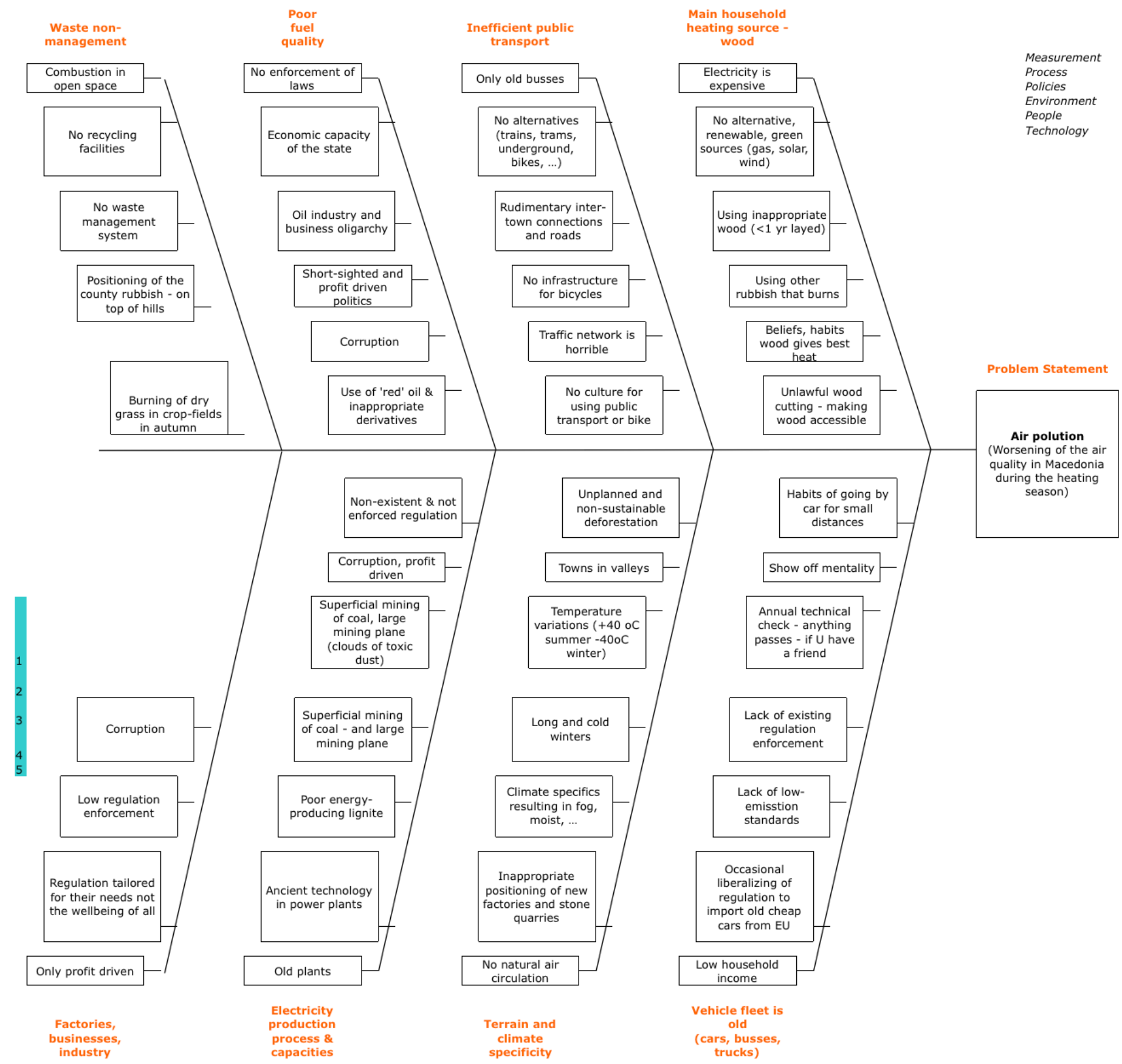
PROBLEM DRIVEN ITERATIVE ADAPTATION - COMPONENTS

1. Needed authority – Key stakeholders

Name	Role	Why are they important?	Rank (where in the matrix?)	Current attitude	What we would like them to do?	Key messages	How (Tactics?)	When	Who
<i>Intellectuals</i>	Support the cause without political background (gather personal network of intellectuals from all ranges, profiles, political or no political background, MKD and diaspora, to recognize and support the cause)	To exemplify that smart, wise, engaged and proactive people do care and want to make a difference to a common purpose of quality of life for all	A	Segmented and individualized – no collective purpose nor facilitator to guide them. Only sporadic scattered efforts which are usually colored in one or the other political party	(1) Support the project (and get involved in dissemination) as individual intellectuals (otherwise groups, institutions, NGOs, leaders, ... are all going to be considered politicized) and (2) act in line with the project through personal example	If not now – when? If not us – who?	Activate the personal network and initiate a meeting, check for support climate and see if it can spread more and how – social media, personal discussions, workshops, interviews, ...	January 2018	Renata & (Martin, Damjan, Mihaela)
<i>Model PR citizens</i>	Support the project with own	To act as referrals to the common	B	Each fighting their own battles, but with	(1) Invest some of their recognizable	If not now – when? If not us –	Persuade one by one by getting contact,	February 2018	Renata & team (Martin, Damjan,

Intellectuals,
Model PR citizens,
Media,
Ministries -
Of transportation,
Of environment,
Of finance,
Of economy,
Of internal affairs,
Of law;
Commercial businesses and banks,
Neutral citizens and households,
Municipal government,
Transport companies,
External investors,
EU

PDIA - COMPONENTS

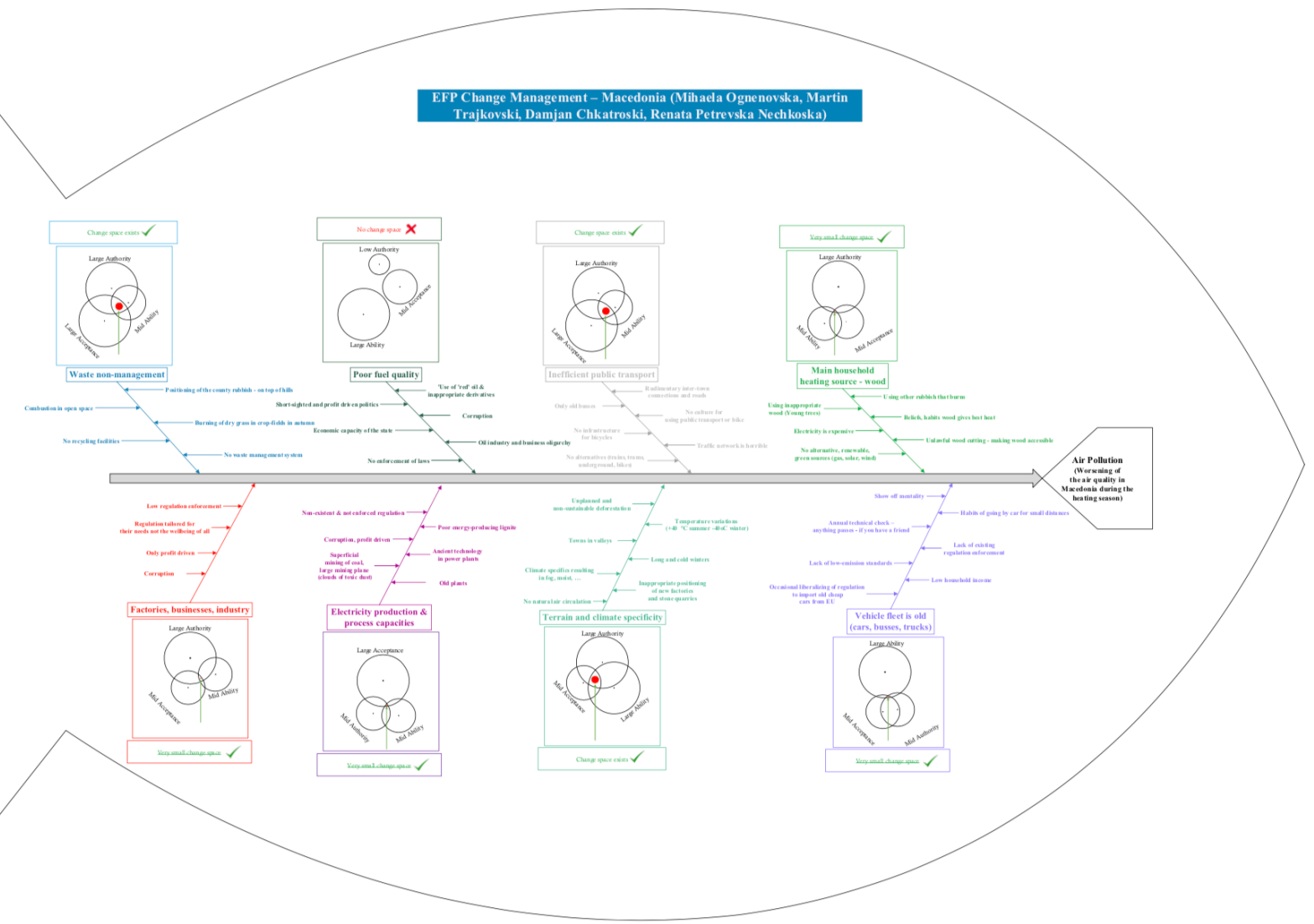


PROBLEM DRIVEN ITERATIVE ADAPTATION - COMPONENTS

	Use the questions provided to help you reflect	AAA estimation (low, mid, large)	Assumptions			
Cause # 1	Main household heating source - wood					
	Overall, how much Authority do you think you have to engage?	Large	Supportive: Government: Ministry of transport, Ministry of economy – electricity price); Ministry of environment (alternative green solutions), Ministry of law, Ministry of internal affairs (unlawful wood cutting) Non-supportive: Citizens (change of behavior and mentality) Neutral: Commercial businesses (they will seek for profit anyway)			
	Overall, how much Acceptance do you think you have to engage?	Mid	Agents	Engagement	Influence	Acceptance
			Ministries	5	9	Mid
			Citizens	2	6	Low
			Commercial businesses	6	6	Mid
			Total estimate:			Mid
	Overall, how much Ability do you think you have to engage?	Mid	Time: Short time because the adverse effects are already putting heavy risk on quality of life Agents (HR): Collaborators in all spheres – in governmental institutions, especially higher managers; in NGOs to have broad support regardless of the political party (main danger to become politicized project on two-player political arena); reputable academic staff (teachers, professors, students, researchers, ...) to support the cause; Media attention and support; Own example – practice what you preach. Money: 1) Our financial needs as project team are to establish contacts, persuade, coordinate action, disseminate and promote via different means (social media, forums, presentations, debates, leaflets, ...). In this sense, the necessary funds are EUR 5.000+ 2) If the projects of infrastructure, renewable energy and electricity price are undertaken, then the funding is expressed in Millions EUR.			
What is the change space for cause # 1 (large change space, some change space or no change space) – AAA Venn diagram		Some small change space				

PROBLEM DRIVEN ITERATIVE ADAPTATION - COMPONENTS

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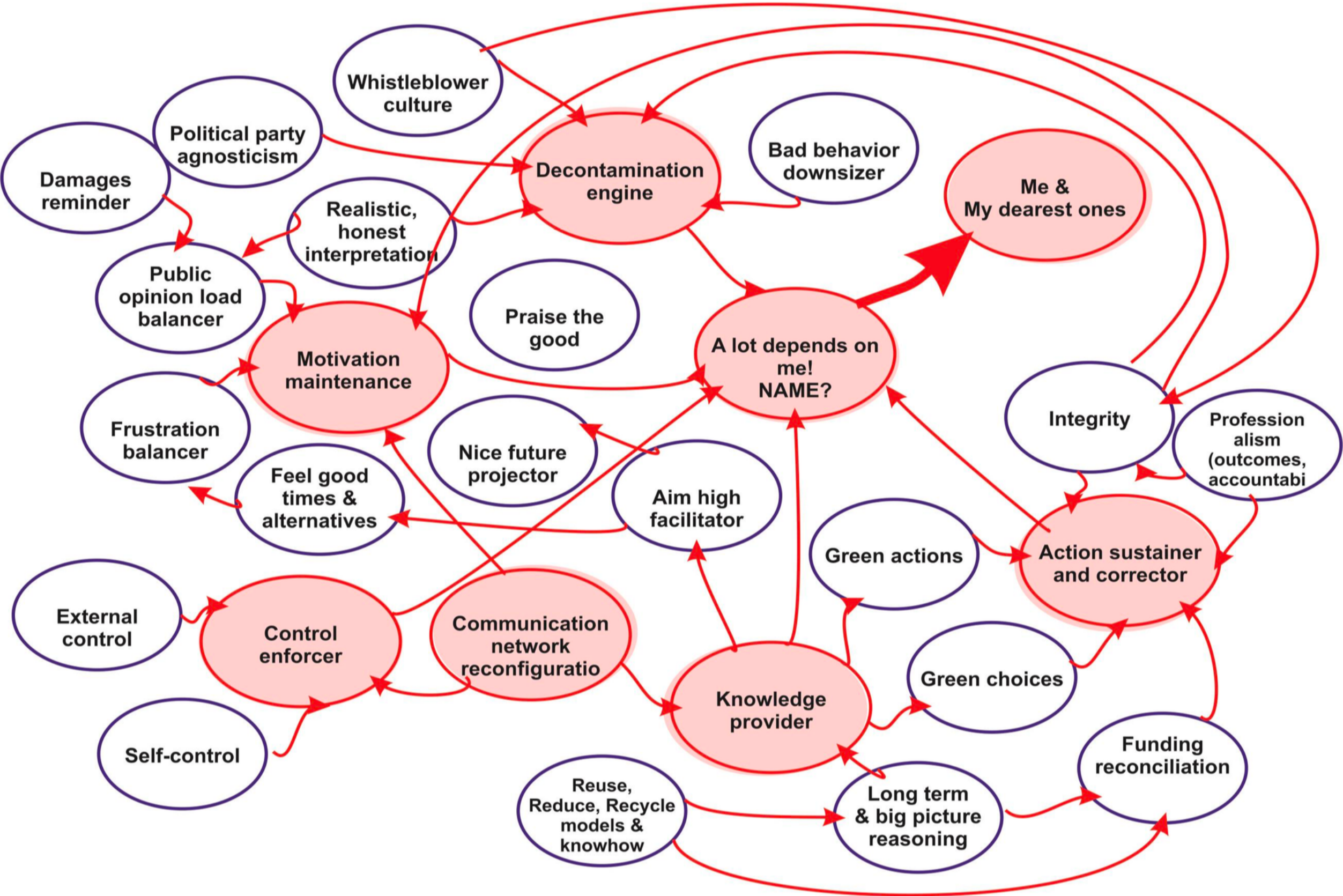
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PROBLEM DRIVEN ITERATIVE ADAPTATION - COMPONENTS

This spreadsheet has missing fonts. [Show](#)

Structuring your first iteration		
Please note: You will need to actually take these action steps this week		
Sub cause from our fishbone diagram	Our idea of what to do	Action steps * this should be something that can be completed in the next five days.
Terrain and climate specificity (sub-causes of the sub-cause: unplanned and unsustainable deforestation; fog; inappropriate positioning of factories and stone quarries; natural air circulation; temperature variations; long and cold winters)	Investigate the project plans (from 1980) (if can be found) of the electricity power plant that incorporate use of the warm water for mass heating of the town Bitola; and make stakeholder analysis in order to see whether and how it can be implemented today. Also see how the same plants are organized in neighboring Greece that are located along the same plane of Pelagonia.	-Find the plant plans and projections for the hot water supply to the town of Bitola - Consult with some professors, engineers, specialists on what that means in technical and economic terms - Investigate how electricity plants throughout Pelagonia plane are organized in Greece
Waste non-management (sub-causes that create this macro sub-cause are: Combustion in open space, no recycling facilities, positioning of the country rubbish – on top of the hills, burning dry grass in crop-fields, no waste management system)	Create a detailed plan on how and where to start. Analyse the main waste disposal facilities and explain how they should be renovated. There are several solutions for this idea.	- Find all disposal plants on the map - Consult with some employees there and see the key reasons why waste management is nonexistent. - Present the idea in short to the employees. How they will react and is this idea possible to fulfill its plan.
Main household heating source - wood (sub-causes that create this macro sub-cause are: expensive heating, no alternative heating sources)	Meet and interview households that use wood as the primary source	-Find households that use wood as their main heating source -Interview them on why they use wood and go through all the details behind their

PROBLEM DRIVEN ITERATIVE ADAPTATION - TACTICS FOR THE CITIZEN, THE DENICA METHOD



THE MOST ADVANCED SPECIES?!



THE MOST ADVANCED SPECIES?!



HOW TO ITERATE NEXT?!

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