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“The Weisse Wanne”
Hard Standards Shaping Soft Concrete
An ANT’s Investigation

Verfasser

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Camillo Stubenberg,

Vienna, October 2012

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Introduction:

This paper analyzes an infrastructural development project with Bruno Latour's Actor-Network-Theory (ANT). Through a total investment of about one million euro between 2003 until 2008 the Austrian Development Agency financed the rehabilitation of an 8000 m3 water reservoir in northern Albania. Based on collected documents, interviews and field observations, I provide an ethnographic account of this project. Applying ANT as a theoretical and epistemic guideline, I will focus on the arduous process of rebuilding the reservoir according to the Austrian "Weisse Wanne" concrete standard. The structure of this thesis is consequently shaped by two aims:

- On the one hand I have arrived at this research project through an initial theoretical interest in actor network theory, which has been developed by scholars in the field of Science and Technology Studies (STS) when studying laboratories and technologies. Intrigued by its capacity to explore the interlinked character of technology and society, I have designed my research in order to explore the limits and possibilities of this particular theoretical approach.
- On the other hand I would like to give as much space as possible to the many layered stories provided by my case study: the '*Weisse Wanne*' water reservoir in the Albanian town of Shkodra holds not only 8000 cubic meters of water, but also is comprised of a multitude of stories that tell of its difficult and controversial construction. As a mundane technology, this standard for impermeable concrete does not appear as intriguing as gene-technology or nuclear energy. Nonetheless, the *Weisse Wanne* was powerful in shaping not only the concrete itself but also the lives and routines of people, thus deserving our attention.

In order to accommodate these two aims I have chosen to write this thesis in an unusual format, taking inspiration from Annemarie Mol's *The body multiple,* as well as Bruno Latour's *Aramis - or the love of technology.* These authors used different text formats in order to distinguish between different types of stories. In *The body multiple* each page is divided into two, with the upper half representing an ethnographic story and the lower part, the theoretical thoughts. In *Aramis,* Latour uses three different styles or formats, separating a) the narration of the research process, b) actual research documents and c) a rather experimental and mystical voice of the technology itself in order to tell the story.

Concerning the paper at hand, the following chapters will each be subdivided into an a) *ethnographic* and a b) analytic part, which can be distinguished by typography. In the prior I put emphasis on the empirical data collected during the research, letting the actors speak the way they spoke to me. In a corresponding analytical part, I then add slightly more theoretical thoughts and reflections. This mode of procedure will also permit the reader to judge for herself, whether ANT in general and my analytical suggestions are congruent with the stories presented.

In the first chapter I outline the difficulty of accessing the research site, presenting the reader with the challenges I faced during my research process. This part is then followed by a general introduction into the field of STS, as well a more analytical discussion of the difficulties met when trying to give an overarching panorama of the situation. In order to explain the problems of accessing stories about the water reservoir I suggest consider it as a 'black-boxed' technology.

Departing from these ethnographic and analytic considerations, I continue with chapter 2a, where I open the 'black-box' of the reservoir, showing the many elements stories and controversies it contains. In the responding analytical part I elaborate the observations made, by introducing ANT as a theory and epistemic heuristic. In order to explain the astounding amount of available data in form of documents, I evoke Michael Power's concept of an "Audit Society" (Powers 1997).

In the third chapter I return back to my personal research process, outlining to the reader how difficult it is to maneuver such a complex sea of data. By presenting ANT's foundation in process philosophy, as well as proposing its affinity for the study of relations and connections between actors, I direct attention to the important role of standards in the project. In order to familiarize the reader with the study of standards, I use the entire fourth chapter to introduce some necessary terminology. Further I elaborate how powerful standards are, in shaping our daily lives, despite their often mundane and boring appearance.

In chapters five and six I give an extensive history of the 'Weisse Wanne' concrete standard and its arduous construction in Shkodra. Parallel to multiple stories that tell of resistance met and difficulties found, the analytical section starts of discussing notions of development cooperation and technology transfer. Introducing Susan Star's and James Griesemer's concept of "boundary objects" I then explain how the Weisse Wanne, could be so powerful and sustainable in shaping not only the concrete but also the lives of the humans involved. Relating to other ANT studies this chapter also outlines how agency to act is not only

reserved for humans, but can also has to be attributed to non-human actors like this concrete standard.

By presenting stories of rulers, laboratories, thermometers and emails in the seventh chapter, I pay tribute to some of the non-human tools, which where involved in the construction of the reservoir. In the analytical part I show how such tool not only shape the objects we seek to construct, but how they also function as epistemic tools, also shaping what we can know about our surroundings.

Chapter 8 then gives a brief conclusion, arguing for the democratic value of such inquiries into mundane and boring technology. For reasons of layout and readability, the methodological section – giving more detail into data acquired and methods used – is situated in the ninth and final chapter.

1a. The difficulty of Interviewing a Reservoir

It is the twenty-third of April 2012 and I am standing on top of a water reservoir that holds approximately 8000 cubic meters of drinking water. Had I not read various reports and talked to a numerous of people beforehand, I would probably not have known this. To the uninformed eye the structure looks rather like an inconspicuous earth mound. (Picture1)

Picture 1: Inconspicuous reservoir in Shkodra's Tepe Hills. (Photo: C.Stubenberg)

Only the blue doors at its side suggest, that there is in fact something interesting hidden beneath the patchy grass hill. Still panting from the short but steep ascent I turn around to enjoy the fantastic panorama, stretching out in front of me (See Picture 2). To my far left I see the ruins of Rozafa castle, the last stronghold of the ancient Illyrian Empire. In the center of the picture I have just taken is Lake Shkodra, which stretches out over roughly 400 square kilometers[1] between Northern Albania and Southern Montenegro. Below me I can hear and see the city of Shkodra[2] with its one hundred and twenty thousand inhabitants, sprawling in a more or less unorganized fashion along the side of the lake.

The air is still moist from the heavy rainfall that passed just a couple of minutes ago. Still looking over the lake one of my companions from the water works laughingly points to the little yellow caterpillars and excavators, standing in the middle of the lake. He tells me that the construction site of the new bypass is submerged due to the heavy rain. I also giggle, looking over the huge construction site that will supposedly protect the city from flooding with water and cars. The bypass is controversial and its construction protested by neighboring

[1] Depending on the water level the surface area varies between 370 und 530km2

[2] I will use the Albanian spelling of Shkodra instead of Shkoder, which is usually used in English.

communes. Maybe it is for this reason that my companion and I are happy to laugh at the submerged machinery of this multimillion euro project[3].

Picture 2: Panoramic view from reservoir roof. (Photo: C. Stubenberg)

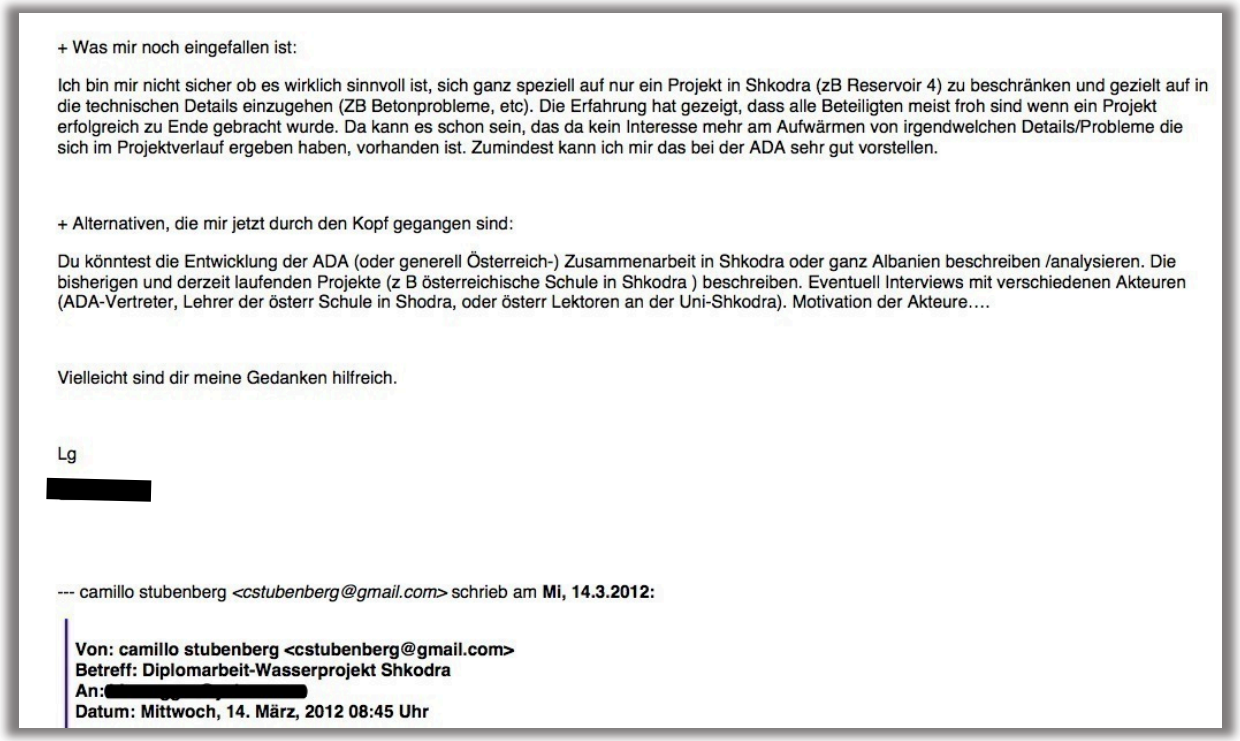
As the described scene already suggests, water has never been a problem in Shkodra - at least not in terms of availability. The Albanian Alps, towering directly behind the city, with their snow-capped peaks reaching 2,694 meters elevation, assure an abundant supply of fresh water. So abundant that Shkodra is regularly subject to flooding in springtime as the Buna River cannot drain the melted snow and the heavy spring rainfall rapidly enough to the Adriatic Sea.

While still gazing over the awe striking landscape, I realize that I should probably get to it and continue with my *research*. In fact I came here in order to study the structure I am standing on right now, not to use it as a means to view the city, but rather to analyze its capacity to store water. While looking at the panorama stretching out in front of me, this seems a rather boring task. I feel like this opinion is also shared by my companions from the water works, who would rather drive back into town instead of watching me stare through the bull-eye window into the reservoir. (Picture 3)

Picture 3: Bull-Eye window in steel pressure door. (Photo: C. Stubenberg)

[3] see: http://www.youtube.com/watch?v=GyaQoz8QO8E
and http://www.top-channel.tv/english/artikull.php?id=5002

Interestingly not only the employees of the water works thought that there would be more interesting things going on, also several other interview partners suggested that I look into something more relevant and more interesting, or at least something bigger and broader:



+ Was mir noch eingefallen ist:

Ich bin mir nicht sicher ob es wirklich sinnvoll ist, sich ganz speziell auf nur ein Projekt in Shkodra (zB Reservoir 4) zu beschränken und gezielt auf in die technischen Details einzugehen (ZB Betonprobleme, etc). Die Erfahrung hat gezeigt, dass alle Beteiligten meist froh sind wenn ein Projekt erfolgreich zu Ende gebracht wurde. Da kann es schon sein, das da kein Interesse mehr am Aufwärmen von irgendwelchen Details/Probleme die sich im Projektverlauf ergeben haben, vorhanden ist. Zumindest kann ich mir das bei der ADA sehr gut vorstellen.

+ Alternativen, die mir jetzt durch den Kopf gegangen sind:

Du könntest die Entwicklung der ADA (oder generell Österreich-) Zusammenarbeit in Shkodra oder ganz Albanien beschreiben /analysieren. Die bisherigen und derzeit laufenden Projekte (z B österreichische Schule in Shkodra) beschreiben. Eventuell Interviews mit verschiedenen Akteuren (ADA-Vertreter, Lehrer der österr Schule in Shodra, oder österr Lektoren an der Uni-Shkodra). Motivation der Akteure….

Vielleicht sind dir meine Gedanken hilfreich.

Lg

[redacted]

--- camillo stubenberg <*cstubenberg@gmail.com*> schrieb am **Mi, 14.3.2012:**

Von: camillo stubenberg <cstubenberg@gmail.com>
Betreff: Diplomarbeit-Wasserprojekt Shkodra
An: [redacted]
Datum: Mittwoch, 14. März, 2012 08:45 Uhr

Document 1: Research suggestions by interviewed engineer. (Source: C.Stubenberg)

Several other involved actors highlighted the mundane and somewhat boring quality of the reservoir. « *Well, yes, ahm, so the vessel I would say is standing there… and there is the water that flows in on one side, and that flows out on the other side…* » *(Austrian Engineer)*

Should I not rather inquire into a more classical topic of political science, like the fate of the Roma village that will get cut-off by the above mentioned bypass road? This community which is socially, politically as well as economically removed from the rest of Albanian society, clearly deserves some more attention… Alternatively, I could take the patchwork of small fields visible from the reservoir as a starting point, in order to discuss the socio-economic impact of the disputed landownership titles: apparently the various regime changes have led to a situation where a single piece of land is often claimed by several people (depending on pre- or post socialist laws), resulting in a situation where Albania would have to be three times its size in order for all claims to be satisfied. Or I take the advice from the above interviewee seriously and inquire more specifically into the role of international donors in shaping the local infrastructure as a whole?

No! Instead of giving in to suggestions that there are other more interesting and relevant things to be studied, I want to argue that the invisibility and silence surrounding this earth-mound with four blue doors is interesting in itself. It is fascinating to continue - not despite - but rather because it seems so boring.

Therefore - with a sigh - I climb back down, in order to beg my companions to open one of the doors for me, so I can at least take a look at one of the four control rooms since I won't be able to enter any of the reservoirs 4 chambers, as they are sealed of with heavy stainless steel pressure doors, only to be opened for inspection and cleaning.

I) Function of the reservoir

Picture 4: Outside and Inside of one of the four control rooms (outlet chamber) (Photo: C. Stubenberg)

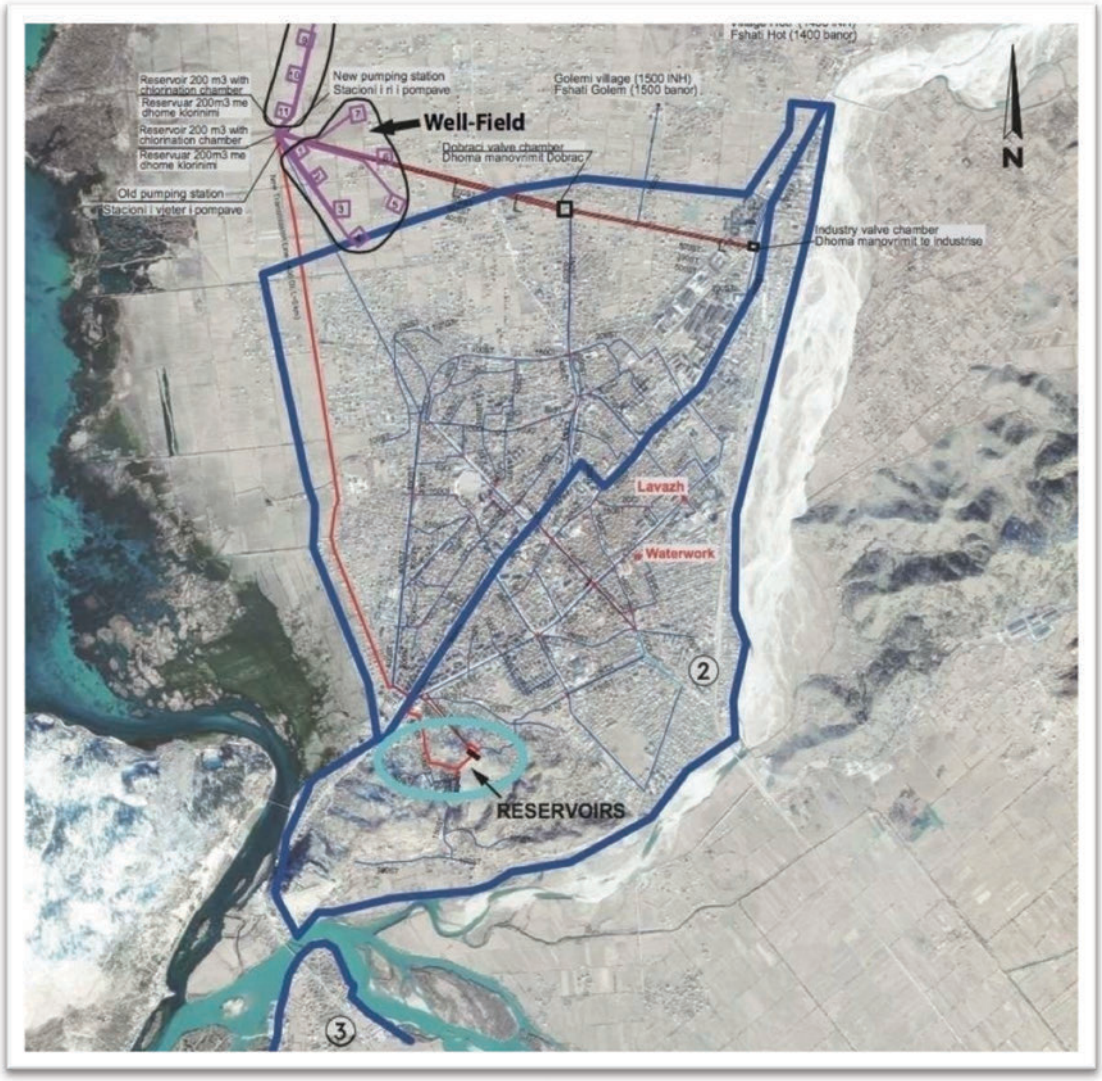
Inside, the reservoirs function is explained to me. Reservoir four, is the newest, largest and undoubtedly the *best* of the four reservoirs that are situated on the Tepe hills approximately 70 meters above sea level in the Southern end of the town. Along with reservoir one, two and three, it was built in order to improve the water supply to this Northern Albanian city. As the engineers quote from above already indicated, the basic functioning principle is quite simple. There is water running into the reservoir on one side, and water leaving it on the other. Having it elevated sixty meters above the town[4] means one needs at least a pressure of six bar to pump the water up. Reversely speaking this also means that around six-bar pressure will be available once the water is re-distributed into the network. Such a resource can be of invaluable importance in case of major power supply breaks, where the reservoir functions as a buffer, continuously supplying the town with water even if the electric pumps do not work.

[4] The town itself is roughly 10 meters above sea level.

On the other hand and hopefully more regularly, the elevated reservoir is useful during times of peak consumption, when it helps to assure steady water pressure throughout the town. But what happens before water flows in and after it flows out?

II) The water supply network

In terms of « *flowing in* » the reservoir as well as the rest of the town is supplied by the Dobraci well field, which is situated in the neighboring commune of Rathina, to the north of Shkodra. (see Picture 5)



Picture 5: Sattelite Image of Shkodra. Wellfield Indicated in the north & Reservoirs in the south. Red lines represent the main distribution lines, thick blue lines the administrative boundary. (Source: Kittelberger 2007)

Geologically the well field as well as the surrounding area is made up of alluvial sediments that have been eroded and washed out of the Albanian Alps by the various rivers and streams. They came to settle here because the topography flattens and rivers speed reduces.

This composite of gravel and sand provides a rich and easy to access aquifer. Nourished by rainfall, the proximity of 'Lake Shkodra,' as well as water drainage from the mountainous hinterland, the groundwater table is only about three to four meters below the surface. Using this abundant supply of water submerged pumps draw up to a total of 1.100 liters per second from the eleven wells scattered over an area of roughly 750 000 square meters (Kittelberger 2007: 99). Once drawn from the aquifer the water is then pushed onward to the main pump station (Picture 6), which is also situated in the well field. Most of the water is then pumped directly into town to flow through the consumer's taps and hoses.

Picture 6: Pumping Station in the well-field, pushing water into the network and onto the Tepe hills.(Photo: C. Stubenberg)

The rest gets pumped through a DN 400 steel pipe up to the Tepe hills nourishing the four reservoirs, and waiting to drop back down into town. According to statistics about 66% of the water pumped out of the Dobraci aquifer, is lost through cracks, holes and illegal connections in the 290 km of piping that is submerged under the surface. (Kittelberger 2007; Photo 7)

Picture 7: Satellite Image with cities water supply network. (Source: Shkodra Water Works 2012)

It is in the similarly complex canalization network that lost water will mingle again with the rest of the water, once the latter is flushed out through toilets sinks and other means of draining. Now labeled wastewater and enriched with other solid and liquid materials the water makes its way down South through the main canal and enters the Drini River without further modification. According to the local engineers, the missing wastewater treatment does not pose a serious threat to river and sea, since there is there is no heavy industry with toxic outflows.

III) Research:

Despite the beautiful view from the Tepe hills, I am a bit depressed. Even though I have learnt many of the things outlined above, they only provide a rough introduction into the context of Shkodra´s water supply and wastewater system. I always scribble frantically in my red notebook[5] as soon as my companions from the water works mention some fancy sounding facts and figures, which eventually ended up enriching this section. After some more lingering

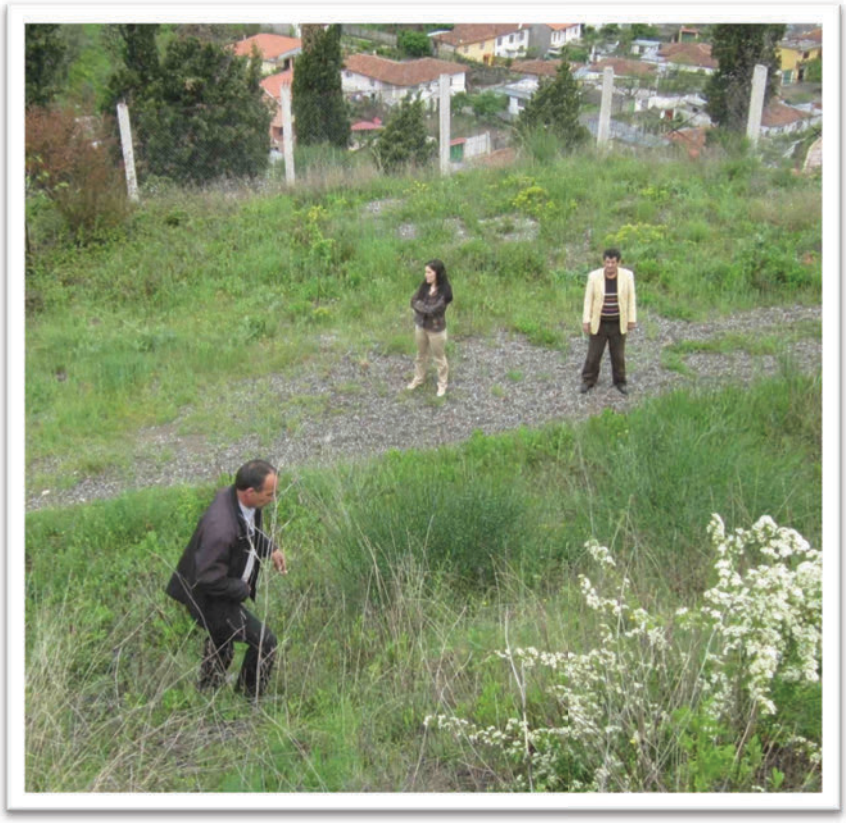
[5] See Chapter 9 for methodology.

around and an awkwardly long effort to apply Harvey Bernard's « silent probe »[6] hoping that I would get some particular story regarding reservoir 4, I shrug my shoulders and give up asking whether we should go back down into town. Even more painful than my unhappiness about the collected data, is my companions' unease, in their puzzled effort to understand what exactly this odd Austrian student wants to know from them…

After all, it's a bloody reservoir, a big concrete bathtub, holding some eight thousand liters of water when full…its integrated in the rest of the water network and it works just fine.

Why should one be so interested in it, when there are other much more pressing things to discuss?

(Personal note)



Picture 8: Companions during site visit. (Photo: C. Stubenberg)

Considering that my interviewees in Shkodra are not very interested in this reservoir and might only have mentioned it in a side sentence, it seems legitimate to ask how I even managed to find out about its existence and how I got interested.

[6] As part of my preparation for my fieldwork I read into Bernard's "Research Methods in Anthropology", where I am introduced to the *silent probe* as a tool in qualitative interviews. The idea is that you simply don´t say anything until the situation becomes so unbearably awkward that your interview partner will feel forced to break the silence and continue feeding your notebook or recorder with high grade qualitative data. In the particular situation this did not work out very well, as my companions simply wandered of and talked with each other in Albanian… (Bernhard 2011:218)

This paper and its respective research arose from an obligation to write a MA-thesis in order to complete a degree in International Development at the University of Vienna. Eager to write about a specific project, I started to look for an adequate case study.

The idea to write about Reservoir 4 came to me when going through notes and pictures I had taken during an internship with the Austrian Development Agency (ADA), an organization that administers Austria's development cooperation.

Picture 9: Inauguration of reservoir 4 in August 2008. (Photos: C. Stubenberg)

It was then that I remembered the odd scene of the reservoirs inauguration, where I had been standing on the same roof, taking pictures of the Albanian Prime Minister Sali Berisha and the red-ribbon-cutting-ceremony. (Picture 9) In the summer of 2008 when I took these pictures, the story of the reservoir seemed all but settled. There was intense discussion regarding the final handover of the reservoir to the water works, tensions between different involved parties. The project was termed a "problem-project" with one delay following the other constantly igniting conflict between the consultancy, the local construction company, the Albanian ministry and the Austrian Development Agency. When remembering these heated discussions about the particular project, I thought that it might well be worth trying to inquire into the issue in order to understand better how such projects are assembled, and how they function or malfunction.

At the time when the reservoir's roof had not been covered in grass, it seemed a story rich of interesting aspects and elements. In short: a story well worth telling. Thus I was astonished that contrary to my expectations, this story seems to have vanished from the reservoir itself, and those operating it today either don't remember, or are unwilling to tell me about these interesting elements.

1b: Theory, Panoramas and Black Boxes

In the first empirical part I have tried to give the reader a rough and quick introduction to my research site and the difficulties met. Responding to this story I will now give a short introduction to the theoretical background that has informed and guided my research. Further, I relate the particular findings to some analytical and theoretical concepts that seem useful to further elaborate, discuss and potentially generalize the described situation. Fortunately or not, the theoretical background is not as clear-cut as it could be. While my thesis is written in order to obtain a degree at the (interdisciplinary) Institute for International Development at the University of Vienna, it is drafted and produced in the library for science and technology studies and supervised by Ulrike Felt, who heads the Department for the Social Studies of Science. This setup came as a result of my specific interest in Actor-Network-Theory (ANT), which developed during my Erasmus year in Paris. As most books on ANT are located in the STS library, I will start by outlining this field of the social sciences.

I) Science and Technology Studies

Even though *interdisciplinarity* or even *transdisciplinarity* have been important terms in academia generally - and social sciences particularly - for quite some time now, it still feels very much like certain topics are more suited (or welcome) in certain fields and disciplines.

In this sense I would argue that the *amoebic field*[7] of science and technology studies (STS) is excellent insofar, as one does not have to fear mockery when researching door openers, paper handling systems, rockets, or concrete water reservoirs without a formation in the respective field of science or engineering. These people are not only curious about the final output of scientific or engineering practice, but also - or even more so - interested in the practices themselves. In order to provide a glance at the historical genesis and evolution of this field, one can start by pointing out Thomas Kuhn. This philosopher and historian of science, challenged prevalent views

[7] At this point it might be interesting to mention that there is a fair bit of discussion on the question whether it actually is a «field » and how to strengthen its position as such. (Bauchspies 2005: vii)

that assumed a steady teleological progress of science and technology. In his 1964 book *The Structure of Scientific Revolutions*, he put focus on the scientists themselves arguing for the importance of "paradigm shifts" that result in scientific revolutions (Sismondo 2010: 12). STS is slowly born, as the production of science and technology itself becomes a topic of interest. Arguing that science should be understood as a social institution among others, Robert K. Merton is said to be the founder of the 'sociology of science'. After this *unveiling* of science as "just one" institution among others, whose workings could and should be studied by sociologists, the so called "*Strong Programme*" by Bloor and Barnes brought the content of scientific knowledge itself within the explanatory scope of sociology in the mid-seventies. This programme postulated that both "true" and "false" knowledge had to be symmetrically analyzed and explained by the same sociological terminology (Woolgar 2004: 343). The 'discovery' of science as a subject of interest for sociologists led to various laboratory studies, where sociologists and ethnographers would spend much time watching 'scientists' at work, in order to describe how truth itself is assembled. Sourcing in these observations is also ANT, which was developed by Bruno Latour and Michel Callon (among others). It insisted that both humans and non-humans are actors with agency, and should thus be symmetrically described with the same epistemic tools (Woolgar 2004: 343). Departing from the observation of a male-dominated science and engineering field, feminist scholars like Donna Harraway, Sheila Jasanoff and Sandra Harding, have done extensive work in studying the way that science produces and reproduces power relations.

For outsiders or opponents of STS, the most important and formative aspect is its constructivist and relativist epistemology, i.e. the assumption that there is no (easily accessible) objective reality and that truth in itself is rather constructed and fragile (Woolgar 2004: 340), Consequently, STS scholars refuse to believe that "science" and scientific practice is so different from other forms of social interaction. By watching people in laboratories and other places of scientific production, they insist that the processes and interactions that take place are more complex more controversial and less stable than suggested by more classical narrations of

objective science. This implies an assumption that scientific insights (as well as other forms of knowledge) are constructed rather than given. Not only the objects of analysis, but also various forms of politics, laws, culture or legal and financial restraints are part of the knowledge and technology that is created. Contrary to such a constructivist epistemology, a positivistic stance would be that science - particularly the natural sciences - simply accesses an objective truth that is not relative and cannot be negotiated. Various sciences with their elaborate methodologies are thus on a quest (or in the practice) of accessing this true objective reality (Bauchspies et al. 2005: 24; Sismondo 2010: 57). Such critique of a positivistic understanding of scientific practice by STS scholars has created a fair bit of controversy. While some just found it nonsensical, others apparently felt offended and threatened, fearing for the loss scientific primacy over objectivity[8].

Encouraged by insights into the procedures of scientific production, some of these authors pleaded for - and practiced - an analogous study of technology and technological systems. Technology - like science - was perceived as so interwoven with society that some authors speak of a *'seamless web'* that connects humans and technologies. (Hughes 1986: 286) Technology is no longer considered to evolve independently through some evolutionary force along a certain teleological trajectory, but is instead described as simultaneously being a) shaped by social relations and b) also shaping these relations (Felt et al. 1995: 181). An electric grid spanning over the highest peaks and lowest valleys was obviously designed and built by human engineers, but it simultaneously shapes our human lives, literally changing everything in a newly connected mountain village. Authors believing in the 'social construction of technology' (SCOT) argue that this interrelation between society and technology is so intense and interwoven, that one should speak of socio-technological ensembles that deserve to be studied (Bijker 1995: 12; Felt et al. 1995: 182). The reservoir on the Tepe hills, can also be seen as such a socio-technical ensemble, that almost seamlessly molds into the city's landscape. Once

[8] On the good side these controversies gravely termed «science wars » have produced a fair bit of entertaining literature. Most prominently the highly entertaining story of the *Sokal affair*. (http://en.wikipedia.org/wiki/Sokal_affair). The excessive use and discussion of the term « constructivism » apparently lead STS authors to « *bend over backwards »* in order to avoid the term. (Sismondo in Hacket 2008: 15)

technologies are recognized as co-constructed by technical, sociological, economical, legal and political actors, they also need to be studied in respect to these different aspects. In this sense, it might be worth while pondering over Thomas Hughes argument that technology is not (only) developed out of societal constellations and needs, but that it is rather about inventing a society that needs a particular technology (Hughes 1993).

Studies like those of Thomas Hughes on electric grids or Langdon Winner on tunnels and machines have quite provocatively argued for an inherently political and normative aspect within technologies (Winner 1986: 19). Consequently, one has to ask what technologies - be they as mundane as a water reservoir - do to our lives, and how society 'does' such technologies. It is this provocative and critical capacity - refusing to accept safe formulae and comfortable analytic perspectives - that Woolgar highlights to be the central quality of STS, and which will hopefully also be a guiding principle for this paper (Woolgar 2004: 347).

II) The difficulty of providing a Panorama:

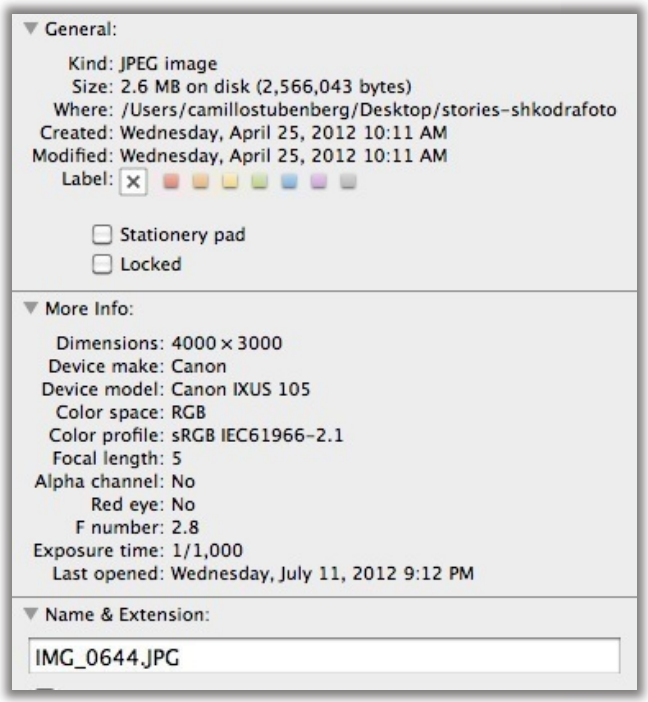
Picture 2 shows three images I have taken with my Canon Ixus while standing on top of the reservoir during my field visit in Shkodra. Later, I edited the three pictures and merged them with Adobe Photoshop, giving the sensation that it is one *single* and *coherent* image, permitting the observer an unbroken view of the whole surrounding region. Besides the photographic notion of an all-inclusive, sweeping representation of the landscape, the term panorama is also used in a broader sense as "*a complete survey or presentation of a subject or sequence of events*" (McKean 2005). It is always an effort to show everything, the entire or whole situation. When accessing or addressing a new topic, or case study like the one at hand, one feels pressured to give such an "overview" over everything so that the reader can find her bearings.

However, a written panorama, or contextualization that reviews the "complete situation" in Shkodra would be just as utopian and absurd as the assumption that my little picture offers a complete photographic overview over Shkodra. While for a short instance my picture might give the feeling of complete control over what is being surveyed, it really just offers an incredibly local and partial viewpoint, literally missing most of what can be seen in Shkodra (Latour 2005: 188). Fortunately, however, this

does not mean that such a *panorama* is uninteresting or useless. Quite the contrary, it can become part of the many stories that can be told about the situation at hand.

"Their totalizing views should not be despised as an act of professional megalomania, but they should be added, like everything else, to the multiplicity of sites we want to deploy." (Latour 2005:189)

In this sense the picture can on the one hand be used as a metaphor for my efforts to verbally describe the case, but also for such descriptive efforts in general. As I have already indicated it must not be mistaken for a '*complete view*' over Shkodra, but rather interpreted as a product of me taking several pictures with a Canon Ixus, at a shutter speed of 1/1000 seconds at an ISO of 400 on top of reservoir 4 in the Tepe hills. My particular position while taking these pictures permitted me to see and capture some things, while hiding many more that remain unseen, as they are obstructed by buildings, trees and other structures.



Picture 10: Meta- Information of the panorama. (Source: C.Stubenberg)

Besides the affect of a particular position, one must add it was in fact not just one, but really three different pictures. They were merged into one smooth whole, with the powerful features of Adobe Photoshop, which did all the cropping, aligning and stitching-together for me. In the same sense that I will never be able to provide a complete photographic panorama, depicting all of Shkodra, it will also be impossible to provide a complete narrative panorama or context of the situation at hand. There are only multiple stories, told in offices, cafes or field sites, memorized inconsistently by myself and sometimes inscribed slightly more thoroughly with my telephone's audio recorder. While it would be fantastic to provide a complete and

coherent panorama of the situation in Shkodra for the reader, this will not be possible, neither here nor anywhere else.

Photoshop obviously did an excellent job in making invisible the lines and divisions between the three different pictures. My narration on the other hand will be one manually assembled. Long before I have properly begun the sticky-tape is already weakened by my greasy fingertips, refusing to hold together the stories that have been cropped and aligned with childish unease.

III) The Black Box Conundrum in STS

Following the affinity of STS scholars to study aspects of science and technology that pretend to be unproblematic and are taken for granted, I will now elaborate a bit further on the issue of studying things that seem uncontroversial or even invisible by introducing the notion of a *Black Box.*

As I have outlined in the preceding section, my visit to the research site was depressing in the sense that no one seemed to be particularly interested in talking about the actual reservoir. Even worse, my capacity to make observations of the existent infrastructure was very limited, since everything seemed so normal or even *natural*. STS authors (among others) use the term *black box* in order to describe elements that appear as single coherent and uncontroversial units, and thus tend to be ignored by their users.

"*The normally invisible quality of working infrastructure [only] becomes visible when it breaks: the server is down, the bridge washes out, there is a power blackout"* (Star 1999:382).

It is only then that we are forced to notice the complex the composition of these things. For instance my mobile phone, lying right next to my computer in the library, clearly constitutes one coherent element. It's literally smooth surface, the missing screws and the touch display substituting the keyboards elements all suggest that this is one inseparable unit. I am so accustomed to using it day in day out that I don't even notice its presence. It is only when absent, lost or malfunctioning that I am struck by its importance and gravity in my daily life.

My observations - or rather the non-observation - of reservoir 4 in Shkodra seem to reflect what Susan Star and Geoffrey Bowker said about infrastructure. They argue

that well working infrastructure almost *disappears by definition,* becoming ever more difficult to spot the better it functions. Such an observation might be particularly obvious for much of the digital communications infrastructure we use daily, but it also fits for less elaborate technological artifacts like bridges or power sockets (Star 1999; Bowker&Star, 2000:33). Trying to understand what makes up infrastructure and why it is so difficult to spot, they point to its *embedded* character. Relating this to the case of Shkodra, we could say that the water supply system in general, and the reservoir in particular are completely embedded within other structures, social arrangements and technologies: the piping runs *invisibly* beneath the streets - parallel to other linear infrastructure elements for electricity and gas - and is literally hidden from the *innocent* observer's eye. However, such elements are not only physically embedded into streets and buildings, their usage is also embedded in cultural habits, social structures, and political arrangements. Most practices of preparing food, washing bodies, or simply drinking water take the availability of functioning water infrastructure for granted as a given. The opening of a water tap is so 'normal' and indisputable that it could be described as 'natural' as the flowing of a stream (Heynen et al. 2006: 5). Consequently, it seems reasonable to argue that it is not only 'us' humans that shape (water) infrastructure, but that such technologies are also powerful in shaping and forming our daily lives. In his book *The Whale and the Reactor*, Langdon Winner argued that technical artifacts and infrastructure are politically relevant in their own right (Winner 1986). By looking at New York's highway tunnels whose ceilings are too low for public transportation - thus privileging those rich enough to own private cars - he explains how *"human's ends are powerfully transformed as they are adapted to technical means"* (Winner 1986: 21). Such a discussion that highlights the influence seemingly mundane technological artifacts like bridges tunnels or water reservoirs have on our lives demonstrates how a study of these artifacts can become extremely relevant and important.

Consequently, Bowker and Star call on us to *"[…] struggle against this tendency of infrastructure to disappear"* pleading for what they describe as the "study of boring things" (Bowker&Star 2000: 34; Star 1999: 379). Another suggestion in regard to opening up black boxes and unveiling hidden processes comes from Bruno Latour,

in his book *Science in Action* where he suggests, that we study the black boxes of science and technology before they are closed (Latour 1987). He argues that in order to understand the fabrication of both scientific knowledge as well as technical artifacts we should follow the scientists and engineers around *while* they are at work filling in forms, measuring samples, calculating densities, tightening screws and drawing blueprints (Latour 1987:21).

As tempting and reasonable as the suggestion to study the reservoir *while under construction* might be, it simply seems impossible when standing on my research site. In almost every sense grass has grown over this story, the reservoir itself is barely visible, its functional integration and embeddedness into the entire water supply system makes a visit inside the chambers impossible. The water consumers down below in the town probably picture the water works customer-center, when asked about the water coming out of their taps. It is there that they have to go in order to pay their bills and to report malfunctions and not to the Dobraci well field or the Tepe hills.

But even to the engineers that traveled with me, the reservoir itself seems unproblematic if not uninteresting. Maybe these engineers[9] are so used to the reservoir's presence that they have somehow naturalized it as an uncontroversial element of the water supply system. It appears like the reservoir has lost its controversial and complex history and is now remembered only in terms of a beginning and an end, while almost everything in the 'middle' is lost. Geoffrey Bowker might consider this a good example for particular form of *'memory practices*' which rather more than less purposefully *forget* events and processes that led from one point to another (Bowker 2005: 7). This idea that memory does not 'happen' but is instead practiced in a more or less conscious way is also well represented in the Austrian engineers quote of Document 1 where I was told that: "*Experience has shown that all involved are usually happy when a project was completed successfully. It might thus well be that there is no*

[9] Etienne Wenger´s term "communities of practice", describes a group of people sharing conventions and practices about a common problem, interest or topic. Framing the engineers as such a "community of practice" with certain shared ideas, interests and practices, is helpful in order to explain why they direct their interest at some things, making others seem completely normal, natural and uninteresting. (Wenger 2002: 3, Star 1996)

more interest to warm up stories of details and problems which developed during the projects duration […]" (Engineer)

The 'project' as a form of organizing and bundling of different actors and networks, with its pre-determined beginning and ending, is particularly good at forgetting or black boxing all stories and events that took place between opening and closing ceremony.

From my vantage point the analytical observation seems grim: the reservoir is a black-boxed technology that is well embedded into the cities water network. Unfortunately for my inquiries, it seems to be working just fine as it lies more or less invisible up on the Tepe hills. But worst of all, grass has not only grown over the technical structure in its detailed complexity, but also over the stories that eventually led to the solidification of this big concrete bath-tub. It seems like *memory practices* have led my guides in Shkodra to remember the project as solely consisting of two photographically documented events: the groundbreaking ceremony as a start and the opening ribbon cutting as the successful end.

Fortunately, however, the next chapter will prove me wrong, showing that not all is hidden, and not all is forgotten.

2a. Opening the Black Box

In the first part I have tried to highlight how difficult it was to find out something about reservoir 4, even though I visited the site with the people currently in charge of it. I showed how it is not only challenging to observe and see such elements of a city's infrastructure (because to large extent they are buried underground), but how certain forms of remembering seemingly hindered the telling of stories that concerned the fabrication of the reservoir. In this second part, I describe how it was necessary to visit other places in order to *open* the black box of the reservoir, showing that there are many interesting controversies that can and should be followed and narrated. While the panoramic image (Picture 2) from top of the reservoir let the latter appear extremely local, small, specific and boring, I will now show how big, complex, and intriguing the story behind this element is, outlining the connections and (paper) trails to actors and events that are temporally and spatially removed from Shkodra.

The goal of this section is thus to highlight the beautiful complexity of reservoir 4 and its stories.

Realizing that the reservoir did not materialize out of nowhere does not necessarily seem a very revolutionary thought. Even if it is obvious that a finished structure like the one at hand must have been "unfinished" or even non-existent at some stage, I have tried to outline the unexpected difficulty of *accessing* and *hearing* these stories. Fortunately, however, I learnt that the many stories surrounding the reservoir had not been lost - rather they had been stored in other places and other formats. Most of the engineers involved in the project, are not in Shkodra any more and some of the stories have left Albania with them. Consequently, the stories of reservoir 4 did not come to me on the Tepe hills, but rather in offices in Vienna and in cafés in Tirana, where I conducted more or less unstructured[10] interviews with some of the involved. With every hour of recorded interview additional facets and emphasis were added. Parallel to these growing transcripts of interviews another rather unexpected source of information grew exponentially on my computers hard disc: archived documents, official notices, contracts tenders, pictures, requests and letters in the thousands. This amount of documentation - combined with the oral accounts and my personal observations - soon became overwhelming. Instead of my initial concern of what I 'could' tell, the issue quickly transformed into a dilemma of where to stop and where to put my boundaries. Will it suffice to inform the reader about the period of construction? Or do I have to aim for a more expansive historical account? Before I indulge further into such questions, it is probably necessary to show that there are in fact many histories - if not far too many - to tell.

My disappointment about the *silence* at reservoir 4 reminded me much of childhood holidays and memories of excessive boredom when forced to visit the excavation sites of some apparently important Roman or Greek (whatever) city, theatre or fortress. In order to fight boredom and summer heat I usually requested stories and ice cream. Since no ice-cream is for sale on the Tepe hills, I can only offer the reader some stories in the effort to make it all a bit more interesting and entertaining.

When I talked to different actors that were involved (that were willing/available to talk to me), they often emphasized different elements and different aspects of the project. The easiest way to proceed would have been to simply argue that some were lying (or just confused) and only one coherent narration is actually 'true'. However, such an account would negate the

[10] Unstructured and Semi- structured conversations where I basically asked what they thought to be important and interesting about the Reservoir 4 project.(Bernhard 2011:212) See Chapter 9 for more detail.

rich and multiple stories of reservoir 4. In order to do justice to the different accounts I have been given, I chose to offer the reader several small chunks of histories that reflect what I have been told.

Again straining the analogy of the panorama picture from the first chapter, it is necessary to point out that some things became visible, while many more stayed hidden in the shade obstructed by buildings, trees, or paved roads. In the same way that it was impossible to give a complete panorama of the city of Shkodra, it will also be impossible to give a complete history of the project and its genesis. This way of proceeding has the disadvantage that it will inevitably highlight the many *missing links* and leave ever more space for confusion and opacity. Showing the reader a pretty panorama picture only in order to tell her that she has not seen anything might be discomforting. However on the positive side, I believe that such a narration, placing emphasis on the constant lack of information, the prominence of cluelessness and the fragility of data, much better reflects what I believe to be the *reality* (of my personal research experience)

I) Background Stories:

A) Development Assistance:

The rehabilitation of Reservoir 4 was the main component of a project financed by the Austrian Development Agency in the period of 2004-2008. It is, therefore, necessary to outline in a slightly more general manner the financial source of reservoir 4.

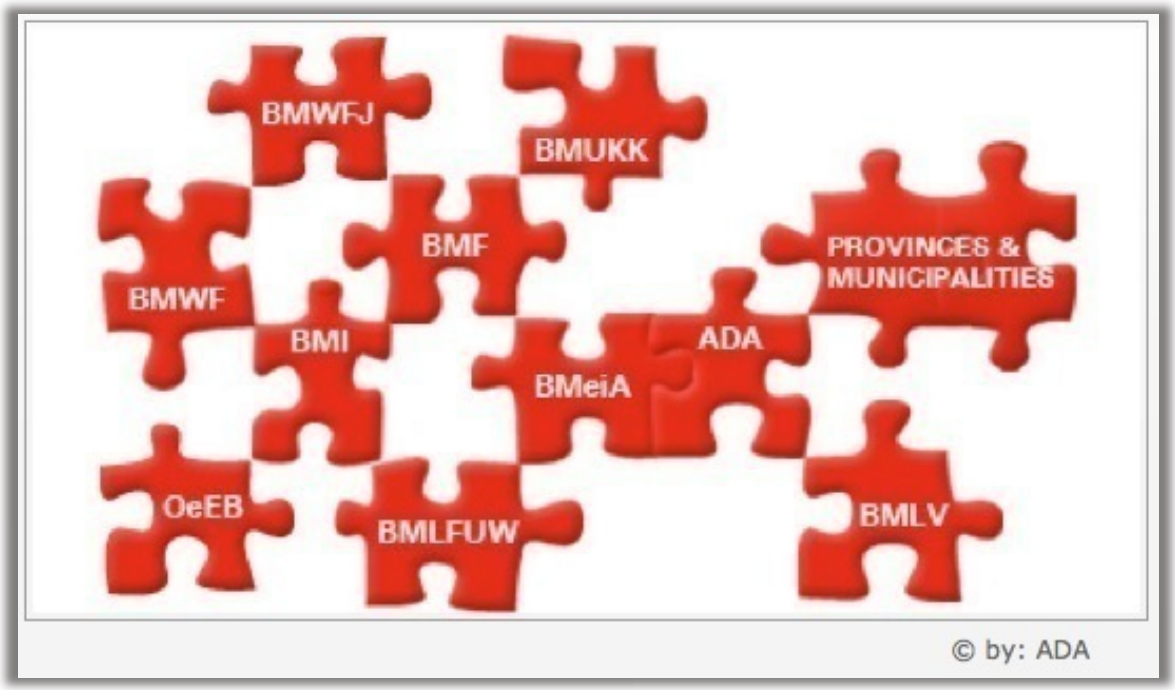
As in other developed[11] countries, the Austrian government allocates a certain budget to development assistance (formerly development aid). With this taxpayer money so called 'developing countries' and their citizens are supposed to be supported. Specifically the goals lie in: "*reducing global poverty, ensuring peace and human security and preserving the environment in an international framework"(ADC 2012).*

Development cooperation as a paradigm of foreign policy is said to have developed after the second world war with Harry Truman's speech in 1945 where he outlined the need to support those willing to join the first world (i.e. the West) instead of the communist block. Various concepts and ideas on development, modernization and an inevitable "End of

[11] The term *development* is controversially debated - not only in the field of development studies but also elsewhere. At this stage I use it in its most mainstream sense, where it is used to differentiate between (financially) richer and poorer countries.

History[12]" have played a role in shaping the understanding of the vague term *development*. Today a general discourse on the importance and legitimacy of such payments seems to focus on notions of justice, equality, security and prosperity. While some see these as authentic reasons and motifs, other more critical commentators see official development assistance (ODA) as a simple tool for the management of important flows: on the one hand increasing the outflow exports and on the other hand reducing the inflow of migration. In this sense ODA in particular and development aid in general are often depicted as neo-colonial enterprises that only differ from colonialism in their rhetoric and terminology (See for example: Escobar 1995, Fergusson 1997, Ziai 2004).

Interestingly this insecurity about what "development" is supposed to be and who participates in it, is quite elegantly represented on the website of the Austrian Development Agency: The image on the first page portrays different actors as disconnected puzzle pieces that wait for completion. It is quite discomforting to realize that no clear picture arises from the available pieces. It remains obscure how the different actors fit together, making it impossible to guess what the development-puzzle would *mean* once it is complete.



Document 2: Puzzling Image of Austrian Actors in Development Cooperation. (Source: www.entwicklung.at/akteure)

Even if this representation does not give us any hints about the meaning of Austria's development cooperation, it does show various state-actors at different hierarchical and

[12] A notion that the liberal western state represents the *ultimate* stage of human evolution was famously proposed by Francis Fukuyama in his book "The end of History and the last man". (Fukuyama 1992)

organizational levels, which are involved in aid-related activities. Considering that Austria is regularly criticized[13] for its institutional fragmentation and organizational inefficiency due to the many involved actors, it is reasonable to assume that the missing puzzle pieces in document 2 should not suggest even more institutional actors. Instead I would like to argue that the white spots refer to missing pieces of money[14].

The Austrian Development Agency, which will be the most important puzzle piece in this paper, is a limited company owned by the government in charge of implementing Austria's development aid. The thematic orientation on the other hand is in the hands of the ministry of foreign affairs (BMeiA). The financial realities of both ministry and ADA are more or less pre-defined by the Ministry of finance and the relevant budget decisions of the government. While Austrian politics are generally rather disinterested in development cooperation, there is some outside pressure every now and then from the Organization for Economic Cooperation and Development (OECD) and its Development Assistance Committee (DAC), the European Union or some institutional body of the United Nations (UN). The OECD-DAC committee tries to coordinate the policy of ODA giving countries, by publishing guidelines and setting common policy goals. Much of the rhetoric used by ADA policy papers relates to the terminology and rhetoric of these policy documents. The Paris Declaration and the Accra Agenda for Action[15] as prominently drafted but nonetheless unbinding policy papers, probably have to be mentioned at this point (OECD 2012).

B) Austria's assistance to Eastern Europe particularly

With an annual budget of roughly 90 million Euros,[16] Austria is active in several so-called key regions, focusing on particular countries. Among these we find Albania as part of southeastern Europe, where Austria has been assisting since the fall of the communist regime in 1991. While initially the goals and activities were mainly focused on humanitarian aid, the current policy objective is to assist Albania on its path to EU integration (ADA 2007).

An Austrian engineer outlines Austria's activity as follows:

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[13] For instance in the last OECD DAC peer review. (OECD 2009: 9)

[14] Austria has a pitifully minuscule budget for development cooperation. Having spent just 0.27% of its GDP on development aid in 2011 instead of the pledged 0.5%. It ranks on place 13 of the EU15 group, and is described as "of track" in the 2012 AidWatch report. See:
http://aidwatch.concordeurope.org/countries/project/Austria/

[15] See OECD´s vast website for more details:
http://www.oecd.org/dac/aideffectiveness/parisdeclarationandaccraagendaforaction.htm

[16] See ADA´s website for detailed numbers: http://www.entwicklung.at/entwicklungspolitik/zahlen-daten-und-fakten/

W: *"Generally, the entire eastern-cooperation developed out of the Balkan wars… when the war was over, people said one would help them, and the assumption was that urgent [humanitarian] help was needed in the aftermath of the war… but then one realized that it isn't really about damages from the war, but about structural issues: the entire infrastructure including the water infrastructure…" (Austrian Engineer)*

In the last decade the annual budget of the Austrian development cooperation in Albania has varied between four and seven million euro, with numbers decreasing in the recent years due to budget restraints and general political apathy towards the topic. (ADA 2011)

Of relevance for our particular project is the thematic emphasis of Austrian ODA on issues of water and sanitation. In a somewhat "mainstream" discourse this is attributed to Austria's long-standing expertise in the field, (i.e. there is lots of water in Austria so we know how to deal with it). In regard to Eastern Europe, ADA´s policy guideline on water emphasizes that, *"in the focal region of South Eastern Europe the challenges lie mainly in the areas of operation, maintenance and renovation of the existing infrastructure as well as in bringing these countries closer to EU standards" (Burtscher et al. 2008: I).*

Geographically most of this money has been allocated in the Northern half of Albania. While the official explanation puts emphasis on the *"economic disadvantage and the resulting greater poverty in the [Northern] region […]"* many accounts also underline a particular historical connection or friendship between Austria and Albania in general and this Northern region in particular (ADA 2007). This is said to lie in Austria's (at that time the Austro-Hungarian Empire) early support for Albanian independence. Arguably this engagement did not come from a particular sympathy for the Albanian people, but was instead related to Austria's geopolitical interests in a weakened Ottoman empire, which had previously been ruling or occupying the Albanian territory for over two centuries (ADA 2007). Regarding the *particular* relationship to the Northern region around Shkodra one (Albanian) interviewee put it as follows:

"People of Shkodra know that Austria was present in Shkodra, that something is assisted when no one is caring … Shkodra was always right [-wing], even before the democratic era. For this

reason it was not receiving government support from the elected government" (Albanian Engineer)

In such a narration Austria is seen as a historical supporter of the large conservative/catholic population of the North, which had been chronically disadvantaged both during Ottoman and communist times.

Besides such positive or uncontroversial accounts of Austria's development cooperation, more critical voices might depict it in a slightly different way. Austria's financial assistance in Albania would thus not be seen in the romantic light of historical friendship and solidarity, but rather in terms of realist foreign policy. In the case of Albania and other Southeast-European countries this primarily implies political and economic interests. One involved Austrian engineer argued that the activities on the one hand served the Austrian export industry because most materials were bought from Austria while on the other hand function as the extended arm of Austria's restrictive immigration policy. (citation?)

Also skeptics might rather see a negative continuity between Austria's geopolitical interests in the beginning of the 20th century, including the short occupation in 1916, and the contemporary presence in form of several large banks and insurance companies that shape the countries signboard reality (Pearson 2004: 97).

II) The Project itself

A) An Emergency Project

Aside from such large 'contextualizing' narrations, other actors focused their stories on more specific 'historical' elements. A common reference in this regard is the *devastating* state of affairs in 1996, when the Austrian water project started:

"During that time was a real disaster, we have had a pumping station of water supply, much more smaller than it is today. It was constructed in 1960. Having at the time 460 liters as a water production capacity, and also a very depreciated network and also at the time there were only available two reservoirs with small capacity, and a very depreciated distribution network, and also a performance of the company, very limited" (Albanian Engineer).

"So we came there, and I described the situation… three to four hours of water per day were allocated to specific parts of the town" (Austrian Engineer).

It was in this light that the Austrian consultancy came to Shkodra with the task to improve the water supply but also the wastewater situation.
In legal and contractual terms this meant that the basic agreement on Austrian support in Shkodra was signed in 1997 as part of the emergency measures. After a first small project - tackling most urgent issues - the agreement was prolonged with additional contracts in three different "phases" with each responding to the previous outcomes. The following box gives the reader a rough overview of the actions that were taken since 1997. While the rehabilitation/construction of reservoir 4 only makes up one small point in this long list, it worth noting that it was both the last measure to be implemented while also being one of the more expensive activities costing almost one million euro.

Table 1: Chronology of the Austrian projects in Shkodra

Phase 1 (12/1997–09/1998) *approx. 439.000 EUR*

Sewerage Sector:
-Construction of new premises for the Wastewater Utility
- Detailed survey of the sewerage and storm water system in a pilot area in order to define rehabilitation measures to be implemented in that area;
- Procurement of a used vacuum and a used flushing truck for the maintenance of the storm water / sewerage systems;
Water Supply Sector:
- Rehabilitation measures in a pilot zone including installation of domestic water meters, replacement of water supply pipes and replacement of valves;
- Reconstruction of the Dobraci valve chamber

Phase2 (11/1998–09/2001) *approx. EUR 2.845.000*

Sewerage / Storm Water Sector:
- Construction of a concrete storm water drainage channel in Vasil Shanto Street
- Rehabilitation of 203 sewer and storm water manholes with installation of new manhole covers
- Procurement of tools for sewer network O & M and a used truck. Training of the staff in the use of the flushing truck purchased in the scope of the first implementation

phase;
- Rehabilitation of the storage area of the sewerage department;
Water Supply Sector
- Rehabilitation of the 11 wells and connecting pipes and replacement of well pumps;
- Construction of a new pumping station including 3 centrifugal pumps and other electromechanical equipment;
- Installation of a new water disinfection station (for liquid chlorine dosage);

Phase 3 (12/2001–mid 2008) *approx. 2.000.000 EUR*

This Phase is only concerned the Water Supply Sector:
- Completion of the new transmission line to the reservoirs;
- Construction of a new supply line, "Bonification Line"
- Rehabilitation of valve chamber of reservoir R1 and new construction of valve chambers for reservoirs R2 and R3;
- Replacement of 4 new well pumps;
- Rehabilitation of several nodal points in the distribution network;
- Procurement of flow and pressure measurement equipment and bulk water meters;
- Creation of a Management Consulting Corporation with the objective to optimize the management and operation of Shkodra's water supply system
- Institutional strengthening measures
- Procurement of a new billing and accountability software and computers.
- **Rehabilitation of reservoir 4 (R4)**

(Kittelberger 2007)

B) A diplomatic reservoir story:

According to several of my interviewees, the birth of the project was in fact quite controversial. Even though it might seem a more or less simple task, various differing, or even contesting interests had to be negotiated in order for the idea to solidify.

As mentioned above the project as organizational network had been existing and working in more or less the same way since 1997. In the beginning of the third implementation phase (See Table 1), the Albanian government was 'independently' building a fourth reservoir on the Tepe hills. According to some accounts this was also part of a deal with the Austrian Development Agency which stated that Austria would finance several core elements in towns water supply, but that the Albanian state should build a fourth larger reservoir in order for the system to function properly. Thus the Albanian building operation ran parallel to the

third phase of the 'Austrian Project' which also included a DN400 pipe leading to the reservoirs from the well field. (See Picture 6 & 7) This basically meant that some of the prior Austrian investments in the infrastructure were built *assuming* that there would soon be a new reservoir on the Tepe hills.

The reservoir was to some extent made an obligatory point of passage for the water that would be pumped up to the Tepe hills with the new pipe from the pumping station.

One of the consultancy's engineers describes how he watched the progress of the project when the first *version* of Reservoir 4 was built:

"Therefore, before our time, ADA together with the Ministry decided that this would be the local contribution, to build a 8000 m3 reservoir. And when we came they had just started building… and I always went jogging in the morning- and I don't like to go jogging in the flat, but I like running in the mountains, and I always jogged up there, and watched them, always in the morning before anyone was there apart from the guard with the Kalashnikov, and he was always astonished about that guy who comes running in shorts… until he knew me… and I always went inside and looked… what type of formwork they were using and how they made the reinforcement next to the formwork… and then after a couple of months of courage I went to the PIU man, who was working then - he was also something like you,[17] a water engineer - at least a construction engineer, so he knew this stuff (…) and I knew that we would be there for another two three years, and I told him: that will never be a water reservoir, that will be the Acropolis of Shkodra - meaning a Sandbox[18] Reservoir - but never a water reservoir" (Austrian Engineer).

Consequently the above quoted engineer lobbied at the water works, and the municipality, telling them that the existing reservoir would never be functional, and that he would further refuse to plan and build an additional supply pipe to the Tepe hills, if it would be useless.

Maybe not astonishingly such criticism of the first reservoir 4 was not seen with sympathy. According to one interviewee the building had been a prestigious Albanian project, and it was

[17] In fact I am NOT a water engineer, however I was perceived as one often- maybe because it didn't seem to make any sense why someone else would be interested.

[18] The Austrian engineers varyingly called the "old" dysfunctional reservoir 4 a "sandbox" or a "noodle drainer" because it held so little water.

politically too costly to admit such a failure. It might be noteworthy that this "sandbox" reservoir 4 was built and supervised by the same Albanian ministry that was the contractual partner in the ADA financed project.

Two interviewees articulated the problem of the prestigious but broken reservoir 4 as follows:

"[It] was a big investment of Albanian money, had to be called a failure - [the Austrian Engineer] called it a sand-box. This was a big problem - a political and diplomatic problem because it was a prestigious project" (Albanian Engineer).

"[…] in this regard, ahm, the main the problem was, that the reservoirs were out of work I mean could not… the Albanian government has spent some money, and someone has to answer why this money went or was thrown… someone who has constructed who has designed, whoever has supervised, has to … or to pay, ahm before taking any decision for the new one" (Albanian Engineer).

Thus the actors who were responsible for this first reservoir 4 would have preferred to leave both the physical structure as well as the potentially embarrassing stories of the dysfunctional reservoir 4 untouched. (Picture 11)

Picture 11: Three engineers standing on the dysfunctional reservoir 4. (Photo: ADA project archive)

Despite this opposition, which primarily came from the Albanian ministry, the consultancy made an effort to convince other involved actors of the reservoir's deficiency. The Austrian engineer continuously insisted that he would not continue working on the supply-line leading from the pumping station to the Tepe hills, if he could not be provided with some proof of the reservoir's functionality. Since such a document was either non-existent or lost, he convinced other actors like ADA and the Water Works of his skepticism:

"And when we were talking about the reservoir - which is absolutely necessary- I mean I can't built a water pipe that was a DN400 or even two - all around the city up to the reservoir- if I don't have a reservoir up there…" (Austrian Engineer)

However his observations made when running in the morning were not convincing enough, so the involved actors agreed to perform a tightness test, which revealed that large quantities of water were lost over a period of twenty-four hours. As a consequence of this observation, as well as the argument that the water supply network would be faulty (i.e. Other investments would have been wasted), ADA was persuaded to provide another grant, extending the project to a fourth phase.

In order to reduce the opposition of those who feared political and financial disadvantages - particularly the Albanian ministry of transportation and the construction company – the Austrian consultant introduced the term 'rehabilitation':

"Therefore the Diplomatic term rehabilitation was found. Practically it was a demolition. Old walls, new roof, completely NEW! A political diplomatic technical everything problem…" (Albanian Engineer)

"[…]the proposal was to 'rehabilitate' not rebuilt. This was like a diplomatic solution, not a purely technical solution, because rehabilitate means, ok- its built but we have to improve, but nothing would be charged, and - but to destroy and rebuild someone has to answer." (Albanian Engineer)

III) From no story to many stories - an effort in reverse engineering:

Standing on top of the reservoir I felt that there would be not enough material to tell a full master thesis story, how wrong I was. Even if the reservoir itself did not simply radiate off

memory[19] as I had secretly hoped, there are a lot of stories that can be told. The second best (or second most entertaining) option would have been to reverse-engineer[20] the reservoir, taking it apart completely (to the greatest extent possible) in order to understand where the different elements come from and how they had to be arranged for it to function up to the vanishing point. Unfortunately - or fortunately - I neither have the money nor the powerful supporters in order to actually open and take apart the reservoir. Consequently, I can only try to imitate Thomas Thwaites - who reverse-engineered a toaster for his master thesis - on paper and in imagination (Thwaites 2011). I can look through documents and find more people that were involved during the construction, in order to better understand the process that led to the status quo. Picking up on this idea of reverse engineering - basically disassembling into all the bits and pieces - it might seem feasible to make out the different elements that together form the whole of this reservoir. Even if the actual reservoir chambers are not accessible, there are still some hints suggesting that this structure was not put there as a single unit, but was assembled from different parts. The inlet and outlet chambers contain various different materials, which must have come from different places. (Pictures 12 and 13)

Picture 12: Inlet Chambers of the Reservoir. (Photo: C. Stubenberg)

[19] There is a set of highly entertaining, highly esoteric but also quite interesting videos on You-Tube by a British geographer, who performs "deep topography" and "reads" the landscape and its structures while walking through them. http://www.youtube.com/watch?v=UnW1XDo7usI

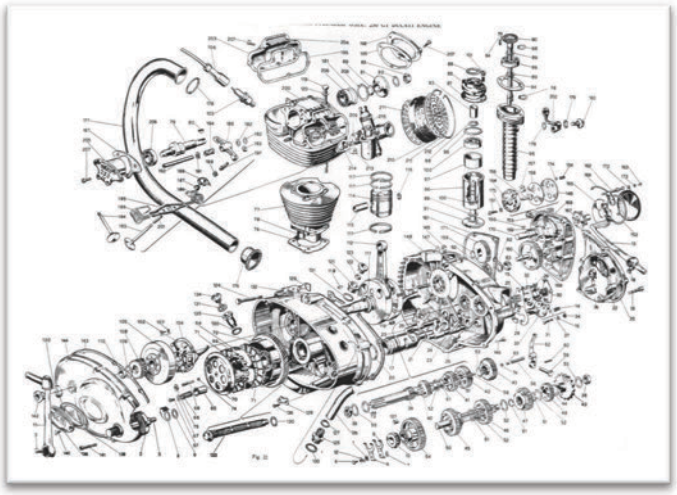
[20] Thomas Thwaites *Toaster Project* where he disassembles a toaster tracing the origins of all parts in order to re-build one from scratch himself. See: http://www.thomasthwaites.com/the-toaster-project/.

The orange ventilation pipes must have come from a specific factory (probably in Tirana), while the blue technical instruments (gate valves) were made by the Austrian firm 'Hawle'. If we look even more closely (something I did not do because it would not have seemed appropriate) we come to the conclusion that the particular elements could be subdivided into even smaller units. If we could take apart the gate valve we would *probably* realize that the closing mechanism is made out of a particular type of cast iron steel while the nuts and bolts were made by a different procedure.

Picture 13: Orange aeration pipes and gate valves inside an inlet chamber.

(Photo: C. Stubenberg)

In such a mental process I can try to create an explosion view of the reservoir, like the ones that are sometimes found in instruction manuals for technical appliances. (Picture 14) After having mentally laid out all the different parts that were used and built into the reservoir, I can go further and ask about their origin and the means by which they arrived here.



Picture 14: Explosion View of a combustion engine. (Source: graphics.stanford.edu/wikis)

Imagining how the Hawle gate valve (Picture 15) arrived here in Shkodra, one realizes how much work must have been necessary for this to actually happen. Which company built the valve? Where did the elements come from? Who bought it and who brought it to Albania - using what type of transportation? How was it installed in its current position?

Picture 15: Hawle gate valve with an engineers hand. (Photo: C. Stubenberg)

Considering how different elements managed to blend together so well that they now constitute one coherent reservoir, one becomes curious about the processes that have permitted this to take place. Even if the reservoir in its physical presence is a comparably simple machine (unlike my mobile phone), I would have to do a fair bit of listing in order to mention all the *elements* and parts that are involved. Again straining the metaphor of an explosion view one could try to add some additional (meta) information to each element, elaborating why this is the smallest unit that needs to be defined. On the other hand I could do more elaborate things like geo-referencing all parts, connecting them to certain geographical and temporal places. Even if the actual building materials (probably) only come from a couple of countries (concretely: Albania, Italy, Greece, Austria, Germany), we could spend much time closely analyzing the detailed procedures and properties of these materials. Small elements like the blue Hawle gate valve I photographed during my site visit might evolve into dangerously complex stories once assessed more carefully.

The depicted valve as well as other piping elements were bought from Vetec an Austrian company specializing on water engineering (water supply systems) located in the Austrian state of Carinthia. While sold by Vetec, Hawle, a company located in upper Austria, built the actual gate valve according to strict Austrian engineering standards.

Obviously I could inquire even further, asking about the different elements that constitute such a gate valve, which is vital for regulating the in- and outflow of the reservoir. Luckily, the companies website permits me a somewhat representative insight without actually having to open up the device, making it possible for me to see its heterogeneous insides, which would

allow for even further inquiry: who designed this apparatus? How and where was the valve produced? (Picture16)

Once I become interested in the technologies and forms of knowledge that were involved in the production, I could trace even further backwards, maybe all the way to the Iron Age, where humans first started meddling with metals.

Picture 16: Gate Valve half-section drawing. (Photo: www.hawle.at)

Since the Hawle gate valve is just one particular component, easily distinguishable as a detachable unit, I could ask similar questions in regard to the building material or other apparently homogeneous elements of the reservoir. Where did the concrete's different elements come from? How relevant or interesting might it be to describe the geological processes that made possible the emergence of the fine aggregate that will be used in the concrete mixture? What are the processes that took place at the concrete plant in Shkodra where the concrete was mixed? What type of machinery and workers were involved? Such a perspective on the origin of each element suddenly seems awe striking. A complex web of unfolds. However, even if I had now managed to actually reverse engineer the entire reservoir, laying out and listing all the involved elements in this paper and giving a detailed, in-depth account of all the things that *make* the reservoir a reservoir, my representation would probably still be flawed. In fact such an explosion view of the reservoir only forces to ask further questions concerning how the actual assemblage worked; how these odd materials from different origins have managed to come together on the Tepe hills. Again taking the example of the Hawle gate valve, I could show the symbolic image of a truck in order to represent the journey from Austria to Shkodra (as I never saw the actual truck); then it would also be necessary to point towards the machinery in place, used for cutting and bending the steel. After having listed or depicted these devices it becomes more or less obvious that I will have to mention the actual workers: drivers, foremen, master-builders and so on, that *used* and *operated* these machines.

Since none of them are on site anymore there it is very difficult to find out things about them. However, it also seems reasonable to argue for the potential relevance of such an inquiry. After all they were the ones that 'actually' put the pipe in place, the ones that 'actually'

poured the concrete into its forms, the ones that 'actually' connected the reservoir to the rest of the network. (Picture 17)

Picture 17: Workers installing a pipe connection. (Photo: ADA project archive)

Would it thus be too far fetched to ask about their family situation? Well, maybe not irrelevant but definitively too complicated for me. While the family topic seems out of reach, the interest in the processes of 'using' and 'operating' the above-mentioned machines leads me to stumble over a whole new set of data. People on site would probably have referred to rules and orders on *how* to use and operate these machines, if I could have asked them when they were still there. Quite a few of these rules and orders would be articulated verbally on site by a superior (cut this here, pour that there), but I will also find these rules manifested in a multitude of blueprints, tenders and contracts that outline what is supposed to happen.

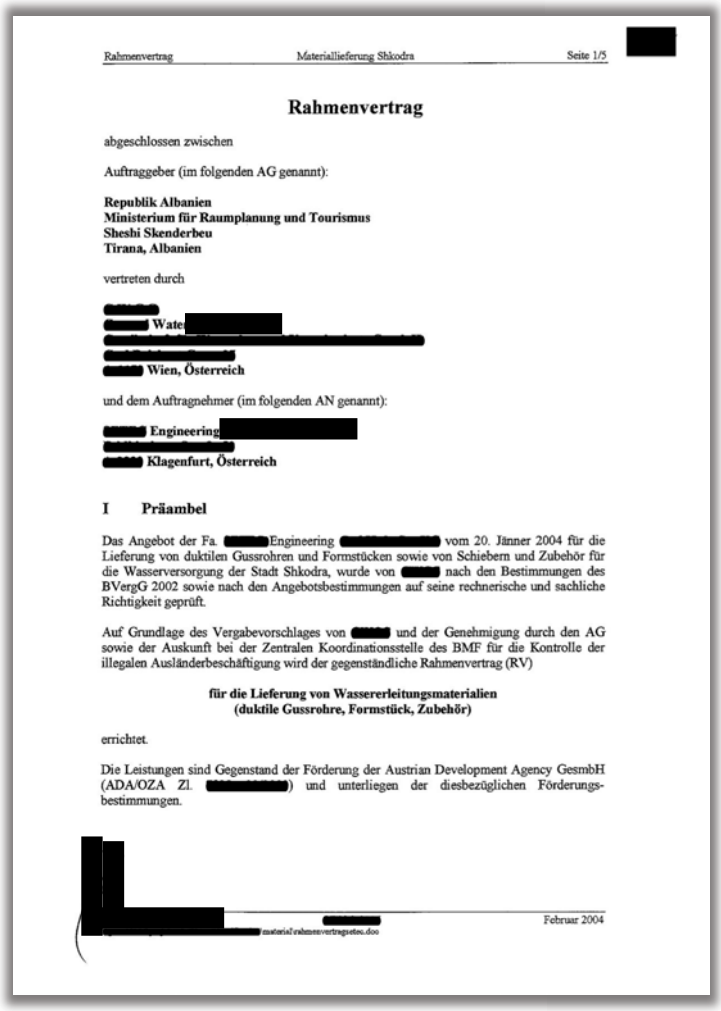
A) Paper trails- gate valve

Once the scent for such paper trails is found, a whole new sea of codified data and information appears. Following such paper trails leads me to other cities, buildings, and offices. Obviously the material relations, like the exemplary case of the gate valve are (in most cases) accompanied by paper trails, like emails, tenders, contracts, and receipts. These documents that both precede and supersede the actual movement/delivery of things are probably just as important as the fuel powering the truck that will perform the material delivery from Austria to Albania.

Sets of documents with varying degrees of formality assisted in making the exchange of money and goods more predictable and stable. For a delivery like the one briefly described above to actually take place, there are documents describing the exchange that have to be agreed upon and signed prior to the actual delivery. (See Document 3)

Besides the actual 'contract' there are various other papers and documents that are produced before after or during the actual delivery. In the particular case of the material that was ordered from a particular company in Austria, the choice of supplier/vendor was formalized through a tendering procedure: different suppliers are asked to make offers concerning the required elements/parts, and the company with the *best* offer receives the actual order.

Apart from competitive prices, the company also needs to fulfill other standards, such as a certain legal clearance by the Austrian customs office. Obviously each of these formalized documents has various emails and telephone conversations accompanying them. But even after the contract has been signed and the delivery is on its way, there are other forms of documentation taking place. The truck is automatically inscribing on his tacho-graph in order to stop the driver from driving more than the permitted hours. When leaving the Schengen Zone or when entering Albania, various customs forms and papers will need to be filled out. Once the materials have arrived in Albania, they will have to spend some time in customs, awaiting clearance regarding tax related questions. At the construction site the shipment is closely inspected for completeness and eventual damages. The latter are then photographed and emailed back to the company in order to discuss compensation or repairs.



Rahmenvertrag Materiallieferung Shkodra Seite 1/5

Rahmenvertrag

abgeschlossen zwischen

Auftraggeber (im folgenden AG genannt):

Republik Albanien
Ministerium für Raumplanung und Tourismus
Sheshi Skenderbeu
Tirana, Albanien

vertreten durch

[redacted] **Wate**[redacted]
[redacted]
[redacted] **Wien, Österreich**

und dem Auftragnehmer (im folgenden AN genannt):

[redacted] **Engineering**[redacted]
[redacted]
[redacted] **Klagenfurt, Österreich**

I Präambel

Das Angebot der Fa. [redacted] Engineering [redacted] vom 20. Jänner 2004 für die Lieferung von duktilen Gussrohren und Formstücken sowie von Schiebern und Zubehör für die Wasserversorgung der Stadt Shkodra, wurde von [redacted] nach den Bestimmungen des BVergG 2002 sowie nach den Angebotsbestimmungen auf seine rechnerische und sachliche Richtigkeit geprüft.

Auf Grundlage des Vergabevorschlages von [redacted] und der Genehmigung durch den AG sowie der Auskunft bei der Zentralen Koordinationsstelle des BMF für die Kontrolle der illegalen Ausländerbeschäftigung wird der gegenständliche Rahmenvertrag (RV)

für die Lieferung von Wassererleitungsmaterialien
(duktile Gussrohre, Formstück, Zubehör)

errichtet.

Die Leistungen sind Gegenstand der Förderung der Austrian Development Agency GesmbH (ADA/OZA Zl. [redacted]) und unterliegen der diesbezüglichen Förderungsbestimmungen.

[redacted]
[redacted] Februar 2004
[redacted] material\rahmenvertragstec.doc

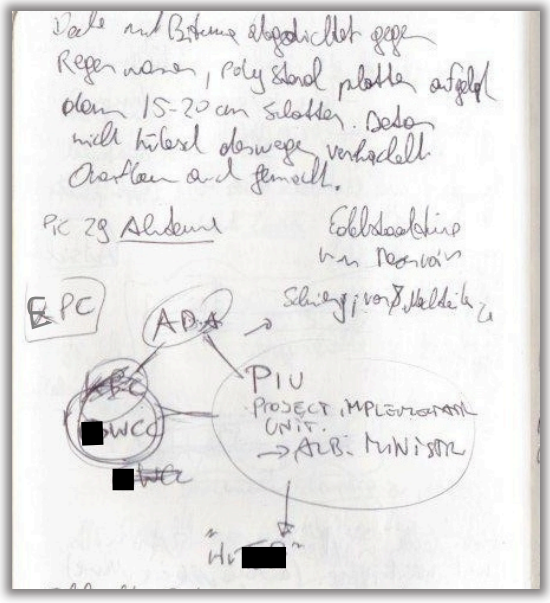
Document 3: 'Paper Trail' -Contract regulating the acquisition of the gate valve. (Source: ADA Project Archive)

With the small example above I have on the one hand shown how many stories arise once I try to retrace the different elements the reservoir was built of. I have shown how the truck driving from Austria to Albania not only leaves a trace in the gravel with his tires, but also leaves a paper trail. Once contracts, official letters, appear on stage, they seem to become ever more important, suggesting other stories that want to be told and other actors that want to be mentioned. To some extent similar as with the different *technical* or *physical* elements of the reservoir, this world of paper seems to quickly explode and grow exponentially into an unmanageable size.

B) Legal setup, acting on Paper

As I have shown above, depending on how much detail we are willing to include, this list could be extremely long. For reasons of healthy pragmatism such detailed listings are rather the exception. General accounts of projects like the one responsible for building Reservoir 4 only refer to those entities actually mentioned in the 'contract'.

Since it will not be possible to list and describe every single actor and element in such a list like manner, I see myself forced to *zoom out* again, in order to outline some of the major 'players' in our story. The difficulty and confusion of doing so is well represented in Document 4: An interviewed engineer who worked drew this map on site of the reservoir after I asked him about the *involved actors*:



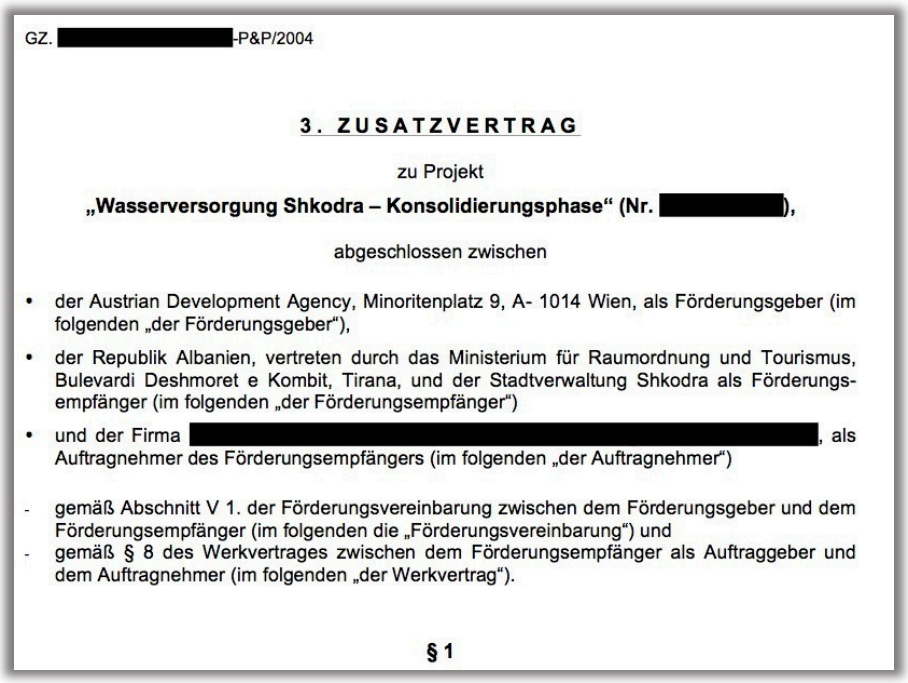
Document 4: Messy organizational chart drawing by an engineer in my field-notebook.

Other involved humans I have talked to about the project, have been similarly indirect and ambiguous when asked about the 'involved actors'. An engineer - in charge of monitoring and consulting - started to look through the final report, in order to find the parties to the

contract. This is insofar puzzling as the people have been more or less in close communication and contact in this specific project. I therefore wonder why it is so difficult to give an account of who played a part.

Engineer: *Ahm, so there was ADA (Austrian development agency) as the financier, and then ahm, well in the particular project, the city of Shkodra as recipient… just to look at that again ahm (looks at document) they have signed the contract for the funding, and then there was the service contract with the planning consultant, and he had a contract with the municipality, and with the Albanian ministry that by now I think has changed its name - currently its called Work and Tourism… they sort-of coordinated the external support in the country, and then, ahm, with the contractual partner… (Engineer)*

Since the engineer himself immediately referred to (and looked inside) a document when asked about the involved actors - I thought it might make sense to do the same:



GZ. [redacted]-P&P/2004

3. ZUSATZVERTRAG

zu Projekt

„Wasserversorgung Shkodra – Konsolidierungsphase" (Nr. [redacted]),

abgeschlossen zwischen

- der Austrian Development Agency, Minoritenplatz 9, A- 1014 Wien, als Förderungsgeber (im folgenden „der Förderungsgeber"),
- der Republik Albanien, vertreten durch das Ministerium für Raumordnung und Tourismus, Bulevardi Deshmoret e Kombit, Tirana, und der Stadtverwaltung Shkodra als Förderungsempfänger (im folgenden „der Förderungsempfänger")
- und der Firma [redacted], als Auftragnehmer des Förderungsempfängers (im folgenden „der Auftragnehmer")

- gemäß Abschnitt V 1. der Förderungsvereinbarung zwischen dem Förderungsgeber und dem Förderungsempfänger (im folgenden die „Förderungsvereinbarung") und
- gemäß § 8 des Werkvertrages zwischen dem Förderungsempfänger als Auftraggeber und dem Auftragnehmer (im folgenden „der Werkvertrag").

§ 1

Document 5: Screenshot of first page of the Project Contract. (ADA Project Archive)

Thus the three central 'Actors' are identified as:

A) The financier (ADA) which implements the project on behalf of the Austrian government.

B) The recipient (Albanian Government, in this case the Ministry of Public Works personalized by a project implementation Unit (PIU))

C) The Austrian consultant (AWC)

However, if we look back at the drawing made for me by an engineer, we see that there must be other actors. Deriving from the contract between the three aforementioned actors, are other contracts that will bind further entities to the project. For instance the local construction company whose workers actually built the reservoir is legally added to the project through a service contract with the Albanian Ministry of Public Works. Another actor that played a rather more than less significant role is that of the Expert Public Consultancy (EPC). This organization is legally tied to ADA by through a contract for consultancy services. It consults and assists ADA in technical matters. One interviewee has described EPC as the 'guardians' or 'minders' of ADA in order to refer to the power it has in influencing the latter's decisions.

It is important to note that these specific legal arrangements on the rehabilitation of reservoir 4 do not stand alone rather they constantly refer to other preceding contracts and laws. The tri-party contract quoted above is not only a source for other agreements like the service contract with the construction company - but draws upon legal and contractual agreements itself:

"*This third additional contract comprises a unit with the funding agreement as well as the service contract, including the first additional contract and the second additional contract […] All conditions in the preceding contracts are consequently also valid in this additional contract, as long as it is not defined otherwise." (Contract)*

The funding agreement, which sets up the basic terms for the Austria's involvement in Shkodra's water affairs, refers back to Austrian laws. On the one hand these regulate the budget for development aid in Eastern Europe particularly as well as the aid budget more generally. On the other hand they regulate and define the role of involved Austrian institutions. Worth mentioning in this sense is the legal and institutional birth of ADA in 2002 with the Federal Act on Development Co-operation, taking over operational tasks that had previously been situated in the ministry of foreign affairs (OECD 2009: 21). If we are to continue tracing legal references, our paths will again take us outside of Austria's borders -

primarily to Brussels, Paris and New York, where various binding and non-binding documents have been signed. Such agreements - which have briefly been discussed above - with OECD, EU, or the United Nations, are important references in forming both the discussion and the practice of Austria's development cooperation. Despite not having gone into much depth in regard to the legal setup, it quickly becomes visible that each legal element of the reservoir is based on a series of other legal references. While it seems both tempting and relevant to articulate these lines of influence and reference more eloquently, it also poses a more or less serious issue in regards to the growing mountain of data.

I end this second ethnographic chapter puzzled on how to deal with such large amounts of information. While this might be paradigmatic or typical for data to grow over a MA-student's head, I cannot stop being impressed.

The luxury of extensive access to archives and data, has more or less suddenly revealed that - contrary to the sometimes frank oral accounts - there are accounts of (almost?) everything in written and photographed form. In this light the involved actors, suddenly appear to have been constantly producing "data" parallel to their activities of 'actually' building a reservoir. Emails are like solidified talk over distance, a merciless source of information for the privileged reader. They are written and sent with such ease, sometimes responding to an institutional craving for accountability and transparency[21], sometimes just reflecting an urge to make a point or emphasize an opinion. Whatever the initiating motivation might be, a central aspect of using this technology is the fact that those traces simply wont vanish. They provide me with so many paths through a sea of histories, that I can only long for my smooth photoshoped panorama.

These additional and multiple trails have somehow forced me to walk further away from the Tepe hills than I initially planned. In an explosion view, reservoir 4 is not very Albanian any more. Instead action and activity seems to be distributed around geographical and temporal space.

[21] This phenomenon seems particularly prevalent with government-, but also with other actors. There seems to be a constant fear of (accidentally) cheating or skirting an important stakeholder. This leads to a sometimes-astonishing usage of the CC (and assumingly also BCC field) in official emails.

2b. Actor Networks and Material Semiotics

In the preceding part I have outlined how the reservoir - which at one moment appeared like a coherent homogenous object - could be disassembled into a multitude of stories and elements. By giving different accounts of what led to the project, the reservoir suddenly becomes more than *just* a water storage structure. Its existence is connected to Austrian laws on development aid, to the mechanics of gate valves, to Albanian politics, to the hydro-geology of Northern Albania, to international arrangements of Austria's foreign policy, to companies in Italy, Greece and Austria, to a community of Austrian water engineers and as well as Shkodra's changing water consumption patterns. All these seemingly separate humans, discourses, objects and politics connect to the reservoir on the Tepe hills. While some connections are probably more vital and stronger, others are less influential and important. However, the task of deciding what 'matters' and what does not, is quite difficult. With so many trails and traces to follow, one feels constantly in danger of being on the wrong track, potentially wasting valuable research time. Considering the mess of different stories and genres presented above, the most orthodox (and maybe the most feasible) would be to divide the reservoir 4 project into two: either I continue focusing on the social, legal, political, and maybe even psychological parts, such an inquiry would put a primacy on the human and political aspects that led to the physical structures existence. Or, I decide that the short interlude about the Hawle gate valve with its technical specifications is reason enough to focus on the technical aspects of the reservoir. This would permit me to leave behind the intangible and abstract bickering of different human actors. Instead I could focus on the objective elements - essentially the only ones that really matter because they assure the reservoir's functionality.

However, I intend to do neither of the two. Instead of choosing one mode of procedure or one genre as the topic of interest, I want to make the *connectedness* and *relatedness* the topic itself. I want to try and argue that these two realms are in fact part of one and the same collective. In order to further symmetrically describe and analyze the reservoir as constructed of ideals, bolts, discourses, pipes and laws, I propose the theoretical and epistemic guidelines of Actor Network Theory.

I) Actor Network Theory

"Actor network theory is a disparate family of material-semiotic tools, sensibilities, and methods of analysis that treat everything in the social and natural worlds as a continuously generated effect of the webs of relations within which they are located" (Law 2008: 141).

While Actor Network Theory (from now on ANT) has already been associated with the *field* of Science and Technology Studies in the first chapter, I want to use this section in order to elaborate why I believe it to be valuable for an inquiry like the one at hand. As the slightly *unwieldy* term already indicates, this *theory* is about actors and networks. However, ANT is neither the first nor the only strand of theories that use the notion or metaphor of a *network* for their inquiry. Ranging from computer sciences to economics, biology to sociology, the term network is often evoked in order to describe and visualize relations between objects, ideas, people or discourses.

In the effort of providing a more specific definition of ANT, one is confronted with the issue of finding a reasonable short and 'valid' definition. John Law, one of the core ANT authors carefully avoids giving such a definition when writing: *"[…] one might represent actor network theory by performing it rather than summarizing it. By exploring a small number of case studies rather than seeking to uncover its 'fundamental rules'. By telling of examples, representatives of actor-network theory, that are both faithful and unfaithful."* (Law 1999: 1).

Such a statement might be perceived as depressing as it basically forces the interested person to read a couple of books[22] in order to grasp the gist of the idea. Still worse - if one is not already discouraged by this vagueness - are various other authors' biased relationships to the term ANT. The founders of ANT do not seem to be particularly happy about the name they have given their intellectual offspring. Michel Callon for instance would rather speak of a "*sociology of translation"*, while

[22] Even if not completely up to date there is an extensive (intimidating) list of ANT texts on John Laws website: http://www.lancs.ac.uk/fass/centres/css/ant/ant-a.htm. German readers might find Andrea Bellingers and David Kriegers collection of core ANT essays helpful. (Bellinger&Krieger 2006)

the above quoted John Law says that *"it is better to talk of material semiotics than of actor network theory*" (Law 2008: 142). Most bizarre is Bruno Latour who finds the term so awkward and meaningless that the only reason to keep it is because of its association with laborious ants (Latour 2005).

This indistinct and amoeba like quality of ANT has the draw back that I will not be able to cite a single textbook definition in order to bring more clarity. On the positive side this situation also gives me more space to maneuver rather freely, proceeding in a way that seems apt for my case at hand. For this reason I try to discuss and elaborate ANT by constantly relating to observations made in the ethnographic parts. In this sense you could see this paper as a certain test of theory, as it will be up to the reader to judge whether the analytical thoughts - which rely greatly on ANT to make sense.

II) Actors are Hybrid and Assemblies Heterogeneous

Much of contemporary academic[23] (also non-academic) life seems to revolve around the separation of the subjective and the objective, the social and the natural. Such a division of labor manifested itself when I asked whether I should be interested in the technical and natural OR the social and political aspects of the reservoir 4 project. In such a division elements like the Hawle gate valve, are clearly designated to be studied by scientists and engineers, who can give objective and true information about them. The gate valve's *objective* quality and its technical properties predestine it for an inquiry by those who are specialized in dealing with this type of matter. It is natural scientists and engineers who have the necessary formation and tools to understand the truth about such *natural* or *technical* phenomena. Social scientists (or sociologists of the social as Bruno Latour would say) on the other hand supposedly focus their inquiries on those immaterial and subjective matters that exist only in some relation to our thoughts (Whitehead 1982:30).

[23] At this point it might be worth while to mention the authors personal entanglement in this division of disciplines: the natural and the social seemed to be both as contradictory as integral to my university education: On the one hand studying Environmental Resource Management at the of Natural and applied Life Sciences (BOKU) where I learnt that it is via objective (*natural*) science(s) that we can find the right (technical) solutions for our challenges, while on the other hand the Institute of Development Studies Vienna, taught me how to critically deconstruct such seemingly hard and objective facts, unveiling them as mere representations of the essentially social power structures that govern our realities.

Basis of this assumption is that there are only two ontologies, or ways to exist. On the one hand there is the objectivity and factuality of objects that are essentially governed by the laws of physics. On the other hand there is the world of society and politics is much more a product of the human mind. Phenomena that are subject to this "second" ontology are fuzzier and less tangible than actual objective facts. They cannot be measured and calculated as objectively and precisely as a natural or technical object. For this reason, many would argue that objective truth only exists for those things that are part of the first ontological realm. The power of the various natural sciences is that they have the primacy of accessing and articulating this objectivity (Latour 2004:11). Coming from the field of STS, Actor network theory suggests that we should drop this division of existence (ontology) and symmetrically approach objects and subjects, humans and nonhumans, in the same manner.

The point ANT makes, is that such an *a priori* differentiation/separation between a social and a natural is both senseless and wrong if one wants to understand what is going on. ANT's underlying ontological argument is sometimes associated with Alfred North Whitehead's work on the bifurcation of nature (Whitehead 1929: 289; Latour 2005: 218). In the case of our gate valve, such a refusal to attribute observed things either to a social OR a natural (subjective/objective) realm means to realize its hybrid nature: the latter is thus not only connected to the blue cast-iron pipes but also to the diplomatic or political solution of a reservoir rehabilitation; it is connected to various places, documents, people and concepts. The idea is to treat the gate valve as well as "*[…] everything in the social and natural worlds as a continuously generated effect of the webs of relations within which they are located" (Law 2008: 141).* While ontology is a big word, the important aspect of this point is to convey to the readers from the social sciences that I practice a certain affinity and affection for the non-human actors in the project.

This implies that ANT is willing to 'give' non-humans a certain agency. Contrary to the social sciences where non-humans are usually ignored but also differing from the orthodox natural sciences where they are part of a purer world, ANT attributes them a capacity to act: the gun in a person's hand also changes her behavior. It has certain designed inscriptions that will alter her actions. While it would seem an

excessive case of techno-determinism if we argued that her shooting someone would be 'only' due to the gun, it does appear reasonable to argue that her becoming a gun-holder changed the situation. Another much cited example is that of the speed bump: a delegated substitution for the police officer who used to give speeding tickets. In this case the speed bump alters my behavior as a driver like the uniformed officer (Latour 1999: 177,186).

In terms of language we thus stop talking about subjects and objects, and instead talk of actors. An actor, according to ANT, can be human or non-human, but is in many cases lost somewhere in-between those two clarified ideals. The project of reservoir 4 is a network that included many different actors of varying complexity. It is hybrid, assembled of text, laws, discourses, and cement, sand, water, steel etc. Reducing its reality to 'either/or' does not seem very sensible for any epistemological project.

III) Epistemology: How to Describe a Heterogeneous Assembly

While the ontological assumptions of ANT are sometimes dismissed as megalomaniac and slightly out of place, others more prudently (or maybe strategically) classify ANT as a mere epistemic heuristic instead of a full-fledged theory. In this sense ANT might be located somewhere between the clearly defined trenches of social constructivists and so-called objectivists.

"The principal of these analyses, which can in fact give a good description of specific cases of the process of the conception and integration of technologies, is that they both rely on a priori separation between the social and the technical. In fact, we only have to look around us at our most familiar objects to see that their form is always the result of a composition of heterogeneous elements" (Akrich 1993: 290).

The argument of heterogeneity fits well for our reservoir. It is like the concrete surface in its interior that seems smooth from distance, but appears rough structured aggregates of different sizes that are held together by the cured cement. If other heterogeneous elements are not found by looking even closer, then we find them in other places. Unfortunately, there is no DN-400 cast-iron pipe visibly connecting the Tepe hills with Austria's development policy. Nonetheless, there is a connection. Papers, documents and memories form a 'paper trail' that links these realities into

one. In order to be capable of noting and perceiving such various traces Madeleine Akrich suggests that:

"The sociologist must not make any a priori distinction between what is technical and what is social in what is being observed" (Akrich 1993: 290).

Such rough or vague epistemic guidelines are valuable in the sense that they permit me to follow all the traces that I stumble over. As I am not forced to describe just *either* the social *or* the natural and technical, I can give richer accounts of the realities that are performed by the different human and non-human actors. Regarding our reservoir on the Tepe hills, this mode of conduct reduces the pressure to decide in advance (in order to adapt my methodology) whether it was technical necessity, democratic choice, or arbitrary politics, that were most influential in shaping the project's reality.

Accepting hybridity, transcending an ontological dualism and striving to account for all types of stories sound like excellent and honorable plans on paper. In 'my' reality of MA-research practice, they pose quite a challenge. Suddenly I do not only have one, but hundreds of research sites.

IV) Redistribution of the Local

As we have seen in the ethnographic part, the reservoir is linked to various European cities. The brief escapade into the details of the Hawle gate valve have shown how it is a composite of the many materials, industries, engineers and designs. The gate valve alone would probably take me to several continents if I were to meticulously follow each element, and each idea and each element. Slightly less removed are countries like Italy and Austria, which supplied many elements like cement and pipes that were not available in Albania. But even after having put a red pin on my world map for each material source, the reservoir is not yet globalized and distributed enough. More difficult and abstract to trace are the less tangible elements: ideas, policies and laws that are also solidified in the reservoir. Asking for these locations I would probably have to go from the OECD's posh conference rooms in Paris, to slightly bigger ones in Brussels, where suited diplomats and experts craft development policy. Once such a mode of analysis and observation is made, locality can only be understood as the outcome of spatial and temporal

relations. Taking this argument one step further with Bruno Latour, I would in fact argue that locality does not exist. It seems probable - if not apparent - that no phenomenon around the reservoir 4 project could prove to be 'truly' local. Instead, a closer analysis will always find traces and relations that tie the object or action to an 'outside'. I emphasize this 'redistribution of the local' because much contemporary development research, but also a fair bit of development practice promotes a romanticized notion of locality (Latour 2005: 191). It seems like there is a latent assumption that more truth and justice is to be found in the disconnected local, which is not yet polluted by harmful globalization (Escobar 1995: 215; Desai&Potter 2006: 116f).

V) Epistemic Luxury - Feeding of Controversy.

The term controversy has come up many times in both ethnographic and analytical parts. Controversy takes place where there are different accounts of the same thing, where some sort of disagreement prevails. Besides the fact that controversial stories are often more entertaining to tell (and read) I would like to argue that following controversy is a valuable research heuristic (Latour 2005: 21). The idea is that in controversy objects and relations become visible that might otherwise go unseen.

Once 'opened', an excessive amount of data and information and traces were available. In order to understand how so much could become visible we can look to Madeleine Akrich. In her classical ANT study of a development project that aimed to install a small biogas plant in Costa Rica she wrote:

"If we want to understand properly what machines do, then we have to put ourselves into a positions where their usage is not yet or is no longer standard."

(Akrich 1993: 290)

Processes of translation and transportation become more visible because they are not as 'embedded'. That is also why the issue of the Weisse Wanne and standards became visible. For instance, it would have been much more difficult to 'stumble' over this topic if I had been researching the construction of a Viennese reservoir. There - I assume - the Weisse Wanne is nothing out of the ordinary. The connections, ranging from material ingredients to workers familiar with the installation, are stable and unproblematic. Consequently, I think that Bowker and

Star are right when they argue that *"Unless we are electricians or building inspectors, we rarely think about the myriad of databases, standards and instruction manuals subtending our reading lamps[…]"* (Bowker and Star 2000:33). The case study at hand might be seen as an effort to evade this challenge by simply changing the geographical location.

The epistemic luxury of researching a development project like the one outlined above is, that changed conditions, broken machinery, bad translations, hot weather, particular interests and time pressure cause more controversy, more complication, and more confusion, than might be the case in a similar endeavor in Austria.

This conflicting *nature* implies that there are more reports more emails, more material, and more paper trails about the mundane but vital role of standards in the project. Therefore, it becomes easier for me to re-trace and re-assemble it for my own narration.

VI) Ritualistic Verification in an Audit Society

The sudden explosion of data in my research appears contradictory to the initial silence that surrounded this topic. There is an odd co-existence of amnesia and photographic memory that surrounded this reservoir. As to the prior, one might argue that the term amnesia is too strong, and that one should rather see reasonable unwillingness to talk about a past controversy (opening up old stories again). With people leaving Shkodra and grass growing over the reservoir reminders of events and stories became scarce. Above I have discussed how functional infrastructure seems to be particularly good in vanishing from our view despite its immanent presence. While we are theoretically aware, that technological artifacts and elements of infrastructure had to be constructed in complex and arduous processes; these cannot be read from the structure itself. Contrary to the wooden cabin, which permits extrapolation about the source of its materials (nearby trees) and the process of construction (you can see nails, and marks of other tools) the reservoir is more unwilling to share its secrets. The inside is dark and the outside is covered in grass, making it difficult to distinguish from the rest of the landscape. From this perspective it makes sense how the reservoir could become so 'forgotten' and ignored.

But what about the literally photographic memory that exists in parallel to this silence?

In order to understand why so many emails were sent, so many pictures taken and so many documents produced it might be valuable to look at Michael Power´s notion an Audit Society. In the narrowest sense, an audit refers to the financial evaluation of a company or organization by accountants. Since the late 1980s the term audit has been used in order to evaluate and assess other than only financial accounts (Power 1997: 3). Power argues that this initial idea of checking up on coherence of accounts has been introduced to so many aspects of our lives that we today live in an “audit society,” which is “engaged in constant checking and verification” (Power 1997: 4). Such formalized procedures of checking up on people and organizations have led to a situation where action and activity is designed in such a manner that it can be perceived by the relevant accounting scheme. A paradigmatic (negative) example is the situation in schools and universities, where I learnt to read and memorize in a manner that primarily responds to the design of the multiple choice test and other forms of evaluation -- only secondarily reflecting my eagerness to learn. The argument is consequently that audits and other forms of verification do not only shape what we know about the world, but that they also shape the world itself. As authors like Richard Rottenburg and David Mosse have shown, such issues of auditing and “ritualistic-verification” are of particular importance in development cooperation (Mosse 2004; Rottenburg 2009). Contrary to more typical market situations it does not function according to commercial price mechanisms when distinguishing between success and failure.

Substituting the price mechanism ‘projects’ and their indicators make judgment and evaluation feasible. Structured by time, and equipped with pre-determined indicators of success, they are an ideal auditable entity. The project as a mode of organizing and implementing development cooperation is thus in itself well adapted to the constant need for evaluation and audit (Rottenburg 2009: 71).

In order to evaluate and measure the coherence between the project contract and the actual tangible project of things, huge amounts of data are produced all the time.

Much data production is thus not necessarily linked to the achievement of the projects aim, but rather related to necessity of providing documents that can be reviewed (Power 1997; Brunsson 2005:45).

Insisting on the importance of this documentation-phenomenon Paul Atkinson has argued that *"[…] a great deal of work in modern bureaucracies and other complex organizations would be impossible without the creation of these kinds of documentary realities"* (Atkinson 2004: 61). The production of reports and other documents is more than just a means to arrive at a specific end; it is in fact an end in itself - a "ritual" - as Power writes.

The notion of an "audit society" (or "documentary society") provides an explanation for the phenomenon of excessive traces (data) I have described above. Put very bluntly: it would otherwise be difficult for me to understand why people produced such excessive amounts of data that now are part of the phenomenon I have termed *epistemic luxury.*

3a. Closing Boxes and Navigating Complexity

In the last chapter I have shown just how complex and multiple the rather simple matter of the reservoir could become. By exemplifying some of the many stories that could be told around the reservoir, I hope to have given the reader some bearings - ideally even making her more interested in some further and specific inquiries. While this might be satisfying in terms of an *overall* story or narration, it poses more serious issues from the vantage point of my research. I want to give a thick description, I want to pay due respect to the many involved actors and the processes that caused the reservoir's existence. But the story-explosion outlined in the previous chapter is simultaneously paralyzing. The mere effort of actually reading ALL reports, documents, emails, notes and laws is probably impossible from a time management point of view. Only to properly read the 800 page feasibility study, would take me about two weeks. Going through +/- 2000 emails (with expansive thread histories) is probably possible in three weeks, but sorting and analyzing them in a slightly more sophisticated manner seems quite a mammoth task. Worse even, instead of giving a feeling of satisfaction and saturation, the huge amount of data I have at my disposal force me to look for ever more documents, that are referenced, like the various laws, to guidelines and technical standards. Such a mode

of conduct somehow feels right, but it will pose a serious challenge in terms of time management and page restriction. Therefore, as already elaborated above, I will leave many black boxes closed, and many stories untold. Highlighting this lack seems more adequate than presenting one overly smooth and coherent story.

I) Project of Signs vs. Project of things: but what lies in-between?

Such an acknowledgement of complexity and multiplicity might be honorable, but it is also rather void of meaning and does not particularly help me in terms of dealing with the pragmatic issue of how I should proceed. Besides wondering how I might deal with the mountain of data I have now stored on my computer I am also forced to consider in which direction I should continue. Probably stemming from my university education at different faculties there basically seemed to be two options as to how I should proceed:

a) In the spirit of the natural and applied life sciences, I should focus, on the technical particularities of the reservoir, taking stories like the gate valve as a starting point to focus on other specific and local elements and events that led the reservoir to existence. The German water feasibility study comprising more than 800 pages presents another good argument to focus on this form of detailed and technical locality.

b) Relating more to my courses in political science and sociology I feel I should take my findings as a starting point to inquire more profoundly into the macro level of political and social relations that shaped (and were shaped) by this project. In this understanding it is the laws and politics that define the flows of money as well as the relationships between people. In such a sense the project can only be interpreted as an outcome of globalized politics.

Obviously these two particular routes are fictional. I created them without anyone telling me to proceed precisely in this manner. However, I would like to argue that they do reflect a common understanding of how one is supposed to be interested in topics. While I do not believe that the above-suggested division is very sensible it does appear formative in the way that research interests develop (or at least in the way I imagine them to develop). One argument that would support my personal observation, is the fact that this assumed division of labor also became visible during my research: in various instances my initial question regarding the reservoir were immediately answered with another question concerning my academic background. The interviewees had different genres of accounts ready for me, apparently deciding what to tell on the basis of whether I was an engineer or not. Of course

this does make sense in a lot of ways. After all it would be worthless to tell someone a story consisting of technical words and definitions that this person cannot understand.
However, I did want to assume (and still do) that I should be capable of comprehending a more or less simple device like the reservoir. I was eager to hear all accounts, to understand the entire story instead of having to decide on either the politico-organizational setup OR the technical engineering aspects. Hence neither of the above mentioned routes will be taken. Instead I want to focus on what is in-between those two options of analysis, placing emphasis on the processes that connect this binary bifurcation of a written and an abstract project with the actual, factual and objective aspects of reservoir 4. I want to understand to what extent the policy, and the various 'ideas' of development are actually manifested in the building process as well as in the final structure of the reservoir.

II) The Controversial "Weisse Wanne" becomes my protagonist:

The 'translation' of a written contract into a tangible reservoir proved to be very controversial and difficult. Some of the involved even termed it as "the problem project." For me personally this is fortunate, as it has created huge amounts of data and information that can still be read. Data was left behind controversy like trails in a dirt road behind the heavy truck delivering concrete. When opinions and interests diverge around an issue, more emails are written, more reports issued and more minutes of meeting circulated. While some of the interviewees considered it wise to forget and leave behind controversial particularities others vividly remembered them. The various story lines of controversy and disagreement over what is and what should be are multiple and complex.
Maybe it was a childish reflex stemming from some wish to play Sherlock Holmes that immediately led me to pervert an interviewee's suggestion when he told me not to focus on the concrete:

"I am not sure if it really makes sense to reduce the inquiry particularly on one project and to focus particularly on technical details like the concrete quality etc. Experience has shown that all involved are usually quite happy if a project is completed successfully. I wouldn't be astonished if there is no more interest in warming up some old details and problems which came up during the implementation […]" (Austrian Engineer)

Such a warning appeared like a welcome invitation to give particular attention to the issue of concrete quality. Fortunately, this initial spark of interest proved to be quite fruitful for the following development of my research interest. The issue of quality in general and of concrete in particular was central throughout the entire project. In fact it was so big an issue that even today the controversy has not entirely settled. More concretely the trouble circled around the question whether the local construction company had managed to build the reservoir according to the quality that had previously been requested and agreed upon in the contract. The accusation was that there were discrepancies between the reservoir 4 described in the contract documents and the reservoir 4 that had actually been built. This apparent deviation between 'fiction' (written project documents) and reality (actual as built reservoir 4) became memorable and powerful insofar, as it solidified in the concrete number of about 80.000 €[24]. This was the amount of penalties and deductions that were handed out to the construction company. Eighty thousand euro is a fair bit of money in Austria, but even more so in Albania, dramatically portraying the monetary manifestation of this disagreement. As to the reason of this penalty interviewees gave me two different accounts and judgments: either the local construction company was unwilling and incapable of providing the quality they had promised to deliver, or the Austrian consultancy was too strict in its judgments. Not astonishingly the head of the Albanian company argued for the latter, while the Austrian actors insisted on the prior.

While differing interests lead to opposing judgments of responsibility there is agreement on one thing, namely that the concrete was the biggest difficulty. Designed to guarantee both static stability and water impermeability this standard for reinforced concrete goes by the charming name of "Weisse Wanne"[25]:

"But it really had to be tight… therefore a new term was introduced - as a term, a concept and as a technology- as a state of the art - the Weisse Wanne. Not only an Austrian and German construction standard, but also Quality control standards…

This really prolonged the project… no one was accustomed to this internal and external quality control… it almost did not

[24] There are several different versions on this sum. 80 thousand euros was the number told to me by the construction companies head.

[25] In almost all cases the german wording was used. Literally it could be translated into something like "White Tray", "White Vessel" or "White Basin"

work- such a stress, a permanent stress." (Local Engineer [Emphasis added])

Another engineer remembered:

"The Construction Company further did not manage to supply the necessary concrete quality. We are talking about waterproof concrete- Weisse Wanne Quality - with zero millimeters loss in 24 hours - it is a very high standard, used in Austria." (Austrian Engineer)

As told by the engineers, the building of the Weisse Wanne proved to be extremely difficult and straining for the humans involved. The permanent stress he described is also portrayed and in the many reports, documents and pictures, that were produced over its controversial production period. The Weisse Wanne is an eloquent technical standard that promises both static strength and impermeability to its assemblers. Contrary to its most prominent alternatives the "Schwarze Wanne" (Black Tray) and the "Braune Wanne" (Brown Tray) it does not need any additional coating and has a distinct bright/gray (not really white) color that explains its innocent name. The Weisse Wanne was several different things at the same time: a term, a concept, a technology, a state of the art, as well as an Austrian (and German) construction standard. By being so multi-faceted it provides an interesting 'thing' to follow. On the one hand it was the walls that were invisible behind the black "bull-eye-window" in Picture 3, made up of different materials like the gate valve from above. On the other hand, the Weisse Wanne is also part of the more abstract and written part of the project. By being an Austrian technical standard, it connects to the more conceptual notion of development as is envisaged by the policy papers of ADA, OECD and EU.

Examining the amount of papers, documents and emails that bear its name, it might even be considered the protagonist of the reservoir 4´s story. I would even go as far as arguing that the Weisse Wanne is in fact the most defining element of the reservoir 4 project. I find it so intriguing and fascinating, that it seems necessary to center most of the following pages on this *White Vessel*, that had to travel far and long before it could settle and find peaceful closure in Shkodra. Another reason for my affinity to the Weisse Wanne is that it might soon be forgotten despite its powerful impact on the project's reality, and daily lives. It literally shaped the working hours, of many. It caused financial turmoil to some, and finally but maybe most importantly, it was impermeable, safely storing the water from the Dobraci well field. By

playing in all this different sites, having caused a fair bit of controversy its stories will hopefully present an interesting trajectory of this project's reality.

3b. Refusing Scales / Researching the in-between.

In the previous analytical part, I have discussed how the seemingly local quality of the reservoir had to be *redistributed,* or connected to other sites and places (Latour 2005: 191). I have tried to show in chapter two, that something like the *reality* of reservoir 4 cannot only be found on the Tepe hills. Straining the idea of *reverse engineering* and the metaphor of an *explosion view,* I have mentally dis-assembled some of the reservoirs elements and histories. This effort of opening up different kinds of black boxes might have been pathetic and minuscule. However, I hope that it gave a certain notion of complexity, spoiling a romantic assumption of locality. In the following I now want to continue discussing the question of scale, essentially showing that common[26] conceptions of locality, regionality and globality are overvalued.

I) Interconnected Sites

The apparent unsuitability[27] of a *purely* local approach might lead the reader to the conclusion that we have to look for answers to phenomena in a larger scale or global realm. This seems particularly reasonable when we think back to the ethnographic parts that discussed the complex legal and historical background of the project. Many important decisions and formative parameters seem to have been molded and casted in a realm of law and politics that is either not visible or not present on the Tepe hills. Instead these traces and stories quickly lead us further away to narrations on the availability of financial funds or even on to geopolitical tactics stemming from some Cold War rationale. Maybe this dis-location of the reservoir story implies the necessity of indulging further in the issue of Austrian politics and foreign policy, spanning to the contested *field* of European integration.

[26] I argue that in the field or scene of development studies and practice, this way of categorizing phenomena according to their "size" is particularly prevalent. (Desai&Potter 2006)

[27] Unsuitable insofar, as the actual site visit, the actual geographical location did not seem to provide much information.

Such tentative consideration forces me to discuss in some more depth the issue of scale as a framing terminology in such epistemic quests. My argument is that much of the research done in social sciences is based on an *a priori* differentiation in scales, between macro and micro. Researchers tend to specialize at an early stage into researching 'either' geopolitical phenomena 'or' local case studies (Callon&Latour 1981: 277ff). Similar to how an (assumption of) ontological bifurcation between the social and the natural legitimizes a division of labor between the social and the natural sciences, the separation in different *scales* also permits a dubious division of labor in the social sciences. Particularly in development studies and practice, there seems to be an affinity to the notion of scale (Booth 2010: 294). Every phenomenon has to be categorized as either micro or macro and situated in a local, regional or a global. This becomes visible both when looking at academics as well as looking at development practice. Scholars appear to (often) study either:

a) Global phenomena by discussing ideologies, trade flows, and paradigms of development or b) Find more reality in the study of local particular and "small scale" issues where an epistemic project is limited by more or less tight geographical boundaries (Desai&Potter 2006: 117). Stickers calling on me to "think globally" and "act locally" remind me of my obligation to behave according to scale.

But scale is not only produced (and used) between the doors of the 'global studies' department and that of 'development anthropology'. It is also a popular and important concept in policy papers, country programs and log-frames of international development agencies.

A project might be a small-scale local project, neatly fitting into the regional development program. This regional program, covering three impoverished provinces in the north, again forms another puzzle piece that fits into the new country program or ideally also into the Poverty Reduction Strategy Paper (PRSP), published by World Bank and International Monetary Fund (IMF). Finally, these big "national" puzzle pieces are supposed to fit into the largest scale and most universal "to do list": the global Millennium Development Goals of the United Nations[28]*.* (

[28] See: http://www.entwicklung.at/development-policy/international/millennium_development_goals/en/

While such categorization into scales appears helpful in ordering and classifying different phenomena, it might be problematic to put to much emphasis on such a grouping. Locality and globality can only be fruitful terms if they are seen as co-constructed and essentially connected and interrelated. An *a priori* layering into 'either' a global 'or' a local phenomenon that ignores such connections is likely to leave out various aspects that are of concern.

Coming back to reservoir 4, it is important to acknowledge that (international) politics in Vienna or Brussels participated in composing its reality. Instead of taking this as a proof of 'global' influence, one should realize that these phenomena themselves are also local: a certain discussion on development cooperation by EU member states took place in a particular conference room in a particular building and participants had to travel different distances to take place in their designated seats. The metaphor of layers and scales of influence is thus substituted with the one of actors and networks I have briefly portrayed above. Instead of calling an actor or a phenomenon more 'global' Latour suggests we describe it as 'better connected' to various different sites places and actions (Latour 2005: 178). The reality of a project like the one at hand must not be assumed in a local singularity of the actual building site. Instead a close look reveals that each of the elements whether human or non-human are themselves products of multiple entities and connections.

II) If anything, Reality is Procedural

After having confronted the reader with a critique of 'scale' it is now necessary to ask more specifically what it means to be 'more related' and 'better connected'. In order to do so I will now discuss another basic assumption of ANT, namely that of procedure. With its roots in the process philosophy of Alfred North Whitehead, Gabriel Tarde and Gillez Deleuze - ANT assumes that reality is to be found in processes and not in static elements (Mesle 2009: 42). The point is, that it will not suffice to simply list the elements or actors that are part of reservoir 4. However intriguing such an extensive list, of all the nuts, bolts, cement, bureaucracy, blueprints, engineers, concrete mixers, lorries, reports and discourses might be, it would still lack the most central information - namely how these different actors or elements relate to each other. While classical representations (and understandings)

of networks put emphasis on the nodes, ANT argues that the edges those thin lines that connect different nodes are in fact more important. In our case it is thus important to understand that the lorry brings the gravel, that water and cement chemically interact, that the worker uses the mixer. The relevance of each actor thus lies in its interaction with others, and not somewhere within itself.

In graphic representations of networks, the matter of interest and concern thus moves away from the 'nodes' towards the 'edges' that connect the nodes and actors (Latour 2005: 204). On a more philosophical level this implies that actors, be they human, non-human or something in-between only exist because their procedural and active relations to each other:

"It assumes that nothing has reality or form outside the enactment of those relations" (Law 2008: 141).

III) Mediating between Signs and Objects

A development project like the one at hand is a particular way to organize and frame the relations between different parts of a network in a pre-defined temporal manner. *"As a unique set of coordinated activities, with definite starting and finishing points, undertaken by an individual or organization to meet specific performance objectives within defined schedule, cost and performance parameters […]"* projects are the way that development cooperation usually takes place (Maylor et al. 2006: 668). Practiced development is very much related to the practice of projects. Tasked with improving some particular issue like our water-reservoir, they are perceived like steps on the teleological staircase of development.

Development as a discourse and projects as an organizational practice, are much governed ideas of temporality. Projects have a starting and an ending point with a specific change or performance that is supposed to take place in this period. The practice of development cooperation appears to consist of consecutive 'projects'. We could even go as far as asking whether the teleological and temporal understanding of development actually comes from this strict structuring of processes and actors according to temporal deadlines in project management.

The project as a network building activity connects technologies, politics, money and people to each other. Depending on how well the actual and tangible processes cohere with the pre-defined schedule, cost and performance parameters, the project becomes more or less 'real'. Anthropologist David Mosse has termed this the *"mediation between a project of signs and a project of things,"* emphasizing the relevance of the processes that connect the project as a paper or contract, and as objective results or activities (Mosse 2005: 35). In *"Cultivating Development"* he gives an extensive ethnographic portrait of a project implemented by the British government. He argues that far too rarely academic attention is brought to the relation of policy and practice in accounts of development projects. By describing a capacity development project in rural India, he points out how fragile and endangered this relation was. According to him these processes and relations are like an *"implementation black box"* which is rarely opened. He argues that far too few accounts give due respect to the complex interaction of a multitude of heterogeneous actors, which need to constantly be held together in order for the project to *function* (Mosse 2005: 7f).

In *Aramis or the Love of Technology* Bruno Latour has shown how a technological project always starts as 'fiction' or text and is constantly in danger of being sent back to the fictional:

Depending on the events the same project goes back into the heaven of ideas or take on more and more down to earth reality (Latour 2002: 68).

Through its hybrid quality, the Weisse Wanne provided continuity between the project as a fiction, and the project as various tangible objects in the Tepe hills. It could survive in very different social and technical worlds even continuing to exist in the Tepe hills. This effort of looking what lies in between the binary opposition of text and thing, once again seems to reflect the hybridity and heterogeneity of assemblies. Technical standards, capable of existing on so many different papers and construction sites, function as a form of insurance, guaranteeing that the fictional project can in fact become real. Lawrence Busch has found this capacity of standards to regulate humans and non-humans, ideas and things that he argued, *"standards are where language and world meet"* (Busch 2011: 3).

They appear both in large scale or global policy discussions, they continue to exist with the same names in regional programs, in order to then be written into project designs. Eventually, they will also function as a guideline for actual construction processes, manifesting in tangible form (like the Weisse Wanne reservoir). Standards are tools used by the engineers to guarantee and perform the translation from the written to the objective.

As soon as local and global disappears, the central importance of standards […] becomes obvious (Latour 2005: 228).

4. Following Standards

Picture 18: Holding the Weisse Wanne Guideline. (Photo: C. Stubenberg)

The call by Bowker and Star to study boring infrastructure, the disappearance of scale, as well as Bruno Latour's call to follow controversy have provided me with a stage (or a theatric situation) that encouraged the protagonist role of the Weisse Wanne standard. It remains up to the reader to judge whether this choice is good or bad and whether it seems a reasonable experiment. While I suggest that both data

and people provide reasonable arguments for its protagonist position, I am also sure that others would not come to such a conclusion. The visibility of the Weisse Wanne in this paper, therefore, has to be closely related to the theoretical and epistemic suggestions provided.

Before telling more stories about this concrete standard, which was articulated by 25 Austrian men[29] in form of a 55 page guideline published by the *Österreichische Vereinigung für Beton- und Bautechnik*, it is necessary to present a broader introduction into the unpopular study of standards. What is a standard anyway? Who makes standards? And how do they matter? On the one hand this will inform the reader about some of the scarce academic literature dealing with standards, on the other hand, it will allow me to clarify some terminological questions that need to be dealt with before proceeding with a more specific discussion of concrete standards in Shkodra.

I) Standards:

The different authors dealing with the question of standards do not necessarily agree on the same definitions and interpretations, however they all seem to share one observation: namely that standards, norms and classifications get astonishingly little attention considering the formative influence they have on our daily lives (Brunsson and Jacobsson 2005: 7; Bowker and Star 2000: 3; Busch 2011: 2; Timmermans 2010).

"Remarkably for such a central part of our lives, we stand for the most part in formal ignorance of the social and moral order created by these invisible, potent entities" (Bowker and Star 2000: 3). The closer we look at the different processes and mundane elements that structure our daily lives, the more we realize to what a large extent they are standardized. Virtually all the technical tools and objects I touch during an average day are standardized - starting with my 140x200 mattress, on to the toasters power cord, my telephone, the elevator, my bicycle, my email conversations, the road signs as well as the height of the desk in the library in front of me. Standardized elements and procedures therefore not only grease the

[29] The Building and Construction sector is probably one of the most male dominated ones.

cogwheels of large companies and organizations, but also my very frustrating personal life. Standards are often vital in allowing us to predict what is going to happen next. A simple but powerful example for their service in making our lives a bit more predictable (and easy) is the standardized length and height of stairs. Those who have made the experience of climbing up stairs with randomized[30] heights and lengths will most probably have been very astonished about their sudden dilettantism.

But standards do not only form our lives indirectly through non-humans, they are also often directed at us humans:

"The *pundits of the worldwide fund for nature, the international women's rights watch, the international standards organization, the international football association, the international labor organization, OECD and many more cannot perhaps force us to follow their rules, but they still often manage to get us to do so"* (Brunsson and Jacobsson 2005: 1).

As this odd listing already portrays standards are in themselves not very homogeneous. Rather they appear as a varied group of texts that give rule like suggestions of how something is to be made or how someone/something is to behave. In this sense standards are also a manner of enforcing a certain "moral order." They function as articulated guidelines over what is good and what is bad. By demanding for certain ways of acting, standards have moral implications in our lives (Busch 2011: 239).

Some standards create uniformity and compatibility (QERTY keyboard or ISO containers) while others are designed to distinguish (certificates attesting organic quality) or rank (school grades). In this sense different standards might serve opposing ends. Whether they are targeted to create uniformity in a communist state, or whether they are supposed to enhance free trade in the European Union, they are always tools to regulate the behavior and properties of people and things. In his book "Standards - Recipes for Reality" Lawrence Busch goes so far as to argue that

[30] A particularly appalling example of such stairs could be found In the concentration camp Mauthausen. The stairs connecting the lorry and the camp were purposefully built with varying steps, so that many would fall (often to their death) when climbing them with heavy loads. (http://www.mauthausen-memorial.at/db/admin/de/show_article.php?carticle=368&topopup=1)

standards are in fact the place where "*language and world meet*" and that in this sense, they provide *"recipes for reality"* by precisely describing and prescribing how things and humans are supposed to function (Busch 2011: 3).

At this point it is important to differentiate standards from two related forms of regulation, namely laws and norms. Standards differ from laws in the sense that they are (usually) not obligatory. A certain company can choose to build their product according to a certain quality standard. However, it is possible that certain standards become law like or even actual laws. For instance many safety or environmental standards have transformed into laws in recent years. Many of the EU regulations exist in a grey area between standards and laws. Elizabeth Dunn in her study of European meat-quality standards in Poland presents a particularly interesting example in this regard. The meatpacking standards required for trading in the EU form a set of strict regulations on which parts of the animal might be used, how they have to be stored, and which hygienic precautions have to be taken (Dunn 2006: 173ff).

On the other side of standards are norms[31], which more or less explicitly regulate the way we are supposed to behave: for instance if I meet my Professor on the street I know to politely shake her hand rather than hugging and kissing her. The defining difference between norms and standards is that the prior do not have (easily traceable) authors, whereas standards do (Brunsson 2005: 13).

Sources or producers of standards are usually private (non-state) organizations, like the ISO (international standardization organization) the OECD or various national standardization organizations like the German DIN (Deutsche Industrie Norm) or the Austrian Ö-NORM. Since they are not 'issued' by a respective government, they do not have any legally binding qualities (Brunsson 2005: 2f).

Even if standards are not like "law" they often appear to be very formative and powerful once they are well established. In some cases it might even be more difficult to change an old and embedded standard than an actual law. Famous examples for the capacity of standards to persist are the QWERTY keyboard I am

[31] Please not the potential confusion arising from the German to English translation of Norm and Standard. In German the term norm ("Die Ö-Norm") can also refer to the (technical) standards whereas in English it does not.

writing on, or the Video Home System (VHS) format. Both these technological standards are widely agreed to be impractical, but nonetheless continue to exist. Besides political and financial interests that support a certain standard over another, they also develop certain inertia over time (Bowker & Star 2000: 14f). The better they are integrated and connected within a technical system, the more costly and difficult it becomes to change them. As Martha Lampland and Susan Star have observed standards come in layers, *nested* within, each fitting into another, like layers of a Russian doll. They are integrated in the sense that one standard requires the other to function as thousand of standards being evoked when I write and send a single email (Lampland & Star 2009: 7f). This 'layered' quality will also become visible in the next part, where I take a closer look at the Weisse Wanne and the ways in which this Austrian concrete Standard managed to arrive in Shkodra.

Hoping that such short introduction to the study of standards has given the reader some bearings, I will now return to the stories of the Weisse Wanne itself.

5a. Weisse Wanne: The Journey to Shkodra

A technology with a good view

For the second time in this paper, a story starts with someone standing on top of a reservoir overlooking a city. Only this time the reservoir has a capacity of 21.900 cubic meters instead of 8.000 and it is located some 113 meters above sea level rather than 80. (Picture 19) Apart from these quantitative variations the quality and technology are apparently more or less the same. It is the same particular compound of reinforced concrete - the Weisse Wanne - that simultaneously assures static stability and water-impermeability. It also has an inlet chamber that is fed from a series of wells, and an outlet chamber with its gate valves that gives control over the amount of water that is permitted to flow down into town.

Picture 19: Control room of a Viennese water reservoir on the Schafberg. (Photo: Winterleitner Heinz)

It was this reservoir on Vienna's Schafberg that the Albanian Project Implementation Unit (PIU) visited together with the head of the Austrian consultancy in November 2004. The way the story goes, he was very impressed with the technique this reservoir had been built:

"I think there was a visit by the PIU somewhere in Austria, he looked at reservoirs somewhere- and he was told: the technology "Weisse Wanne" that was the excellent technology, something like zero percent loss in 24 hours, nothing at all, completely tight, and he said: we also want to have this. (ADA Employee)

"So… the Albanian PIU was in Vienna, because I had told him the that the Viennese do it like that: and he looked at such reservoirs in Vienna, such that had been renovated two or three years before he came. What it looks like then…
And one […] on the Schafberg that was currently undergoing renovations. And on the construction site - I told you he was an engineer and he understood this - and then he said: this is the way I want to have it [in Shkodra]. (EPC Consultancy)

"Simply because the local [PIU] heard that - I don't know whether that tells you something - something like a "Weisse Wanne", a completely tight building…" (EPC Consultancy)

"The beneficiaries where visiting in Austria, and looked at the Viennese water works. Then they also wanted to have a Weisse Wanne… maybe an overkill…" (Austrian Engineer)

Having seen the process of construction the PIU wanted to have the same type of technology for the project in Shkodra. With this visit and articulation of interest, the Weisse Wanne set a first tentative foot in the direction of Albania.
Obviously the PIU didn't bring the physical reservoir with him back to Shkodra. Instead, he brought back the idea or aspiration of a completely tight reservoir. This idea was from now on associated with the name of an Austrian concrete standard and manifested in the construction site of the Viennese water reservoir on the Schafberg.
The technology did not manage to travel all by itself in digital or paper form, even though this would have been the cheapest and most efficient way. Instead, it needed some effort to actually 'make it' to Albania. After all the PIU had to travel to Vienna, he had to be convinced by the materiality of the reservoirs he visited and the articulation of quality that was stated with zero millimeters loss over twenty-four hours.
The *Weisse Wanne* got picked up as an idea, associated and referenced to a specific construction site. In order for it to travel to Albania, it had to be convincing and attractive

enough in Vienna, where it stood as a representative part for a Vienna's western and highly developed water network[32].

Through the introduction of such an Austrian standard - a new technology - it would be easier to forget that reservoir 4 had in fact already been built once before (see chapter 2a). Since the innovative technology of the Weisse Wanne promised zero percent water loss it was easier to talk about 'rehabilitation'. However, even if complete impermeability seems to be a goal well worth aspiring for, it is reasonable to ask why the local standard (which permits twenty-five centimeters of loss per day) was not applied. After all – we have seen in the first chapter - water supply is not really limited in terms of abundance and supply.

Not only for phonetic reasons, one could argue that the Weisse Wanne (*The White Vessel*) was in fact also a white elephant: a prestigious project functioning more as a symbol for progress and development than as a necessary infrastructural element. Such a judgment seems supported by one of the engineers, who suggested that the Weisse Wanne was 'over-kill'.

White elephant or not - the particular setup in Shkodra was in favor of such a fancy or even prestigious solution. The rehabilitation of reservoir 4 on the Tepe hills was a delicate issue as some actors where not eager to admit failure of the first version. In this particular arrangement of interests, the Weisse Wanne, as a concept of technological innovation and western / Viennese quality, became an important element.

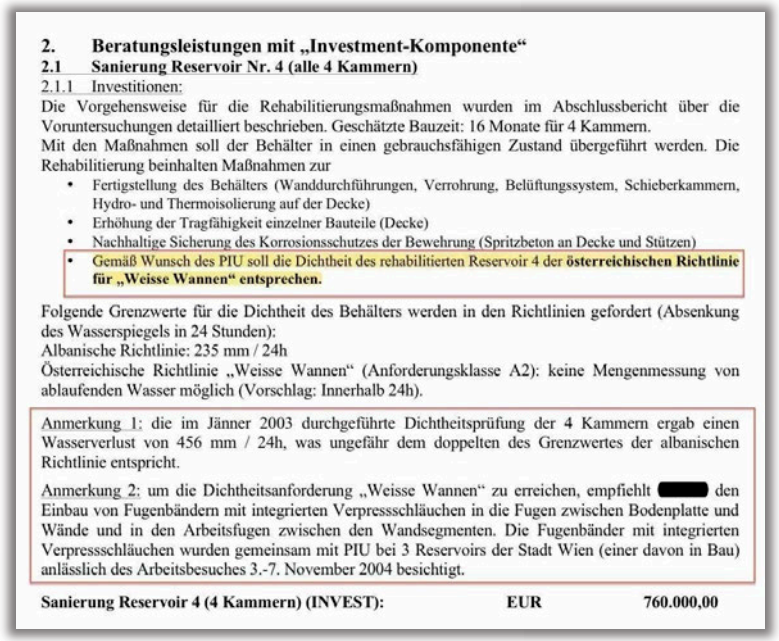
Albanian Engineer: *"…and this was a mess, because I told you the story. This reservoir must be a Weisse Wanne, because it's the price that is being paid… informally…*
So for the Austrian Engineer there was no chance to allow whatever shit.
Camillo: *but the Weisse Wanne thing was already in the tender?*
Albanian Engineer: *yes yes, it was even before the tender. Because ADA said, everybody said: ok Mr [Austrian Engineer], you want to convince us that this reservoir is a shit? –*
Yes, it is.
You want to do it again?
Yes we have to, it must be…
But then you really have to grant what you say is supposed to

[32] Viennas Water supply network has a good reputation- It has an exceptionally good network- in terms of infrstrcutre, water quality and management. (Source: http://www.wien.gv.at/tv/detail.aspx?mid=110317&title=Wiener-Wasser---Teil-1-von-2)

Yes, I grant it…
How?
With Weisse Wanne standards…
(Albanian Engineer)

As the cited interview section shows, the Weisse Wanne facilitated the diplomatic solution of 'rehabilitation'. The granting of the Weisse Wanne was a necessary pre-condition in order for other actors to agree to the project. It functioned as a catalyst for the 'entire' reservoir renovation project. The Weisse Wanne became the central point of reference.

After the Weisse Wanne on Vienna's Schafberg had been so persuasive as an elegant technology, it still had to become part of the reservoir project in a more formalized way. The setup of interests provided the necessary preconditions in order for our standard to become a bit more 'real' and tangible in Shkodra. The first time Shkodra's Weisse Wanne was mentioned in a contract was in December of 2004, when ADA, the consultant, and the Albanian ministry signed the tripartite contract cited above (Document 5). In the description of services that forms part of the contract there is particular mentioning of the WW:



2. **Beratungsleistungen mit „Investment-Komponente"**
2.1 **Sanierung Reservoir Nr. 4 (alle 4 Kammern)**
2.1.1 Investitionen:
Die Vorgehensweise für die Rehabilitierungsmaßnahmen wurden im Abschlussbericht über die Voruntersuchungen detailliert beschrieben. Geschätzte Bauzeit: 16 Monate für 4 Kammern.
Mit den Maßnahmen soll der Behälter in einen gebrauchsfähigen Zustand übergeführt werden. Die Rehabilitierung beinhalten Maßnahmen zur

- Fertigstellung des Behälters (Wanddurchführungen, Verrohrung, Belüftungssystem, Schieberkammern, Hydro- und Thermoisolierung auf der Decke)
- Erhöhung der Tragfähigkeit einzelner Bauteile (Decke)
- Nachhaltige Sicherung des Korrosionsschutzes der Bewehrung (Spritzbeton an Decke und Stützen)
- Gemäß Wunsch des PIU soll die Dichtheit des rehabilitierten Reservoir 4 der **österreichischen Richtlinie für „Weisse Wannen" entsprechen.**

Folgende Grenzwerte für die Dichtheit des Behälters werden in den Richtlinien gefordert (Absenkung des Wasserspiegels in 24 Stunden):
Albanische Richtlinie: 235 mm / 24h
Österreichische Richtlinie „Weisse Wannen" (Anforderungsklasse A2): keine Mengenmessung von ablaufenden Wasser möglich (Vorschlag: Innerhalb 24h).

Anmerkung 1: die im Jänner 2003 durchgeführte Dichtheitsprüfung der 4 Kammern ergab einen Wasserverlust von 456 mm / 24h, was ungefähr dem doppelten des Grenzwertes der albanischen Richtlinie entspricht.

Anmerkung 2: um die Dichtheitsanforderung „Weisse Wannen" zu erreichen, empfiehlt [redacted] den Einbau von Fugenbändern mit integrierten Verpressschläuchen in die Fugen zwischen Bodenplatte und Wände und in den Arbeitsfugen zwischen den Wandsegmenten. Die Fugenbänder mit integrierten Verpressschläuchen wurden gemeinsam mit PIU bei 3 Reservoirs der Stadt Wien (einer davon in Bau) anlässlich des Arbeitsbesuches 3.-7. November 2004 besichtigt.

Sanierung Reservoir 4 (4 Kammern) (INVEST): EUR 760.000,00

Document 6: Section of initial project contract, referring to the Weisse Wanne guideline. [Emphasis Added.] (ADA Project Archive)

After this first contractual reference, which meant that the three parties to the contract agreed to the idea of the Weisse Wanne, the tender and consequential service contract with the construction company articulated necessary procedures in far greater detail. The general idea

of a tender[33] is to create competition by publicly calling for offers regarding a specific product, measure or project. The tender for reservoir 4 was about 100 pages long and included detailed descriptions and listings of all works and materials that were required. Several construction companies made a bid in order to be hired for the job. The companies were then evaluated by the consultancy in regard to their offer and their capacity to provide the requested product. In our case the tendering procedure only produced a single candidate company, which appeared suitable according to the Austrian consultant.

Through the signing of the contract, the various rules and requests set up in the tender become legally binding for the construction company. It is in this specific moment, namely the signing of the service contract, that the Weisse Wanne's chances of physical manifestation grew significantly. Through such a contract, the standard suddenly connects not only to some engineer's ideas and ideals, but also to various rights and obligations that are guaranteed legally and that can be enforced in front of a court of law.

"All Austrian or other standards and guidelines mentioned in the General Condition of Contract shall be deemed to be part of the Contract. All references to such standards shall be to the latest edition or revision thereof unless otherwise stated. The contractor shall apply all standards, technical regulations laws etc. mentioned in these bidding documents." (Project-Tender)

Since standards are of interest in this paper, it is necessary to highlight, that both contract and tender are themselves governed by a specific Austrian Ö-Norm A-2050 (procurement of works, services and supplies). The building standard(s) that define our protagonist, are thus themselves inscribed into the project through a standardized system of tendering. While the oral accounts about the arrival of the Weisse Wanne in Albania might be more fuzzy and questionable, the existence of a proper paper trail seems to be a legitimate indicator for its true presence.

[33] It might be worth referring to the German term for "tender; namely "Ausschreibung" which in its literal translation would mean something like "description, or Ex-scription".

5b. Uniformities across Time and Space

I) Technology transfer

When trying to theorize the Weisse Wanne's journey from Austria to Albania, a first matter of concern is the terminological question of how to name this journey. The technical term used by ADA to describe this type of activity is "technology transfer" and refers to the "*transfer of a new technology from developed to less developed countries in an attempt to boost their economies*" (McKean 2005).

This concept gets a fair bit of publicity and attention both in development theory and development practice. Most aid agencies' flyers, guidelines and manuals will speak of it as a goal or target in their activities. Many project papers (including the one studied here) articulate *technology transfer* as one of the principal tasks (Escobar 1995: 36).

In fact I would even go as far as arguing that a mainstream understanding more or less equalizes the term development with that of technology transfer. The basic assumption is that the excellent technology we have in our 'developed' countries is source of our productive prosperity in particular and our modern existence in general. The introduction of new and innovative technologies from the developed to developing countries is consequently seen as one of the most important aspects of progression towards something better or at least a 'better' economy (Sachs 2010: 308 f).

In the early days of development cooperation this implied that an object - say a computer, pump or some agricultural machine - was put in a box[34] and delivered from Austria to Albania. What both academics and practitioners had painfully realized over a rather longer than shorter period of time is that these transfers did not always function very well.[35] Considering the endless accounts of dysfunctional

[34] This *genre* provides a seemingly endless supply of excellent anecdotes. For instance there are accounts where the *recipients* were more interested in the excellent wooden boxes that functioned as a packaging for some fancy machinery.

[35] When making such pejorative or dismissing remarks about the efforts of technology transfer, it is important to highlight that I have learned most of this from the actual engineers involved in the project at hand. It would thus be completely misleading if I were to accuse them of ignorance and incompetence. Instead I would say that they are extremely sensible to the enormous amount of work and translation that is necessary for a simple device to function far away from the networks they call home!

machinery, it seems legitimate to argue that failure was in fact the rule and success rather the exception. Engineers, development experts as well as so called beneficiaries will be capable of recounting various stories of literally dead technology: of purification plants that did not function a single day, of solar cookers that have been abused as roof tiles and of tractors that will never move.

Scholars like the above-cited Wolfgang Sachs would argue that the practice deriving from such a conclusion is rather harmful than beneficial. The introduction of technologies is perceived as a neo-colonial venture seeking to stabilize and enforce the hegemony of western capitalism with harmful effects for both local environments as well as local peoples (Sachs 2010; Ziai 2004: 1048). A central and highly disputed example of such controversy is the “green revolution”. This refers to the introduction of highly mechanized agricultural practices (particularly the introduction of hybrid or genetically modified crops, as well as fertilizers) to *developing* countries. While some questions regarding the ‘good’ and ‘bad’ will be asked in the final chapter it will not be the aim to evaluate the Weisse Wanne in such a manner. Rather the idea is to try and understand how scientific practices and technological configurations can stabilize in different places (Warwick 2002: 649).

It is obvious, that science and technology do not diffuse from center to periphery in a quasi-evolutionary manner. John Law also stresses this point when writing that *“[…] technologies do not originate at a point and spread out. But instead […] they are passed. Passed from hand to hand”* (Law 1999: 2). The Weisse Wanne needed various connections in order to become attractive and easy to handle. The visit of a reservoir in Vienna combined with the excellent reputation of the cities water supply system attached a certain symbolic - even moral - value to this technology. I believe that such an immaterial valuing of the Weisse Wanne closely associated it to the ‘classical’ understandings of development I have presented above. Its property as a very specific technical concrete guideline became secondary to its capacity to represent a notion of good Viennese (western) technical development. The notion of ‘high quality’ embodied in this technical standard, is also moral in the sense that it suggests how ‘things’ are supposed to be. An unexpected hint for this connection between standards and morality of development was given in the headline of a

newspaper article published about reservoir four. In the headline of *Document 7* the Authors write that the "*[…] planned rehabilitation (Weisse Wanne) of reservoir 4 can be seen as a first step towards normality.*" Particularly when recalling that 'Norm' is the German term for standard, it becomes obvious that good normality and development are reached once Austrian norms (i.e. the Weisse Wanne) have arrived in Shkodra.

Wien hilft Shkodra bei der Hochbehälter-Sanierung

von CHRISTOF HAHN

Standen beim ADA-Projekt Shkodra zunächst die „Basics" der Wasserversorgung im Vordergrund, kann die geplante Behältersanierung als erster Schritt in Richtung „Normalität" gelten.

Document 7: Standardized Normality. Newspaper article in Austria promoting the project. (Source: Aquapress 2005)

Thus, in order to fit into the Tepe hills it became more - or something else - than 'just' a concrete guideline. As John Law writes, technologies - like the one under scrutiny here - change as they are passed on, becoming less and less recognizable (Law 1999: 2).

This multiplicity of meaning also makes it easier for various actors to agree as they can each prioritize their 'interpretation' of the technology. This plurality was also described by one of the engineers when he said that the Weisse Wanne was *"a term, a concept, a technology, a state of the art and an Austrian construction standard…"* (Engineer). Our protagonist is a reservoir in Vienna, it is also an idea about development (maybe even about modernity); it is a political and diplomatic solution for a situation of colliding interests; it *is* a document with fifty-five pages; it *is*

a technical standard that allows comparability and predictability across space and time. Most probably it *is* also a fair bit of other things, vastly transcending the ontological binaries that are offered by a constitution that only accepts subjective OR objective, social OR natural entities. In order to grasp better this heterogeneous assembly, this hybrid actor, I will introduce the concept of 'boundary objects' that was developed by Susan Leigh Star and James Griesemer in 1989.

II) The 'Weisse Wanne' as a Boundary Object:

According to its inventors, a boundary object *"[…] is an analytic concept of those scientific objects which both inhabit several intersecting social worlds and satisfy the informal requirements of each of them*" (Star&Griesemer 1989: 393). The Weisse Wanne was both stable and flexible enough to persist in the projects network: it was flexible enough to allow different interpretations or at least different connotations that would satisfy the involved parties. At the same time it was solid and concrete enough in order to persist. Our protagonist was *"both plastic enough to adapt to local needs and the constraints of the several parties employing them, yet robust enough to maintain a common identity across sites"* (Griesemer&Star 1989: 393).

Particularly in the beginning of the project, it was important that the Weisse Wanne had the necessary flexibility in order to suit the different interests and sites. As a promise of complete impermeability and simultaneous static stability, it seemed uncontroversial and fit for diplomacy. Supported by its existence on the Schafberg in Vienna, it could rather easily be included in the project's contract. Through the legally binding quality of the contract, the Weisse Wanne had not only crossed over several national boundaries, but it had also crossed into a legal realm. This connection to a 'legal world' is of central importance as it greatly increased its 'stability' and 'reality'. Contracts like the ones I have cited above have to be printed out and physically signed by all the involved parties, thus enhancing the robustness of the Weisse Wanne. The contractual agreement is powerful as it puts a (usually financial) cost on disagreement and failure to deliver. This means that technical ideas like the one concerned here, can more easily maintain (at least in terminology) a common identity across sites. As a boundary object, the Weisse Wanne is a place where " […]

persons with different histories, values and desires were able to stabilize a set of practices that may well have different meanings to them" (Busch 2011: 25). For the concrete factory it is the effort of weighting mixing and testing; for ADA it is a synonym for technology transfer and western "development" in Shkodra; for the construction company it is a complex set of requirements and practices on site; for the PIU it is a reservoir in Vienna and for the Austrian consultant it was a familiar concrete standard that had become legally binding through the tender.

This capacity to be so many different things at the same time made the Weisse Wanne suitable to enter the center stage of the reservoir 4 project, mediating the different actors' interests.

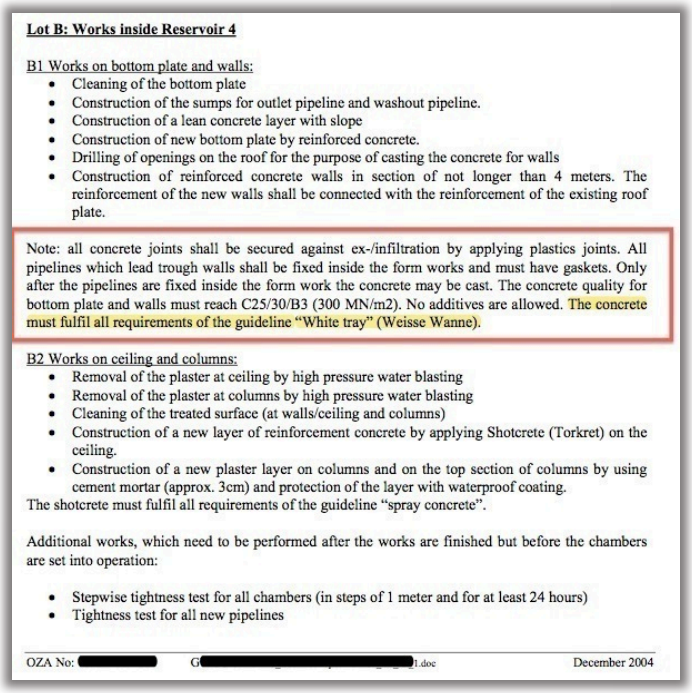
6a. 'Weisse Wanne' Almost Dies

"Much support is needed in order to solidify a concrete idea"

Picture 20: Support for Formworks in Reservoir. (Photo: ADA Project Archive)

In the last chapter I have tried to explain and describe how the Weisse Wanne became the focal point of our story. It can be debated whether its journey from Vienna to Albania was an arduous one. It took more energy and work than one might expect for a more or less simple building standard to travel from one place to another. After all the simplest would have been to just go to the post office and send the relevant guideline of the Austrian concrete association (Österreichischer Betonverein). Sending this fifty-five page document would probably have cost no more than five euro plus the price of fifty-four euro to buy the guideline from the concrete association. Instead of this most efficient mode of conduct someone had to travel from Shkodra to Tirana (1.5 hours drive) and then take one of the two daily and overpriced Austrian airlines flights from Mother Teresa Airport to Vienna. Even though I have little to no experience in organizing such 'business trips' I assume that they take a whole lot of work and money: arranging hotels, site visits, making sure that the right people are in the right spot, discussing concerns about weather and lunch and so on. In any case the point I want to make is that there could be cheaper and easier ways for the idea (ideal) of a

technical standard to cross some borders. While it seems important to have a notion of the amount of 'work' that is necessary to transport and translate such a standard from one place to another, I would in fact argue that this first translation[36] of an ideal standard from Austria to Albania really was quite 'cheap' and easy. Instead of depicting it as a hassle for its own sake, we can recall the political tensions that surrounded the old reservoir 4. In this sense the Weisse Wanne was a welcome or even necessary diplomatic tool that allowed for all actors to proceed without loosing face. Besides this first argument that *one* business trip to Austria really is not that big a deal in order to solve such a dilemma, I will now try to bring a second maybe more persuading one: If we look at the effort it took to translate the idea from Austria to Albania, then this looks like a pathetic feat compared to the amount of work necessary for a second translation from the ideal and written into something concrete and solid. Had the solidification of the Weisse Wanne on the Tepe hills not been so controversial and so disputed, I would probably never have found out about it at all. After all, its written mentioning in the technical specifications of the tender and the bill of quantities seem to be prone to overlooking.



Lot B: Works inside Reservoir 4

B1 Works on bottom plate and walls:

- Cleaning of the bottom plate
- Construction of the sumps for outlet pipeline and washout pipeline.
- Construction of a lean concrete layer with slope
- Construction of new bottom plate by reinforced concrete.
- Drilling of openings on the roof for the purpose of casting the concrete for walls
- Construction of reinforced concrete walls in section of not longer than 4 meters. The reinforcement of the new walls shall be connected with the reinforcement of the existing roof plate.

Note: all concrete joints shall be secured against ex-/infiltration by applying plastics joints. All pipelines which lead trough walls shall be fixed inside the form works and must have gaskets. Only after the pipelines are fixed inside the form work the concrete may be cast. The concrete quality for bottom plate and walls must reach C25/30/B3 (300 MN/m2). No additives are allowed. The concrete must fulfil all requirements of the guideline "White tray" (Weisse Wanne).

B2 Works on ceiling and columns:

- Removal of the plaster at ceiling by high pressure water blasting
- Removal of the plaster at columns by high pressure water blasting
- Cleaning of the treated surface (at walls/ceiling and columns)
- Construction of a new layer of reinforcement concrete by applying Shotcrete (Torkret) on the ceiling.
- Construction of a new plaster layer on columns and on the top section of columns by using cement mortar (approx. 3cm) and protection of the layer with waterproof coating.

The shotcrete must fulfil all requirements of the guideline "spray concrete".

Additional works, which need to be performed after the works are finished but before the chambers are set into operation:

- Stepwise tightness test for all chambers (in steps of 1 meter and for at least 24 hours)
- Tightness test for all new pipelines

OZA No: [redacted] G[redacted].doc December 2004

Document 8: Section of the public tender, specifying the Weisse Wanne; [emphasis added] (ADA Project Archive)

[36] Maybe the latin origin of *translatus "carried across"* will excuse or even justify my excessive usage of the term.

I) Weisse Wanne: Crying for the Moon?

Even today, almost exactly four years after the completion of works at reservoir 4, some of the actors disagree whether the Weisse Wanne was possible or not. One Albanian engineer who worked for the Austrian consultancy insisted that it was not that complicated and that everything had been explained properly:

"[…] and they knew that he was not doing bullshit. Only he was not talking bullshit - but he was also not crying for the moon. This [the Weisse Wanne] is possible. And he is not crying for the moon. So he was doing very… - the same as I am discussing with you - it looks like this and this is like this because this is like that… but even if he had this, he had conflicts at certain points." (Albanian Engineer)

Another interviewee who had assisted ADA during the time, made a similar point when stressing that the whole thing was not so exceptional:

"[…] From a mere technical point of view one can say that this … that most of the projects where not an exceptional challenge. Regarding Shkodra, you install a reservoir, yes - with a state of the art like we have it in central Europe - but the big difficult part is really how to implement in under differing conditions." (EPC-Consultancy)

As the Weisse Wanne 'itself' is not really the problem according to these two quotes, the implication is that other 'conditions' in place were more challenging. According to the Austrian engineers this was particularly the commitment of the local construction company. Not astonishingly they had quite a different opinion on this matter instead arguing that the idea of building a Weisse Wanne was a more or less utopian quest:

*"To buy the concrete, and it is ok… but where can we buy the concrete regarding ONORMA, where it doesn't exist at the factory. [The consultants] have done a solution that wasn't ideal. The solution for concrete - **it wasn't real. The solution for construction (was) not real."**(Construction Companies Engineer [Emphasis added])*

Interestingly the local construction companies boss, argued that the Weisse Wanne, as a Ö-Norm concrete, as well as the construction guidelines were in fact not real. Insisting on this fictional character of the Weisse Wanne he continues saying that:

"[…] For example we pretend to take Önorma-"UFO"[37]. And I said it will be regarding the UFO-Norm. And the question is, is there in this world, is there any production, any factory that produces regarding the UFOs norm? No! We can't do this project, in Shkodra and all over Albania, doesn't exist a factory that produces regarding the Önorma, because when we - when you have done a tender, you haven't got the company that produces the concrete." (Construction Company's Engineer)

While opinions between the plausibility or implausibility of building a Weisse Wanne in Albania differ, it is clear that the effort of doing so caused a lot of problems and controversies. In order to understand better what the Weisse Wanne was and what it meant in the Tepe hills I outline how the project almost came to an end on several occasions. By telling these stories of difficulty I hope that the reader will also learn a fair bit about the Weisse Wanne itself, assuming that such trajectories of controversy carry more accessible information than the technical guideline itself.

II) Chronology of objections to existence:

In chapter five I have illustrated how the Weisse Wanne as a concept and as an articulation, fit well into the strategic situation of 2004. In a way this Austrian high quality standard saved the face of those who had been responsible for the construction of the first reservoir 4 alias 'noodle drainer'. Simultaneously, it was also in line with the economic interests of the consultant who could yet again extend his engagement in Shkodra (see table project history). This first arrival in written text of the tender and project contracts came quickly and with ease. However easy this first step of transferring (or translating) a Weisse Wanne to the Tepe hills might have been, the second step of 'actually' building it caused so much controversy that the Project was on the brink of abortion more than once. In the following I will tell some of the stories that show how difficult the realization of reservoir 4 according to the Weisse Wanne guidelines was.

[37] UFO stands for unidentifyable flying object, and is used to highlight the absurd and fictional concept of building a Weisse Wanne on the Tepe hills.

1. The Factory:

As an engineer from the Albanian construction company pointed out above, the first and maybe most fundamental problem was related to the concrete itself. The Weisse Wanne guideline required a particular concrete recipe in order to achieve the necessary strength and density. The actual material ingredients of the Weisse Wanne refer to another standard, the Ö-Norm B-4710-1 that specifies quantities and qualities of water, aggregate and cement. Water, as well as aggregates used had to be hygienically unproblematic and added to the mixture at a certain temperature (not to hot not too cold). The quality of the most eloquent ingredient, namely the cement (always Portland cement) is again specifically defined by yet another Ö-Norm (the B 3327-1). The aggregates must be added in following sizes and ratios according to B-4710, with 37% Sand (0-2 mm); 13% Sand (0-4mm); 15% Gravel (4-12.5mm); 35% Gravel (12.5-25mm). The alluvial sediments around Shkodra, which I have praised as a good aquifer in the beginning also provide a good local source for the sand and the aggregates. The particular Portland cement, not commonly used in Albania, had to be ordered from Italy. After getting these ingredients the slightly more difficult task was the task to mix them in the correct ratio that I have indicated above. In order to assure the correct mixture, the Weisse Wanne also specifies that the instruments used to filter and measure the different ingredients have to be checked and verified by a third party controller. The first serious challenge to this primary step of producing the Weisse Wanne for the reservoir was to find a concrete factory that would have the necessary precise measuring equipment as well as the trained staff to assure an accurate mixture. Together the Austrian consultants and the local construction company set out to visit various yards. As no suitable factory could be found, the factory had to be 'brought' to Shkodra. The construction company that was in charge of organizing the concrete hired an Italian Engineer and bought equipment so that a plant in Shkodra would at least theoretically be capable of producing concrete according to the standardized quality required in the contract.

2. The 3rd Party Control

The Weisse Wanne is a suspicious technology. Besides listing which ingredients and which processes are necessary in order to build a reinforced concrete structure, it also takes much effort to explain how these materials and processes are to be verified and tested. In fact it almost seems like this verification and testing takes up far more space than the 'actual' recipe. The most obvious and most expensive manifestation of this suspicion is the requested 3rd party

control - assuming that the involved parties are also driven by their own (financial) interests. The Weisse Wanne requires that a certified and unbiased concrete institute tests the concrete at different building phases. This 3rd party controller is in charge of verifying the ingredients used in the factory, the measuring instruments and the quality of the mixed concrete in liquid form as well as its strength in solid form.

Besides having a certain official accreditation this 3rd party controller also needs to have a set of sophisticated machines and tools in order to perform the various tests required. The issue that presented itself in our case was that initially no such 'institute' could be found. Or at least no agreement was found whether the available institutes were adequate. Here again, the building of the Weisse Wanne was endangered as a lacking third party control would have hindered the strict rules of verification requested by the standard. Even if the final target of zero percent loss would have been met without the 3rd party control the concrete structure could not be called a Weisse Wanne. Thus the procedure of 3rd party control is part of the actual Weisse Wanne, as the latter can only exist if all given requirements are fulfilled. Fortunately the consultant and the company could eventually agree on a small mechanical laboratory found in Tirana.

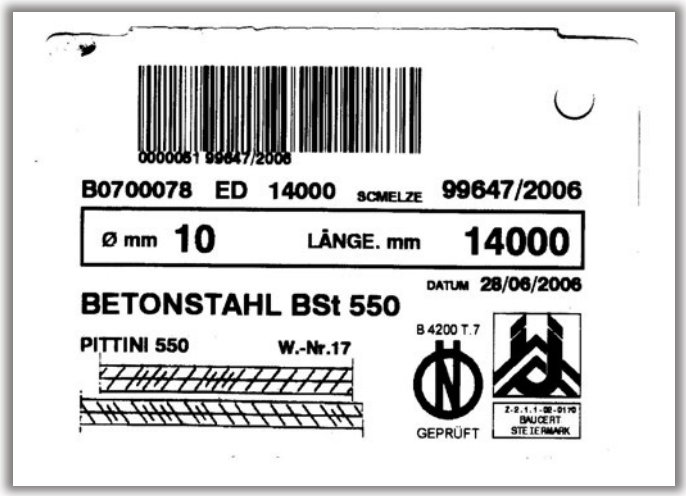
3. Reinforcing the concrete idea:

Picture 21: Piled up steel-bars after delivery. (Photo: ADA Project Archive)

Even if several conditions for our Weisse Wanne in the Tepe hills had been met it still needed serious reinforcement. All by itself, concrete might still be quite hard, but also very brittle, breaking easily under tension. It is for this reason that concrete structures are usually reinforced by steel bars, which effectuate the required resilience. (Picture 21 and 23) Not

visible when complete (unless severe errors occur) the steel reinforcement is of central importance for the structures static stability.

Of particular relevance in the case of the Weisse Wanne is the reinforcements capacity to reduce the creation of cracks. The latter occur when the curing of the concrete takes place with too much heat development consequently hardening too quickly. For these reason the Weisse Wanne requires not only a specific type of steel certified according to the Ö-Norm B-4700-7 but also a specific weaving and arrangement (density) of these steel bars. As with the concrete, the steel bars were ordered from an Italian plant, which produced according to the Austrian Ö-Norm. Picture 22 represents the certificate that is supposed to be found on the bundled steel bars.



Picture 22: Label of BSt 550 steel certificate required for Weisse Wanne. (Photo: ADA Project Archive)

However, the steel that arrived on the construction site was a slight variation of the initially agreed upon. Instead of BST-550 the Austrian supervisor identified it as a BST-500 that had not been certified according to Austrian standards but instead with the German DIN. Document 9 graphically expresses the differing certifications of the steel that arrived on the site. As a function of time pressure and costs, it was out of the question to send back the BST-500 in order to get BST-550.

In order not to risk 'loosing' the Weisse Wanne, a construction halt was ordered. Besides various documents specifying the DIN certification of the BST-500 it also became necessary to make new calculations and drawings of the reinforcements arrangement. Put very bluntly it was necessary to find out how many 'extra' bars would have to be added to make up for the fact that the BST-500 is thinner than the supposed BST-550.

Aside from causing quite a stir on the construction site, the ongoing difficulty also causes serious unease with the financing party. ADA employees were unwilling to engage in the ever-increasing issues and specificities concerning the concrete quality.

Document 9: Austrian engineer highlights the difference between different BSt labels. (Source: ADA Project Archive)

Picture 23: The Reinforcing steel-bars installed in the formworks. (Photo: ADA Project Archive)

It seems like this time the difficulties that arise from following the Weisse Wanne guidelines not only endanger the achievement of the standard itself, but that of the entire project.

"Missing quality of construction as well as safety risks, will not/must not/can not/ be tolerated by us." (ADA employee)

The fear of producing 'sub-standard' concrete as well as the issue of passing time appear to be ever more unbearable. The project is ever more often referred to as "our problem project" and ADA employees on the one hand insisted that the contractually agreed upon quality must be reached, while on the other hand being increasingly concerned with the constant delays. After all, according to the initial plan the project should have been finished in 2006, whereas people were still discussing steel quality in the summer of 2007.

4. Human Safety Standards a Moral obligation:

"But if something happens in an ADA project- I mean the tragedy is always the same, but you really cant afford something like that in a project financed by Austria- that working (safety) standards are not respected…" (EPC Engineer)

As this Austrian engineer's quote already indicates, the safety of humans involved is of paramount importance, particularly because it is a project financed by the Austrian government. Besides the tragedy of human loss, there would also be potentially serious political repercussions, if workers involved in an Austrian development project are hurt. Such an event would be in stark contradiction to the basic notion of 'helping' and 'assisting' the Albanian people in their progression towards something better.

Whether we see this concern about safety measures rooted in an authentic concern for others, or rather as a part of a strategic foreign policy in this instance does not really matter. The point is that people both speak and behave in way that suggests the importance of human safety. In some instances the criticisms of lacking safety standards would emphasize the intrinsic 'bad' of a potential accident. While this basic notion of safety as a 'good' thing was always maintained it was sometimes supported by other more pragmatic arguments and references:

"In Austria it is the obligation of the Contracting Authority to call the POLICE to stop all works, if not even the minimum safety measures are provided by the contracted company.

I would like to remind all involved parties again about the strict order from ADA that the safety measures for the workers must have priority.
The safety issue is also inscribed into the contract by stating, 'the contractor shall be responsible for the safety of all activities on the site.' " (Austrian Engineer in writing to Albanian company)

This quote was sent by the Austrian consultancy to the local construction company in order to remind them of the importance of keeping the necessary safety standards.
In this case three strong arguments are made to plead for an improvement of safety measures. First of all it states that in the homeland of the Weisse Wanne, the issue of workplace safety is a matter of policing and that consequently the construction company can consider itself lucky that it 'only' receives criticism by its supervisor. Secondly, a reference is made to an order by the ADA - the source of money, which must thus not be displeased under any circumstances. Finally, a point is also made in regard to the formalized (legalized) nature of the moral obligation to take care of the workers, as expressed in chapter 15 of the general contract.
This reasoning had a significant impact on the project - at least in regard to the reports and interviews that are framing my elaboration. The issue of safety was seemed a source of constant controversy, the construction companies behavior perceived as chronic offense towards the values of workplace safety which were supposed to represent an Austrian standard. While ADA and the consultancy were eager to time and again point towards these issues, the construction company would not put less emphasis on the topic - insisting that things were safe enough.
After having roughly sketched out how the issue of human safety was discussed in regard to the construction site, it is still necessary to show more precisely the controversial places where safety measures were missing. Once again it was the digital camera that was enrolled as a helpful tool in order to proove the inadequate and dangerous workplace reality.
To the innocent observer picture 24 will probably not arouse any anger or even indignation. We can see an apparently unfinished concrete building surrounded by the troubled earth of a construction site. Readers accustomed with construction sites might be quicker to notice the wooden plank that leads from - what in this case is the road - into the opening of the building.

Picture 24: Wooden Bridge with and without safety measure. (Photo: ADA Project Archive)

It is pictures like this one (that exist in the hundreds) that caused rather more then less outrage. It represents the high safety risk for workers when crossing the 'bridge' which lacks a security handrail. After various complaints and reports about such missing safety measures the construction company installed the necessary handrails (see Picture 24). The construction company, which is in charge of the 'safety' on the worksite, was reminded on innumerable occasions about the risk to human lives.

5. Concrete Death in due Time

Whether days, seasons, deadlines, or fiscal years, time usually elapses far to quickly. Above I have already indicated that the passing of time was one of the major issues in the project. The formalized and agreed upon schedule for the projects implementation chronically diverged from what was *actually* happening. Particularly from the perspective of ADA a quick and painless project implementation is intended. The longer a project takes, the more money it consumes and the more work it creates. As an ADA employee bluntly put it: "***better a project with a bad ending, than a never ending project.***" In this sense it might seem plausible to say that the only thing worse than things going wrong (as portrayed above) is when things don't go on at all. While most farmers are still bound to the climatic rhythm of the four seasons, bureaucratic institutions like the project at hand usually

take less interest in them. Much more important than temperature or precipitation is the fiscal year laid out by the accounting department and the various contractually agreed upon deadlines. The rehabilitation of reservoir 4 was of course formally tied to such temporal agreements. But it was also bound to the climatic situation in the Tepe hills through the particularities of the Weisse Wanne guideline. Its strict rules caused significant temporal delay by forbidding the casting of concrete outside of a certain temperature range. In summer, work was impossible since the Weisse Wanne must not be casted above a temperature of 25 degrees. As already briefly indicated above, such high temperatures would lead to an overly fast curing and result in weakened strength and development of cracks. But not only hot temperatures restrained the Weisse Wanne, also cold temperatures below five degrees were prohibited. Here the danger lies in the occurrence of ice crystals that would have negative effects on the concretes robustness. Seasons - and their respective temperatures - were of course not the only source of delay. Issues like the discussion on steel, the finding of an appropriate 3rd party controller and a multitude more continuously led to delays. The bureaucratic and legal adaptation to these delays are very formalized 'requests for prolongation.' These requests were usually seen warily by ADA, who (like most donors) are in favor of quick and painless projects:

"Discussions about a prolongation of the contract have to also consider other ways of procedure, and other options. […] One option could be to abort the project. This would make a prolongation of the contract unnecessary." (ADA Employee)

On another occasion ADA´s Tirana office is even more specific in suggesting that a project termination is the most viable option:

"We do not assume that the construction company will manage to bring the necessary documents and measures in order to provide the contractually agreed upon concrete and steel quality. Further the atmosphere in the project is very tense. […] We are convinced that under the involvement of these actors- people as well as companies - no solution will be possible. The construction company does not want- or is incapable - of fulfilling the demands. The human relations between all actors are tense and strained. […] Therefore we suggest the final measure of terminating the project. (ADA Employee)

Fortunately however, the project as a whole continued to exist despite these strong words of opposition and doubt. An interesting aspect was that regardless of the different actors disagreement on the continuation of the project, they all seemed to agree on the paramount importance of the Weisse Wanne. At least the Austrian actors and the PIU considered it a worse failure to inadequately produce Weisse Wanne than the fail to carry out the entire project. The engineers from ABC that were consulting ADA at the time elegantly portray this centrality of the Weisse Wanne:

"*The abortion of the project would generally be a possibility. However I believe that in the current phase this would not make much sense, as the Quality provided by the company is good. (Meaning that they by now actually know how to do it) and it more or less 'only' is a question of Time (a few months). The Austrian Development Cooperation would then have implemented one of the first 'state of the Art reservoirs' in Albania, given the Water Works an excellent service and would enter the new cooperative project with positive energy (without side-stabbing and endless discussion over the reasons of failure)." (EPC Consultancy)*

Not astonishingly the consultancy in charge of planning and supervision also opposes the idea of a project abortion. Besides arguing that a stop would have significant negative effects for Shkodras Water Works (the beneficiaries), they also insisted that the idea of the Weisse Wanne should not be dropped because of the potential financial and legal implications it would have if the contractual quality is not provided.

6b. On the Reality of Projects

I) The thin line of Existence

"*The reality of a development project too is always in question and remains so even during execution"* (Mosse 2005: 157).

The Weisse Wanne as a particular technology but also the project assembly as a whole has been close to death. Termed a 'problem project' the line between 'technical' and 'social' is blurred by the involved actors themselves. The issue is a

'socio-technical' one, in a network of hybrid relations, so tightly knitted that it appears seamless (Felt et al. 1995: 182). Reports of lacking progress, missing machines, cracking concrete and deadlines creeping by continuously increased the pressure and tension within this project. The network of human and non-human actors which constituted the project was close to breaking up, as the gap between written project documents and tangible reality on site widened ever more.

The project's reality - its capacity to persist - appears closely linked to this tension between the written project paper and the 'objective' processes that take place. Once dates, temperatures and measures on the construction site differ too greatly from the proscribed contractual agreements, this socio-technical assembly looses its credibility. Particularly the financiers worry that the whole endeavor might not be viable after all. The technology of the Weisse Wanne appears too strict, rule-bound and demanding for materials and workers in Shkodra. Obviously, opinions over why this was the case differed greatly. As the construction company's statements on the "UFO-standard" have shown, some argued that the entire endeavor was impossible from the beginning. Considering the mentioned challenges, reservoir 4's path back into a 'ruin' would have been a quick and easy one, coming at much less expense than continuation. This ease of failure was crystalized in the comment by on ADA employee when stating his preference for *"a project with a bad ending than a never ending project" (ADA Employee).* The failure to deliver, as well as the non-fulfillment of agreed upon deadlines, would have provided the necessary legal arguments for an early termination.

In order to continue its existence, the project as a whole, and the Weisse Wanne in particular, needed to uphold and perpetuate its connections and relations within the network. This web of action allowed for workers to be on site, for materials to be delivered, for reports to be written and for money (and water) to flow.

However, once these relations are broken, the project vanishes. When no more action takes place the project looses its (procedural) reality (Latour 2002: 71). In order to avoid such a halt in action and in processes, not only the actual machines and tools on site need greasing and maintenance: a continuous flow of standardized and rule based paper trails accompanies and sometimes substitutes activity on the

construction site (Mosse 2005: 123). If nothing happened on the Tepe hills, at least the daily protocol would note this missing activity. These paper trails, that form much of the data permitting me to tell the story, put a certain calm to the project. They guaranteed, that even when there was no construction going on, there would at least be some reporting taking place.

II) Agency is distributed in the projects network:

When considering the apparent fragility of the project that was presented in the previous section, it seems legitimate to ask who or what is the 'driver' of such events. After all it would be interesting to know 'who's fault' it is that things went badly (or well). Ideally we could make out a single human actor, or an organization that is most influential and powerful in structuring the events that take place. However when observing the way that events took their course, it is difficult to make out a human or organizational behemoth (or leviathan) that is in control. Instead the many mundane problems that almost caused the project's disassembly reflect a chronic lack of control and power.

It becomes apparent, that agency is less clearly distributed than one expects. Despite the more or less clear contractual situation, the *actual* lines of influence are difficult to untangle. Neither the Albanian PIU nor the ADA, the two officially "most powerful" actors in the project were capable of directing and composing in the way they want to. Instead their actions were driven by insecurity and constant unease about *'what is'* and *'what isn't' happening.*

Considering the apparently helpless manner in which the different actors played the game, it is reasonable to ask if power and agency exist and how they are distributed. The constant crisis of knowing and acting seems to support ANT´s argument for the heterogeneity and hybridity of networks that I have presented in the second chapter. Contrary to common assumptions agency is distributed unevenly and dynamically between humans and non-humans involved in the project. Power does not "flow" from one point in the network to all the others, instead power itself is fragile. The power-relations need to be constantly remade, redrawn, and reminded so that they do not fall apart. In this fragility of relations, machines, standards, materials, and technologies also have an agency in the project as they make a difference.

Obviously their agency is not as entertaining as the artificial intelligence of emotional robots that eloquently speak with their human companions in science fiction stories, but rather more delegated. In the following I will inquire a bit more closely to what extent the Weisse Wanne as a technical standard had any 'power' i.e. whether it had "*the ability to set the rules that others must follow, or to set the range of categories from which they may choose"* (Busch 2011: 28).

III) Powerful Standards:

1) Legal and Scientific Legitimacy

If the Weisse Wanne wasn't powerful then it was at least very persistent. Considering the various 'near deaths' I have described above, it is reasonable to wonder why this high-end concrete standard was not simply dropped or substituted for a less strict standard. Even though the construction company's engineer compared the idea of building a Weisse Wanne to the application of an alien UFO-Standard, it managed to persist, becoming the central indicator for success and failure. The strict procedural and material regulations brought much instability and difficulty to the project, but the idea of the Weisse Wanne remained durable.

Previously, I have already discussed how its quality as a boundary object was helpful to enter the projects network. Its capacity to exist simultaneously in different *"intersecting social worlds"* made it a suitable solution for the diplomatic impasse. I argue that this capacity to survive in several different social worlds or modes was also central for its durability not only as a concrete thing but also as a concrete idea (Star&Griesemer 1989: 388). As a technical standard and as an actor in the reservoir project, it was powerful insofar as it could exist in different places and forms, borrowing authority and legitimacy from other networks or social worlds.

The two 'networks' or practices, that provide the Weisse Wanne with most authority are on the one hand a *scientific* and on the other hand a *legal* one. At least in my city there seems to be rather common agreement[38] that it is legal courts and scientific

[38] This is assuming that the critique of knowledge production as articulated by STS scholars cannot be considered to be mainstream.

laboratories that produce the most objective and stable truth about various matters of concern.

The importance of a *legal* connection has already been mentioned on several occasions. I have highlighted how the Weisse Wanne gained some of its authority and stability through the signing of a legal contract. However, its legal quality is not limited to the mentioning in the contract. The actual guideline text - much like other standards - is written in a style that mimics that of legislation and legal papers. The difficult and technical language as well as the formatting of text body that is devised into countless sub-points make it difficult to read. Like a law, the guideline provides a tight set of rules and specifications, outlining which processes have to take place and which parameters must be met in order for correct construction.

Besides being written as rules for people and things, they also resemble 'real' laws by being referential and layered. Like laws referring to other laws, the Weisse Wanne mentions 14 Austrian concrete standards that provide further specifications and rules.

Considering that each of these is again based on several preceding and parallel standards, one can speak of a "cascade of standards" (Bowker and Star 1996). Lawrence Busch calls this phenomenon of standards relating to each other as "layered" and notes "*standards rarely come alone"* (Busch 2011:59). Such a cascade is powerful insofar as the application of one standard will stabilize and strengthen the use of several others. The many citations of various Ö-Norms in the ethnographic part, vividly portray how tight the web of standards is knitted and how many processes, materials and values are in fact standardized. While the Weisse Wanne itself might not be strengthened by these *a priori* conditioned standards, the whole system of standards is.

Besides having a certain 'legal' touch the way that they articulate their rules, they are much based on the view that there is someone who "knows best" (Brunsson &Jacobsson 2005: 40). This idea of "knowing best" relates to the assumption that standards foundations lie in expert practice and scientific knowledge. Jacobsson and Brunsson show that proponents of standards often present their base in science and academia as a source of legitimacy. The 'truth' or validity of a standard is often

argued by its background or connection to a specific 'scientific' or 'technological' field "*although in reality the scientific connection may be quite tenuous" (Jacobsson 2005: 41).* In the case of the Weisse Wanne this *scientific legitimacy* is suggested (and achieved) in two ways:

On the one hand the actual Weisse Wanne guideline is an *"embodiment of techno-scientific expertize and authority"* (Busch 2011: 14).

The authors of the Weisse Wanne are referenced as "*[…] representatives of clients, construction companies, testing and research laboratories, universities, concrete plants and planners*" (OVBB 2002: 1). But the many quantitative values and precise technical instructions of the actual text also convey a certain authority. By enrolling entire material-testing departments as well as scientific concrete laboratories, the Weisse Wanne has quite powerful allies that assist in legitimizing its many rules. It is a persuasive solidification of scientific and expert knowledge (Brunsson 2005: 47).

An extensive amount of energy (and cost) is attributed to the (scientific) testing, of the concrete in its different stages by an authorized laboratory. This imposes scientific practices and rituals on the construction site. Such introduction of 'laboratories' on construction sites, farms and other places usually perceived as 'non-scientific', has been extensively described by Latour and Woolgar in their book Laboratory life. In the particular case of concrete Amy Slaton has vividly portrayed the historical development of this 'academization' of concrete building, pointing out how the impeccability of the tests became as important as the actual strength of the structure (Slaton 2001: 24).

As a boundary object, permitting multiple interpretations and connotations, the Weisse Wanne had quite a solid background borrowing both from "legal" and "scientific" practice. Challenging the Weisse Wanne would therefore mean much more than just challenging this particular guideline. It would mean questioning a cascade of standards, a legal understanding of contracts, the insights of material sciences in university departments and so forth. The power of standards is not like the power of a tyrant, but much more elegant and subtle, barely noticed most of the time.

2) Introducing Moral Orders

Capable of altering not only the actions and properties of various non-humans but also of various human actors, such standards are also morally relevant. Particularly explicit in this regard was the story of the safety standards, which embodied a certain moral understanding of human safety. The moral of valuing human lives was in this case solidified and practiced by four wooden planks that form the securing handrail. Such an introduction of the handrail, thus, also means the introduction of a specific moral order that places value on workers' safety. The wooden handrail is a good and simple example for the morality of technical artifacts. It literally solidifies a particular moral order. Bruno Latour extensively described various artifacts and technologies performing such moralizing tasks.

"*We have been able to delegate to nonhumans not only force as we have known it for centuries but also values, duties, and ethics. It is because of this morality that we, humans, behave so ethically, no matter how weak and wicked we feel we are. The sum of morality does not only remain stable but increases enormously with the population of nonhumans. It is at this time, funnily enough, that moralists who focus on isolated socialized humans' despair of us—us meaning of course humans and their retinue of nonhumans* (Latour 1992: 157).

Like the speed bump substituting the police officer, the handrail substitutes the Samaritan bystander who would assist the worker in crossing the little bridge. Morality is thus 'delegated' to a non-human, who will quite likely be more thorough in policing and implementing it than a human would be.

As this bridge would not have been built without repetitive insisting by the Austrian engineers, its materialization can be seen as the solidification moral order. Being a 'project' with beginning and end, allowed for the various processes to be situated in particular temporal moments. The passing of time was moralized through deadlines inscribed into the project generally as well as the Weisse Wanne standard particularly. The passage of time and the missing of deadlines were in fact so unbearable, that it was considered a better alternative to simply drop the entire project. After all, it is "*better [to have] a project with a bad ending, than a never ending project*" (ADA Employee).

Notions of standardized quality, as well as the time constraints of a project were thus powerful in organizing actions and establishing moral orders. Bruno Latour and other students of technology also emphasize this point. They argue that non-humans are in fact much better moralizers, than well-dressed priests and other authoritative persons (Latour 1992: 157). The Weisse Wanne as a technology was thus not only about strengthening the connection between the concretes aggregates, but also about structuring and stabilizing the 'social' in between humans. Therefore "*[…] it is politically and ethically crucial to recognize the vital role of infrastructure in the 'built moral environment'. Seemingly purely technical issues like how to name things and how to store data in fact constitute much of human interaction and much of what we come to know as natural"* (Bowker&Star 2000: 326).

Morality and relevant moral orders are often depicted as abstract and intangible, accessible only for those privileged enough to call themselves philosophers or theologians. However, what becomes obvious on the Tepe hills is that various forms of morality - of ideas over good and bad - materialize in standards, practices and technologies. By making explicit reference to the story of the handrail above, I have shown one such example, but there are multiple other that structured lives during the project. This becomes obvious when recalling stories like the one on temperature, where people had to work at night, or that of the third party control, which introduced a relationship of distrust between the actors. "*If a technical system must be closely monitored to function properly, then those who monitor it must be more tightly constrained as well*" (Rouse 1987: 238). In this sense, the strict control mechanisms built into the Weisse Wanne guidelines functioned as powerful disciplinary tools for those humans involved. Theodore Porter has described this phenomenon of quantification and control as a practiced "ethics of exactitude" that shape identities (Porter 1995: 90). The *"[…] impersonality and impartiality are [thus] cultivated by quantifiers as much for moral as for functional reasons" (Daston 1995: 10).* Standards like the Weisse Wanne are so successful in introducing such moral orders because - contrary to my local priest - they do not claim to do so. Morality is "black-boxed" in the various rules and processes, which base their legitimacy on the legal and scientific forms of articulation.

Therefore, the power of the Weisse Wanne cannot be located in one particular place and it doesn't flow in one specific direction. Instead, we can only understand it as the multiplicity of connections and allies that are made in the network (Latour 2005: 178). While this concrete standard is much more refined than the old tyrant in regulating humans and non-humans, it does resemble him in its constant craving for practiced memory and documentation. Thus, even when no battle is fought, no steel delivered and no concrete poured, the Weisse Wanne continues to act in form of (standardized) paper trails that comply with the demands of a suspicious audit society.

IV) Rituals of Verification:

Its power to connect to sites far away from the Tepe hills lies in the fact that it constantly requests verification and proof of its own existence (or non-existence): reports from the construction plant, the detailed findings of the third party controller as well as the various tests happening on site cause the production of paper trails that are sent to offices far away from Shkodra.

In the third chapter I have introduced the concept of an audit society in order to explain the excessive availability of data on the reservoir 4 project. The argument is, that we live in an audit (or documentary) society where various rituals of verification (audits) not only shape what we know about the world, but that they also shape the way action takes place: the student adapts his mode of studying to the type of final exam and the cement and gravel are mixed in a manner so that the third party controller can write a report. In regard to the particular project, it seems like such 'rituals' of verification and the subsequent documents, played an important part in stabilizing the projects reality and existence.

Above I have discussed how the ever-widening gap between project documents and reality almost caused for the project to end and the Weisse Wanne to die. Even if machines in Shkodra stood still, the servers ran, emails were sent day and night, scanners digitalized receipts, and complaints were signed and printed. The 'reality' of the project as a whole was somewhat defined by the production such documents that attested, or negated proscribed procedures.

The Weisse Wanne´s specific success and durability might thus lie in the excellent adaptation to the requirements of an audit society. Besides having knowledge on how things should be made, the Weisse Wanne is in itself a "*fact factory*" generating knowledge in form of documents and reports:

"Standards function here as "fact factories." Not only do they import knowledge about how things should be made, but also, by specifying particular forms of data collection, recording, and analysis, they act as engines for generating knowledge about products, processes, and people" (Dunn 2006: 184).

According to Paul Atkinson, it is this production of 'facts' in form of documents, that is necessary in order to successfully exist (and persist) in a documentary society (Atkinson 2004).

Arguing that 'documentation' and 'verification' are not only efforts to represent reality, but rather form an essential part of the project reality, forces me to look closer at the way in which such documents and verifications were created. Who can say the deviation is 'too large', who can claim that the concrete is too soft, and who can plausibly argue that it is too hot for construction?

The following part will thus be a tribute to those (epistemic) tools that supported and permitted the production of the many documents.

7a. (Epistemic)-Tools

Tools also mattered. They were important in multiple phases and sections of the reservoir construction. They assisted in constructing the actual building: the concrete vibrator is necessary to ensure a good compaction of the concrete; the lorry is needed to bring the concrete up to the Tepe hills; the hammer is needed to force the nails into the planks that stabilize various elements in building. It is obvious that humans could not build this reservoir with bare hands in a reasonable amount of time. The weight of the materials, the length of the distances, and the necessity for refined surfaces would have made it more or less impossible to achieve the same project without the use of tools. Thus, one needed tools as extensions of hands and brains. But these tools were not neutral translators of force that allowed the wedging of nails into wood. They also played a central role in planning, measuring and understanding the things and processes that took place. Various instruments permitted the engineers to draw conclusions about the property and quality of the construction.

Above I have shown how the 'near death' of the Weisse Wanne in the Tepe hills was closely linked to the fact that the things taking place on the construction site appeared to deviate too much from the written contractually agreed upon plan. Of course it is primarily humans and their documents that told me about all this, giving me some sort of incentive to inquire further; however, these humans, engineers, managers or translators seldom spoke by themselves.

This was less visible in interviews conducted - as spoken language is the only mode of communication most of the time. A different image arises when looking at emails, reports and documents. Laden with pictures, sketches and values, these feature extensive descriptions of what is correct and what is false. As we have already seen above, such complaints about deviations from the planned (contracted) route, are usually not only based on individual observations. Cracks were measured in centimeters, temperature with thermometers, and gravel was weighed with scales. Obviously there were too many tools involved in order to give a complete account of everything. I have chosen to represent only different tools (or machines) that played a vital function in the constant quest to find out what (the hell) is going on.

I) The Ruling Ruler

Picture 25: The Ruling Ruler; Measuring a Dent. (Photo: ADA Project Archive)

For a construction engineer to walk around the site without a ruler might be as absurd as going hiking without shoes. Particularly handy and abundant are the (often yellow) self-retracting roll-up tape measures, which allow the user to store several meters of length in her pocket. Rulers of course were everywhere, because they are constantly needed to verify the coherence between building plans and the actual building process.

Picture 25 taken on the 15th of November 2007, elegantly depicts two rulers in action on the wall of chamber two. The yellow measuring tape held perpendicular against a larger ruler indicates an uneven spot in the wall:

"In the inner corner of the chamber wall chamber 2_SectorA_Field SE, which were casted on 9.11.2007, following fatal errors appear:

1.) At the inner corner at the south wall a horizontal unevenness up to 2.5 cm appear at the bottom of the chamber wall (in a height of 30cm from the bottom plate) […]" (Email Austrian Engineer)

The depicted (and described) dent of 2.5 centimeters provides rather strong proof for what the Austrian engineer termed a 'fatal error' that is due to imprecise and careless casting. Unfortunately I do not know what happened to this particular dent of 2.5 centimeters depth:

whether it is now under water, increasing the volume of the reservoir for a couple of cm3 or if it was rehabilitated in a way similar to the many unwanted pores shown in picture 26.

Picture 26: Pores in the Weisse Wanne measured with ruler. (Phtoto: ADA Project Archive)

Picture 27: Workers closing pores with special cement inside the reservoir (Photo: ADA Project Archive)

These pores are little "holes" in the surface of the concrete that occur when little bubbles of air remain in the concrete due to insufficient compression of the concrete with vibrating tools during the casting.*"[…] In some parts, because the vapor, during the casting, there are some holes on the outside surface. This was against the surface quality as it was defined in the beginning. This put as restrictions. You have to fulfill, but with the cement that was not without additives, it was a cement that we imported from Austria. I cannot remember the city but I can find this, and we brought here, some 300 hundred to 400 kilos, and filled the pores with this." (Albanian Engineer)*

Aside from contradicting the aesthetics of truly 'white' Weisse Wanne, such pores are prone to become homes for bacteria unwanted in a water reservoir. The pores measured too large, were closed again in order to smooth the surface according to the Weisse Wanne requirements. (Picture 27)

II) Concrete Laboratory

When I think of a laboratory I like to imagine a man (or a women) in a white coat wearing oversize protective glasses, staring a test-tube in the white room of an office building. In our case the laboratory was lighter and more movable than an office building. The combined testing equipment labeled 'Laboratory' was placed inside an intermodal container[39] that stood in the yard of the concrete plant in Shkodra. (Picture 28 and 29)

Picture 28: Three Engineers in the Concrete Laboratory (Photo: ADA Project Archive)

Picture 29: Laboratory Paper Work (Photo: ADA Project Archive)

[39] Intermodal Container is the technical term for ISO standardized shipping containers.

As elaborated above, the story of the laboratory was a controversial and difficult one, as it had been difficult to find an institute with the suitable equipment. Task was to analyze and eventually evaluate the Weisse Wanne concrete in its different stages. More specifically this involved:

- Checking and verifying the weighing and measuring tools for cement, water, sand/gravel in the concrete plant on a monthly basis.
- Verifying the source and quality of cement (Portland cement from Italy), water (no pollution) as well as sand and gravel (no pollution either) that are to be used according to the Weisse Wanne standard.

Besides this *a priori* testing of ingredients and tools, the third party control involves several concrete tests that are to be performed with the laboratory:

- A so called "slump test" (See Picture 30) indicated the amount of water in the mixture and quantifies the workability of the concrete. As seen in Picture 30 workers measured the slumping or sinking of a concrete cone over a certain period of time. This measure indicated how well the soft concrete can be poured/casted into the formworks. (Picture 31) Apparently this test took place both in the yard of the concrete factory as well as on the construction site before it was installed.
- Parallel to the slump test, standardized samples in form of 15x15x15cm cubes (Picture 32) were taken each time a batch of concrete was produced. After a curing period of 28 days these were subject to testing in a hydraulic press, which measured their strength. (Picture 33) In our particular case a minimum strength of 30 nm was to be supported by each cube. Besides testing these sample cubes for their static strength they are also tested in regards to water absorption in order to guarantee the impermeability of the concrete.
- Finally the laboratory also had to test the strength of the concrete once it has been casted in its designated place in order to check for mistakes that might have happened during the casting. This *in situ* testing was performed at pre-defined spots on each wall with a special concrete test hammer. This tool calculates the strength of the concrete by measuring the rebound of a mass impacting on the surface. According to the tender documents Shkodra's Weisse Wanne needed to be strong enough to resist at least 30NM per mm2.

Picture 30: Workers performing concrete slump test. (Photo: ADA Project Archive)

Picture 31: Pouring concrete into the formworks. (Photo: ADA Project Archive)

Picture 32: 15x15x15cm Testing cubes are casted (Photo: ADA Project Archive)

Picture 33. Cubes are tested in hydraulic press. (Photo: ADA Project Archive)

All these tests took place over a lengthy period of time starting with the evaluation of the concrete plant in December 2006 and ending with the hammer tests in the reservoir in April of 2008. Despite the fact that many precise numbers, measures and figures were produced, the test results, which argued that all criteria were met, were received controversially.

While the Austrian engineers expressed their satisfaction about the laboratories fancy blue testing machines we have seen in the pictures, they were less content with the results: particular issues of concern were the lacking assessment of the concrete plant's own quality control as well as an apparent misunderstanding regarding the concrete quality in relation to the hammer test.

"Taking into account the class of concrete C25/30 in the technical specification (that corresponds the resistance 250 kG/cm2 and the maximum grain size of aggregates 30 mm) we can say that the quality of concrete for all tests carried out is good, both for upper parts and lower parts of the reservoir."(Concrete Laboratory)

However - according to the Austrian consultancy - this concrete quality only refers to the strength of 25 and 30 NM/mm2 and has nothing to do with the grain-size. Several of the performed values (see Document 10) were below requested 30NM/mm3 (300kg/cm2).

STASTISTICAL ANALYSE OF HAMMER TESTS (ALL TESTS)

OBJECT: **Reservoir No. 4 - Shkoder**
Ordered by: "[redacted]

TESTS RESULTS

Nr.	Structure	Test Date	Location	Concrete mean Resistance [Kg/cm^2]
1	WALL	10/04/2008	CHAMBER 2, (West Wall) CH-2-A-WW Point 1/O (+2)	**302.0**
2	WALL	10/04/2008	CHAMBER 2, (West Wall) CH-2-A-WW Point 1/U (+1)	**265.0**
3	WALL	10/04/2008	CHAMBER 2, (West Wall) CH-2-A-SW Point 2/O (+2)	**345.0**
4	WALL	10/04/2008	CHAMBER 2, (West Wall) CH-2-A-SW Point 2/U (+0,7)	**295.0**
5	WALL	10/04/2008	CHAMBER 2, (South Wall) CH-2-A-SW Point 3/O (+3)	**302.0**

Document 10: Values from Hammer Testing. (Source: ADA Project Archive)

As increasing time pressure as well as lacking funds hindered a second round of hammer-testing, the consultancy chose to assume that the concrete strength was in fact not sufficiently reached and consequently decided to deduct 9.40€ of the tendered price from each of the 1000 cubic meters of concrete.

Up to today it remains a bit unclear, whether it was the concrete laboratory that failed to meet the expected formal and procedural standards during the hammer tests, or whether the concrete was too soft. For multiple reasons of time constraint and lacking money, no further tests were performed.

III) Thermometer

Picture 34: Thermometers on site measuring unacceptable temperatures. (Photo: ADA Project Archive)

It is the 15th of December 2007. In a clockwise motion, the continental high-pressure system is pushing cold masses of air towards an Adriatic low. This cold air drifting from the continent towards the Mediterranean will cool down the temperatures in Northern Albania. While many of Shkodra's inhabitants might stay in their homes on this wintery Saturday the workers on reservoir 4 are already on site in order to proceed with construction. With delays piling up, the construction company eager to move forward as quickly as possible. Since working in the cold is unpleasant, some of the workers have made a small bonfire in the reservoir that is still under construction. The images of the fire will cause an outcry once they reach Vienna via email: "*[…] really one would have to sleep on the reservoir…*" (Austrian Engineer) But even more relevant than the small bonfire itself, is the reason behind this fire - namely the cold temperatures that might hamper the vital curing process.

Weisse Wanne guidelines require concrete casting to take place according to the Ö-Norm B-4710, which states that no casting must take place below 3 degrees Celsius. Too large is the risk of frost damage within the concrete that takes place during curing. Since casting the concrete at such temperatures would contradict the Weisse Wanne guidelines, the consultancy calls upon local partners and construction company to abstain from working:

"Today, 15.12.2007 at 9:15 hrs I informed you via telephone directly from the construction site that according to the actual measured air temperature on site (on 9:00 hrs: 1,5 °C) The consultancy does not recommend Casting Weisse Wanne concrete. The PIU was also informed by telephone.

Because of the official weather forecast for today, we strongly recommend NOT TO CAST Weisse Wanne Concrete at lower air temperature than + 3C for Reservoir 4; if Comp XX will do it, we, the consultancy, will not give NO approval for construction parts casted at a lower temperature." (Austrian Engineer)

The low temperatures thwarting efforts to cast Weisse Wanne are indicated by the hand-held thermometer in Picture 34. In order to counteract any potential criticism of the thermometers' accuracy another picture showing frozen puddles is attached to the email.

Unfortunately the Weisse Wanne is not only sensitive towards the cold, but also towards excessive heat. The latter is dangerous insofar as rapid hydration and curing of the concrete reduces its strength and fosters the development of cracks. The maximum temperature for

casting was set at 27 degrees, a level that is surpassed often enough in Shkodra's summers. Leaving some space for an increase of temperature over the day the Austrian consultant states that:

"We cannot cast at a temperature above 27 °C if the Weisse Wanne quality is to be produced as the PIU wanted it.
- He really wants "0 mm water-loss in 24 h" and that is only possible with "Weisse Wanne"." (Austrian Engineer)

Consequently the thermometer that objectively indicated the temperature played a powerful role in shaping the activities at the construction site. While cold temperatures in winter simply meant that no proper Weisse Wanne could solidify in the reservoir, there were ways of evasion in summer. Thus, when the readings on the thermometer exceeded the prescribed temperature work was done at night, as heroically remembered by the construction company's engineer:

"[…] during the works [there] was other conditions. No (permission) above 30 degrees to cast, and less than 3-4 degrees (that is not the case in Shkodra) because we worked during the spring and summer time. One temperature was higher than thirty. The Consultant stopped the work. He didn't accept the work. So we were obliged to work during the night… yes… we started at eleven o' clock and finished at five o' clock. And I have assisted all the night. So without being there, being there myself - the consultant didn't accept to start the works. With him - it was a young engineer - Austrian one - with me during all the night. (Albanian Engineer)

IV) Emails:

Above I have retold some stories of tools and measurements that played an important part during the project. Obviously such information and data - once obtained - had to be sent to the various actors who were not on site in order to do the actual reading. As so much of this information was shipped and transferred by emails it seems valuable to quickly point to this powerful tool of communication, which so effectively reduced the distances between Shkodra, Vienna and Tirana. The following document vividly highlights the importance of 'correct' format in a project like the one at hand:

Dear [redacted]

again, please indicate

- in the line "subject" what you are sending

- and in the TEXT what you want to informus.

----------Both you did not, but just sending the attachment.

Thanks for sending the attachment.

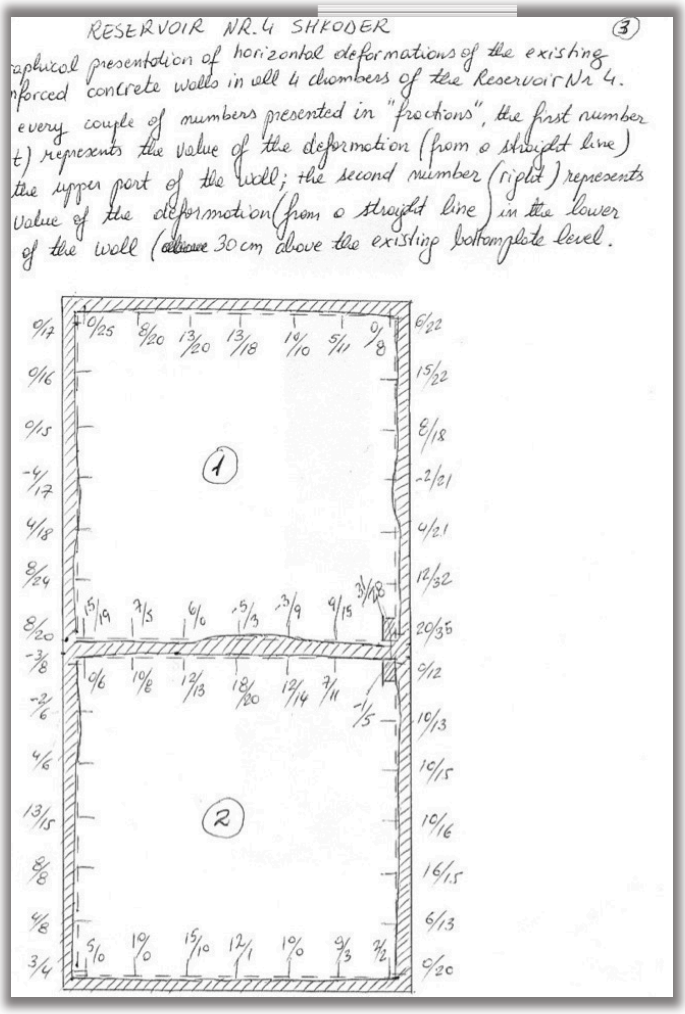
Yes, good English, also good handwriting,---> but please send the TEXT ALWAYS TYPED!

[redacted] should always send everything TYPED only and NOT in HANDWRITING: it is not the first time I asked for.

Document 11: Email Formats and Handwriting. (Source: ADA Project Archive)

According to the Austrian counterparts documents and communications need to have a certain form in order to be credible and storable. Besides the irritation about the formatting of a preceding message the engineer also complains about the attachment. In the particular case the issue was that the static calculation and description of the four reservoir chambers were sent as a scanned and handwritten document, and not in form of CAD-drawings and Excel sheets. (See Document 12)

Over the project's period the construction company learnt how to provide documents that would suit the demands of the other actors and elegant drawings like the one above were more and more substituted by the straight lines of a software like AutoCad.



Document 12: Invalid hand-drawn document. (Source. ADA Project Archive)

7b. Enrolling Supporters - The ruling Ruler

I) Contested Objectivity

Much of the controversy we have seen concerned contested statements about the reality on site. While the consultancy would argue that the concrete is bad, the construction company insisted that it is in fact good. To understand why such things would be disputed becomes quite easy if we look at one of the final outcomes: namely that the construction company was financially penalized by roughly eighty thousand euro, because it ADA believed the contract was not sufficiently met.

Asking how such observations or conclusions about the reality of a project could be made, firstly lead us to the humans who sent the email, document or representative report that "proves" the deviation. As I have already portrayed above, the scene usually was the same, with the Austrian consultancy accusing the Albanian side of doing sub-standard work. Considering the gravity of such accusations (financial penalization and bad reputation) it is not astonishing that they were not only mumbled over the phone or expressed verbally at a lunch. Articulating the 'actual' difference (or coherence) between the projects script (contract) and its reality (tangible reservoir in the Tepe hills) is a matter of central importance, as it permits the involved actors to attest (or negate) the success of the project.

This situation of distrust appears paradigmatic for the *suspicious audit society* mentioned above. It explains why a simple (verbal) statement will not suffice for 'truth'. Instead the actors with their respective interests need to enroll various supporters in order to make a credible truth claim that cannot be challenged too easily (Power 1995: 122).

This situation of constant distrust, which made necessary such extensive documentation, was already vividly portrayed in chapter 6a, where the Austrian consultant gives detailed instructions for daily site visits. The contested *nature* of these reports and representations is beautifully reflected in a commentary by the Albanian construction company's engineer, who questions the validity of the photographic proof:

"His famous photos (scaled hundreds of time bigger) probably you have created a bad impression for the concrete surface. If you will be here of-course you will change your opinion." (Albanian Engineer email to Austrian consultancy)

In this email the validity of a representation - in this case of a concrete wall - is questioned by the Albanian engineer. He argues that the image is distorted to purposefully increase the size of surface irregularities.

Since human opinion and perception (we have all been victim to such optical illusions) were considered too feeble by themselves and constant air travel between Vienna and Shkodra would have been too expensive, non-humans were necessary. They assisted in creating a more 'objective' (inter-subjectively verifiable) representation of the reality on site. In the specific case of rough concrete surface, the supervisor's simple response was to hold a ruler (see Picture 26) into the picture. By doing so he literally increased objectivity, enrolling the support of another 'object' (in this case a ruler) in his claim.

Tools like the ruler were thus added in order to give more legitimacy and stability to a representation; however, tools are not merely neutral amplifiers. Instead they themselves are active in forming a procedural reality composed of multiple human and non-human actors. They play a vital part in co-constructing the reality that can be accessed: the design of the yellow roll-up measurement device makes some things measurable while missing others; the blue laboratory devices allow the testing of cubes' strength while ignoring their surface; or the thermometer of Picture 34, which refuses to measure temperatures below zero C°.

In this spirit Akrich argues that, "*[…] like a film script, technical objects define a framework of action together with the actors and the space in which they are supposed to act"* (Akrich 1992: 208). Tools and devices thus structure our realities, because they allow for certain things to be noted and other to be left aside[40].

The closer one looks at reports' pictures, or even interviews, the more one realizes that virtually all information (or reality) about the reservoir is mediated by various

[40] The extreme of this argument would assert a techno-deterministic assumption, stating that the ruler is in fact an inherently political technology, as it powerfully shapes what and who can be ruled. While such a stance is promoted by Langdon Winner in his "The Whale and the Reactor" I will instead side with Madeleine Akrich, arguing that technologies (tools) still have to be persuasive in order to be applied.

tools: the standardized (metric) meter allowed the measurement and following calculation of the reservoirs volume, the thousands of pictures had to be taken recorded and processed by various digital cameras (remember the meta-info of the panorama above); the laboratory provided multiple values describing the strength of concrete cubes; and the thermometer allowed for the heat on the Tepe hills to travel (in an email) to Vienna and Tirana.

Evoking Latour and Woolgars study on *Laboratory Life,* John Law highlights the how (scientific) reality is in fact inseparable from such "inscription" devices that allow us to make (written or spoken) statements about the world.

"Reality is neither independent nor interior to its apparatus of production. Neither is it definite and singular until that apparatus of production is in place. Realities are made. They are effects of the apparatus of inscription" (Law 2006: 33).

Our construction site in the Tepe hills is, in this sense, no different from the more stereotypical places of scientific production visited by various STS scholars. The Weisse Wanne in particular but also the reservoir as a whole can only exist (be real) through the mediation of such inscription devices. It insists on various forms of measurement and testing to take place before it is completed. Strength, workability, and impermeability are tested by the complex set of machineries and practices of the laboratory. (Picture 28) In the "Pasteurization of France" Latour has elegantly pointed out how "laboratory" conditions and procedures had to be enacted in farms and industries in order for his observations to become true and real (Latour 1983). This 'scientific' practice is introduced in other realms in order to strengthen both the concrete story and tangible concrete, which now cannot be separated any more (Knorr-Cetina 1981: 37f; Latour 1983:144).

Such inscription devices that permit a written or verbal articulation of 'objective' and tangible phenomena are of particular importance in situations where the reality and continuity is so dependent on the successful persuasion of actors who are geographically far removed.

II) Statements need to be countable:

In order to successfully enroll a certain actor, in order to bring a strong argument, and in order to have some legitimate claim to truth, it is necessary to write and speak

in the correct format. I have already made some of these points in the second chapter, where I suggested Michael Powers' notion of an Audit Society as a system, where all activities have to be registered stored and reported in a specific manner. I have shown how "rituals of verification" play an important role in the daily activities of a project like the one at hand. The anecdote about the 'format' of an email and its attachment also elegantly relates such a theoretical framing. The Austrian Engineer urges the local engineer to adhere more stringently to certain standardized modes of conduct in communication. Besides - maybe stereotypically - emphasizing a certain type of hierarchical relationship between two humans, it also presents the importance of format. When it comes to gaining insight (epistemic efforts) and representing some form of objective truth (in this case about the statics of the to-be-built reservoir), one has to say it in the *right* way. In the formalized world of the reservoir project, documents and communications need to have a certain form. If articulation doesn't happen in the right way, then it will most probably be worthless. In the particular case, the issue was that the static calculation and description of the four reservoir chambers were sent as a scanned and handwritten document. (See Document 11 and 12) Since it exceeds my personal qualifications to verify if the calculations, I would like to assume that they are correct. However, despite the (assumed) fact that they are a good and 'correct' representation of the static necessities of Reservoir 4, they are without any authority. The failure of drawing with a CAD software and calculating with Excel more or less erases this documents validity in an audit society. In order to achieve some sort of relevant truth (a good proposition), you need to say things in the right way. Environments, or networks like the one at hand, will only accept certain (standardized) formats, so that the information can be stored in the right places, processed by the right programs, and eventually audited (verified) by the right people.

"It appears as if much of the control in society is concerned whether organizational units have the right procedures and produce the right documents, rather than whether they are actually doing something differently" (Jacobsson 2005: 45).

The tools discussed above play a central role in providing the type of data and document can be 'recorded' and stored. In fact, their most important capacity is their

ability to translate various things and observations into numbers. Such quantified representations are particularly helpful in a charged situation of mistrust.

In his book “Trust in Numbers” Theodore M. Porter discusses the importance of numbers as an impersonal ‘objective’ form of representation (Porter 1995). The process of ‘measuring’ and quantifying everything can thus be associated to his idea of “mechanized judgment” and a “cult of impersonality” (Porter 1995: 90). Constantly worried about the stability, durability and consistency of statements and arguments put forward, specific - and often quantifying - methodology is evoked in order to counter potential critique and controversy. This seems to be important for two reasons.

Firstly, there is the pragmatic argument of accounting practice: at least from a certain vantage point, a project like ours begins and ends with numbers. Success is defined as the consistent spending of the money that was made available in the beginning. In order to prove that it was all a great success, the different items listed in the contract have to be accounted for. If the concrete is bad, then one cannot simply say ‘it’s rather bad,’ but instead one needs to say “*it is 10 percent worse than was required.”*

“Since the rules for collecting and manipulating numbers are widely shared, they can easily be transported across oceans and continents and used to coordinate activities or settle disputes. Perhaps most crucially, reliance on numbers and quantitative manipulation minimizes the need for intimate knowledge and personal trust. Quantification is well suited for communication that goes beyond the boundaries of locality and community. A highly disciplined discourse helps to produce knowledge independent of the particular people who make it” (Porter 1995: ix).

The second reason for quantification is closely related to argument of ‘scientific’ methodology. It states, that precise numbers give a feeling of positive objectivity and incontrovertibility. Adopting the practice of methodological quantification from the natural sciences can thus be seen as an effort to also appropriate the capacity of truth production. Highly contested decisions - like the final penalization of the construction company - are in need of strong proofs. Through quantification and the

imitation of other laboratory procedures, both things and representations become more durable.

It is, thus, not simply the reality of representation that is governed by various tools. The closer we observe and analyze a situation like the one at hand, the more we realize that reality is mediated both by human and non-human actors. There is no 'outside' that exists without representation. Tools and rules like the ones evoked in this particular project are not only ways to access a reality out there, but in fact they also play an active part in composing the project's reality.

8. What's the point? - Debate!

Fortunately or not, the story stops at this point. Like the project in Shkodra itself, I have run out of pages and out of time. Both the external as well as self-imposed deadlines – that are so typical for the academic audit society I live in – force me to stop digging for more details and connections.

While I have tentatively lifted the heavy lid of this black-boxed reservoir, showing the many threads and stories that are connected to it, much remains in the dark. It remains unclear whether the concrete casted really resembles the one on the Schafberg, and to what extent it altered the water supply situation in Shkodra. Despite being titled a master thesis, no 'master narrative' has emerged and no smooth panorama was drawn. Instead the reader was confronted with many stories of rupture and discontinuity, with patchy connections and blurry snapshots of a concrete technology in a development project. The close analysis of a particular project not only showed how difficult it is to give a good account, but also emphasized the heterogeneous and distributed quality of such projects. The rehabilitation of reservoir 4 did not only take place on the Tepe hills, but also happened in several cities, factories, and offices.

Even today it appears to be controversial whether the quality of Weisse Wanne in Shkodra really resembles its role model in Vienna. For the beneficiaries in Shkodra, who now drink and use the water that flows through its chambers, this probably doesn't matter much. The reservoir as a whole has apparently improved water

pressure and supply in some areas. It is entirely embedded and invisible infrastructure, not requiring any discussion as long as it stays functional.

Considering the many stories that have been told about the arduous process of construction, an evident conclusion would be to judge this project, telling the reader whether it was good or bad, success or failure.

However tempting such a final evaluation might be, it is explicitly not the aim of this thesis to suggest a rating of the actors that were involved. Besides not being the goal of my research, I would also see myself as incapable to give such a verdict, as many things are less clear and more complex than they appeared at the beginning. But if no bullet point list of suggested improvements or 'best-practices' is offered to the reader, what is the point?

Even mundane technology is political and moral

After all an Austrian concrete standard like the Weisse Wanne is less intriguing and exciting than other scientific or technological projects. The introduction of a GMO[41] crop, the building of a really huge dam, or the mining of a rare metal would most probably receive much more controversial discussion and public attention. Contrary to mundane infrastructural technology like the Weisse Wanne, these would be difficult to "black-box," as they are more prone to remain in the scope of public attention. However, it is not despite, but rather because grass could grow so quickly over the Weisse Wanne that it is a relevant object for study. After all there is a multitude of stories and events that are captured in this apparently mundane and rather colorless technological standard. As this thesis has revealed, its journey to, and solidification in Shkodra, was by no means easy and uncontroversial. Even if buried in grass and sealed with heavy pressure doors today, it made a difference, altering not only the property of things but also the lives of humans involved: people had to work at night because of the temperature restrictions, engineers had to change the way they performed and documented their tasks, materials had to be imported from afar and the construction company lost a considerable amount of money. In this sense, the reservoir in general and the Weisse Wanne in particular

[41] Genetically Modified Organism

clearly make a case for the argument of socio-technology that was presented in the first chapter: the closer one looks at the Weisse Wanne the more difficult it becomes to distinguish between the technical and the social; between the standard in itself, the people that applied it, and the concrete that was the requisite end. As Thomas Hughes argued, it is a web of interrelations knitted so tightly that it appears – or in fact even is – seamless (Hughes 1986).

As a mundane technological standard, the Weisse Wanne is an example for the seamless and web-like manner in which socio-technologies have an impact on our lives. Even though it was presented as an objective and value-free technology it was also political and social. It was capable of crossing geographical, socio-political, and even ontological boundaries, influencing a multitude of different types of actors in different places. As the many stories told in this thesis have shown, the Weisse Wanne standard easily surpassed a classical 'objective' realm; re-arranging and altering the moral orders humans adhere to.

It conveyed not only a moral understanding of human safety, but it also changed the meaning of a 'working morale' governing what it means to do a 'good job', to produce 'quality products', how to be a 'proper engineer' and how to report coherently to superiors. By defining good and bad, success and failure, the Weisse Wanne was not only about the stabilization of cement, gavel and water but also about the stabilization and introduction of moral and social orders. As a solidification of authoritative expert knowledge, this standard powerfully altered the actions of the involved actors. In this sense the technological standard also fostered the establishment of hierarchical relationships between different human actors in the project. This *boundary object* could become powerful in influencing and shaping the links between the many different actors of the project's network, because it was capable of existing in multiple social worlds (Bowker&Griesemer 1989).

In the words of Lawrence Busch, the Weisse Wanne functioned as a *"recipe for reality,"* disciplining gravel, water, and cement, steel-factories, workers, planners and managers (Busch 2011: 73). The central point is consequently to highlight the ubiquitous manner in which such a seemingly mundane and blunt technological standard altered objective, social, political and even moral orders.

While judgment or evaluation is left to others, the normative argument is a democratic one: black-boxed and uncontroversial technologies like the Weisse Wanne alter various social and political orders without any accompanying deliberation and democratic legitimization. A value of such inquiries is thus to open them, so that these mundane but powerful socio-technologies can become an *object* of more public discussion.

II) Development as Standardized Modernity?

Closely related to this call for the debate of boring socio-technologies like the Weisse Wanne, such an inquiry also provides a basis for discussions of development as a practice as well as a more abstract concept. As briefly discussed in the second chapter, this term lacks a clear-cut and agreed upon definition. Different theoretical schools put emphasis either on economic, technical, social, political or even environmental aspects (Desai&Potter 2002: 59). Contrary to such deductive reasoning this paper has highlighted the importance of describing and analyzing particular cases of development practice. Studying an actual object of development provides an inductive way of discussing what these ideas, policies and discourses mean. Such an ethnographic account, placing emphasis on the complex and detailed nature of the project, differs from more common accounts. These usually view projects as either a) A rational problem solving activities that needs to be evaluated in respect to its goals or b) Part of a rationalizing technical discourse - concealing hidden purposes of bureaucratic power or dominance - which are the true political intents of development (Mosse 2001: 2; Mitchell 2002).

This thesis obviously navigates between those two extremes, suggesting a more differentiated and careful analysis that can serve as a basis for further discussion. ANT as a research heuristic proved valuable in order to grasp a case like this one. It permitted the visibility of actors that might otherwise go unmentioned despite their formative character. Attesting agency to non-human actors, it shed light on the per-formative role a concrete standard in this development project. It permitted me to highlight the multiple processes and translations that take place in the course of such development projects.

Even if this development project aimed to transfer a comparably simple and mundane technology, there was much more ‘development’ going on than might be obvious at first sight. The implementation of the Weisse Wanne changed multiple social, political and moral orders. Taking much of its legitimacy from a legal and scientific mode of articulation, it powerfully altered relations between humans and non-humans. By closely studying such objects and processes, the notion of development itself becomes less abstract and more tangible.

In such an assessment the idea of ‘development’ as a teleological and quasi-evolutionary process vanishes. Instead it becomes associated with the arduous exchange of a multitude of materials as well as immaterial orders and arrangements.

By following the Weisse Wanne, we have seen how organizational insecurity was countered by standardized procedures and technologies in an effort to make the future slightly more predictable. Successful development was formalized through such countable and comparable standards like the Weisse Wanne. Standards were presented as neutral technological means of arriving at the normative goal of ‘development’. This case study drew attention to the various forms of moral, social and political work that was black-boxed within this Austrian standard for impermeable concrete.

By influencing and changing so much, despite claiming to do so little, the Weisse Wanne was both a successful and powerful actor. If it does not constitute a futuristic modernity in itself, then it at least strived to make the future more predictable, manageable and standardized.

“[…]this is an elaboration,
produced not by the people,
but by the experience
by the time
and its called a state of art -
it’s not even a standard,
it’s called "Weisse Wanne".
You go on the Internet
and read about Weisse Wanne,
you will understand […]” (Engineer)

9. Methodology and Data Collection

By making my personal research a part of the stories I mention, I have given a fair bit of insight into the methodology applied and the data used. It is the goal of this section to on the one hand represent the methodology in a more structured way, and on the other hand discuss its relevance for my research project. Inspired by various ethnographic works in the field of STS, I have also chosen to try such a route of qualitative and ideally thick description.

The term of a "thick description" often associated with Clifford Geertz *The Interpretation of Cultures* (Geertz 1973) and is used by many authors in the business of ethnography (or technography in our case, as Steve Woolgar suggests). The idea is that reality and events are take place in a 'thick' way with excessive numbers of events, aspects and facets that can be perceived and described. In this sense "thick description" is quite simply an effort to give due respect to the bewilderingly dense and detailed reality we can perceive (Geertz 1973: 27; Woolgar 2004: 347).

In my case this 'thick' description of reservoir 4 and its excellent 'Weisse Wanne' source from three interrelated types of material. While I am going to discuss the process of collecting and interpreting interviews, documents, and personal observations separately, it is important to highlight their interrelated character. It would be absurd to assume that the conduct of the interview is not connected to my observations made during an internship some years before.

Ordering chronologically (by the way accessed, obtained or produced), I start with personal observations, then continue on to interviews, and conclude with documents.

I) Personal Observations

Without any expectation that I would ever write my thesis about reservoir 4, I participated at the opening ceremony as an intern with the Austrian Development Agency. At the time I did not take notes, nor pay particular attention to any specific aspect. As already pointed out, I thought that the view was actually the best thing about it. Nonetheless, these observations - solidified by the pictures I took at the time - were the sole reason I chose to research the project. These pictures (see Picture 9) were central in providing me with both motivation and arguments to research this

particular site. This was also important when approaching the informants I would later interview, as I would always refer back to this 'internship' making my interest more legitimate and credible[42].

More recently - as I am now better adapted to the rules and rituals of the *Documentary Society* - I have made notes and memos of such observations both in digital as well as paper form. The first entry in my "Master Thesis Diary" dating to June 2011, relates to the course "*Philosophie politique de la nature*" held by Bruno Latour during my Erasmus exchange year at Sciences-Po in Paris. It was then that I first started to play with the idea of doing some sort of ANT study on a development project. Until January 2012, when I finally 'found' my case study, entries remain very scarce. After that, I tried to write about progression and stagnation in my work once a week. Besides this digital file, I also made notes in a red moleskin book when my laptop wasn't at hand.

The largest amount of noted observations stems from the five weeks I spent in Albania in April and May 2012. During these months of research, I also took about 190 pictures of the reservoir and its surroundings. All in all I wrote about twenty thousands words of digital notes, a rough 100 paper notebook pages, and took about 190 pictures.

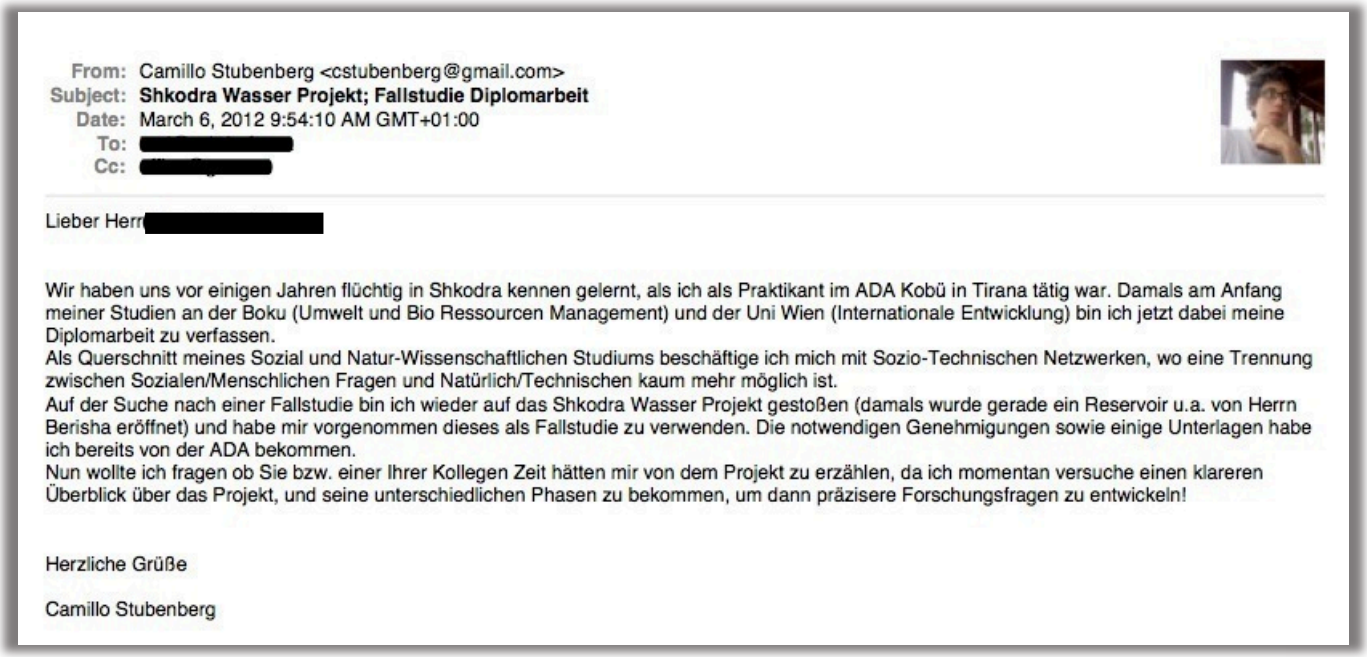
While such observations are in themselves not visible in the actual paper, they have nonetheless played a central role in setting the scene for other forms of data.

II) Interviews

In course of my research for this thesis, I conducted twelve interviews with eleven different persons that were involved in the project. Starting with those individuals I could remember from my first visit in 2008, I extended the list of people after each interview, asking something like: "*Who else should I talk to? - Which other actors were important?*"

In all except three cases I would contact the interviewees per email, closely relating my interest in the project to my internship in 2008:

[42] In order to "prove" myself I attached a picture in two interview requests with Austrian engineers.



From: Camillo Stubenberg <cstubenberg@gmail.com>
Subject: **Shkodra Wasser Projekt; Fallstudie Diplomarbeit**
Date: March 6, 2012 9:54:10 AM GMT+01:00
To: [redacted]
Cc: [redacted]

Lieber Herr[redacted]

Wir haben uns vor einigen Jahren flüchtig in Shkodra kennen gelernt, als ich als Praktikant im ADA Kobü in Tirana tätig war. Damals am Anfang meiner Studien an der Boku (Umwelt und Bio Ressourcen Management) und der Uni Wien (Internationale Entwicklung) bin ich jetzt dabei meine Diplomarbeit zu verfassen.
Als Querschnitt meines Sozial und Natur-Wissenschaftlichen Studiums beschäftige ich mich mit Sozio-Technischen Netzwerken, wo eine Trennung zwischen Sozialen/Menschlichen Fragen und Natürlich/Technischen kaum mehr möglich ist.
Auf der Suche nach einer Fallstudie bin ich wieder auf das Shkodra Wasser Projekt gestoßen (damals wurde gerade ein Reservoir u.a. von Herrn Berisha eröffnet) und habe mir vorgenommen dieses als Fallstudie zu verwenden. Die notwendigen Genehmigungen sowie einige Unterlagen habe ich bereits von der ADA bekommen.
Nun wollte ich fragen ob Sie bzw. einer Ihrer Kollegen Zeit hätten mir von dem Projekt zu erzählen, da ich momentan versuche einen klareren Überblick über das Projekt, und seine unterschiedlichen Phasen zu bekommen, um dann präzisere Forschungsfragen zu entwickeln!

Herzliche Grüße

Camillo Stubenberg

Document 13: Contacting Interviewees. (Source: C. Stubenberg)

In my specific case it was quite easy to create fruitful interview situation, which lead to a series of interesting stories: in all cases the interviewees were both older and more 'senior' than me. Further, as almost all of them had higher university degrees, they were familiar with the obligation to write some sort of thesis in order to complete one's education. This form of 'empathy' for my personal situation ("writing that thesis is such a pain") was particularly strong with the Austrian engineers who were all graduates of the BOKU University, where I am also enrolled. In this context the interviews were governed by very explicit identities: *Me, the interested student interviewer; and You the expert/teacher engineer*.

The interviews were performed in a semi- to unstructured fashion and were open-ended, usually lasting between one and two hours (Bernhard 2011: 240ff). In line with common understandings of this type of interview, I did not prepare a catalogue of set questions. To the (varying) extent that I was in control of the interview, I tried to create a more or less 'normal' dialogue situation that would get the interviewees to tell me stories about reservoir four (Denzin 2001: 24).

It is important to highlight that I consider myself an active part of these dialogue situations, effectively forming and influencing the final output. Consequently, I find much value in Timothy Rapleys elaborations on the "co-construction" of interviews, where he complains about the neglect of interviewers talk (Rapley 2001).

Therefore - even though I did not pre-structure the interview - I did try to retain "overarching topical control," by asking for more details, uncomfortable silence, nodding in approval and an excessive use phrases like *"ahh that is extremely interesting"* (Rapley 2001: 315).

Camillo: so… what I am doing is- I'm a student in Vienna, and I have to write my master thesis, and so I was looking for an interesting topic and ahm, and for an excuse to go back to Albania, and so I came up with the idea to write about a project financed by the Austrian government. And ahm, it somehow turned out to be the Shkodra water project, and now I am trying to talk to all the involved actors, to understand what happened there, how the process was, why it was difficult at times, why in the end it's a good product, and sort-of, wanted to hear your part of the story basically."(Excerpt from Interview with an Albanian Engineer)

This clumsy little passage is my opening statement of an interview conducted in a Tirana café with one of the Albanian engineers. It quite aptly represents the manner in which such interview situations were set up and how I asked for stories. Further, these *"spaces of interaction"* were structured in the sense that they happened in places where I was invited: either I would be invited to come to the office building where I would be offered coffee, tea or water, or the interviewee would suggest a cafe, where I was usually also invited to something (a coke in this particular instance) (Rapley 2001: 317). Once one acknowledges the important role of the interviewer in co-producing the 'data' in an interview, it might seem more adequate to speak of *"capta*" as in *"information that is actively captured"* and not just delivered on a silver plate (Mccloskey 2000: 86).

One important aspect that still needs mentioning in regard to 'talking' with people is the issue of translation. Obviously I spoke in German to the Austrian engineers. With the Albanian actors, I either spoke in German or in English, which usually worked without major misunderstandings. The most difficult interviews were the two that took place with assistance of a translator. While the time lag between question and response is quite comfortable for the process of transcription, the actual

conversations are much more difficult, since interviewees were more conscious and restrictive about their own talking.

With exception of those two, the interviews were not that different from other conversational situations and usually were quite banal. They only became 'special' because they were officially labeled 'interviews', recorded and eventually transformed into a rough 170 pages of transcripts.

The amount of performed interviews was result of two pragmatic considerations. On the one hand I wanted - and succeeded - to talk to at least one individual from each organizational group that participated in the project (Austrian engineers, Albanian Construction Company, ADA personnel, EPC consultancy, Shkodra Water works). On the other hand the *usual* temporal constraints limited the number of interviews I could organize and perform. Consequently, I once again stress the chronically incomplete character of this inquiry, as it would clearly been both interesting and beneficial to a) interview several people from each organization and b) perform follow-up interviews in order to double and cross check stories that were told.

III) Documents en masse

Many stored documents, emails and pictures, have made it possible to tell some stories in detail, despite the fact that they happened a couple of years ago. Specifically, I had access to many (but not all):

- Official emails that were sent to ADA in relation to the project. For reasons of transparency most emails were sent to multiple persons, very often carbon copying (cc) ADA employees even if the matter did not directly concern them.
- Official Documents like contracts and reports and official requests, that resulted from the project.
- Pictures that were taken on site and sent to the involved persons via email.

Access to these documents was solely possible due to the generosity of the Austrian Development Agency, which permitted me extensive access to their archives relating to the reservoir 4 project. As pointed out in the third chapter, the sheer amount of data (several thousand documents) has presented itself as quite an organizational

challenge for my research. While I have tried to situate the cited documents in their specific contexts and stories, it is important to underline their 'produced' and 'made' character. As Paul Atkinson reminds us, such documents do not necessarily function as transparent representations of organizational routines, but are sent in specific moments with specific aims – many of which were not visible for me (Atkinson 2004: 58).

Since no exceptional method was applied in 'acquiring' this data, I just used an USB-stick to transfer the files onto my computer. I will discuss the problem of managing and interpreting such large amounts of data in the next part.

Table 2: Data collected during research.

Digital Notes and memos	~ 20.000 words
Paper Notes	About 100 handwritten DIN A5 pages.
Interviews:	12 Interviews transcribed to approx. 59.000 words ~170 pages.
Emails from Project Archive	1217 with varying lengths (636 with Attachments)
Other Documents from Archive	Approx. 1500 (including 463 Pictures)

IV) Interpretation

Similar to my statements about the conduct, I also insist on a rather blunt and not very elaborate procedure of interpretation:

In order to give tribute to the extensive amounts of interesting data I have collected and produced, I relate to grounded theory with an emphasis on the *turn* Adele Clarke suggests (Glaser&Strauss 2006; Clarke 2003). Applied in various fields of the social sciences, grounded theory places much emphasis on the data itself, suggesting a rather inductive creation of theory (Silverman 2008: 105). Adele Clarke's situational maps were particularly helpful in the early stages of this research, because they allowed finding orientation in the many involved human and non-human actors (Clarke 2003: 558).

Not least due to the emphasis grounded theory puts on the captured data, I have in divided this paper into an analytic and an ethnographic part. Particularly the latter, permits me to simply "put" data (or capta) to the reader, letting the actors speak to

her in a manner similar to the way it spoke to me. Therefore, documents are often portrayed as ‘screen-shots’ instead of copying only the textual information.

Aside from such privileging of the data itself, grounded theory suggests cyclical or repetitive approaching of the collected data through coding. The data (text) is coded according to different ideas, concepts and issues that appear to be of relevance. By relating and comparing the same codes in different interviews, the large amounts of data become more accessible, and things previously overlooked can emerge (Atkinson&Hammersley 2007: 152; Clarke 2003: 557).

While I have *‘coded’* my interview transcripts in order to navigate them more easily, I have put no emphasize on very precise linguistic interpretation of these transcripts. Aside from temporal restrictions, this would have also been questionable, as several of the conducted interviews were performed in second and third languages, blurring much linguistic finesse that could otherwise provide rich insights.

The actual coding of interviews was done with the editing and highlighting functions of my word-processor (Scrivener ©), as this permitted quicker and easier integration into the text than would have been with software like “AtlasTi”. Regarding the development of the codes and categories, it is important to point towards the importance of my theoretical interests. ANT´s affinity to mundane and non-human actors definitively caused me to look for a certain genre of things. In this sense I would question the capacity of these coding procedures to function as a methodological guarantee for good and un-biased interpretation. Nonetheless, I profited enormously from the way it forced me to spend more time with my material, eventually making the interview transcripts more accessible. (Atkinson&Hammersley 2007: 152)

Taking the codes and categories produced during the interview interpretation as a starting point, I accessed and analyzed the many other archived documents acquired. This sea of documents and pictures was not subject to a process of interpretation and coding in itself. Instead they functioned like a *pool* of details that could be searched in order to better understand stories that were mentioned in the interviews.

IV) Anonymity

The issue of anonymity has been a tricky trade off, between a) the striving for detail and transparency, b) ethical considerations, and c) formal agreements on privacy that were made with the Austrian Development Agency.

While much social research appears to be in the habit of anonymizing as extensively as is suggested in the field of medical research, I have decided to not completely anonymize all aspects of my case study (Tilley&Woodthorpe 2011: 198).

On the one hand it would have been ideal to simply drop the issue of anonymity completely. This would have been in line with my effort to give a vivid and possibly thick account of the stories. 'Naming' all the involved could have also functioned as a certain measure of quality control by eliciting 'objections' from those quoted and cited. David Mosse, who wrote an extensive ethnography of a development project, has elegantly argued this when saying that *"[…] Ultimately, the objectivity of my analysis cannot be that derived from standing above the fray or of suppressing subjectivity, but rather that which comes from maximizing the capacity of actors to object to what is said about them*" (Mosse 2005: ix).

From a narrative point of view I have also found it important to situate the stories in their 'actual' places and times, making it possible for readers to look up details on Albania, the city of Shkodra or Vienna's water supply.

On the other hand it is important to highlight the intimate quality of much of the material collected. In an absolute worst case, some of the findings and details of my study, could have negative implications for some of the interviewed and cited. This concern for anonymity is also reflected in my arrangement with the Austrian Development Agency, where I agreed not to name any specific names unless both ADA and the person concerned agree.

The outcome of these considerations has been, that I do not name any individual names, as well as the names of companies that can be directly associated to these individuals. However, I do not change the names of the actual places, as well as those of the government organizations which were involved in the project in order to make my account richer and possibly more meaningful. In this way I agree with Tilley

and Woodthorpe, when they argue that a *“universal endorsement of anonymity may not be consistent with the aims and scope of all qualitative research endeavors*” (Tilley&Woodthorpe 2011:198). This form of semi-anonymity appears to be the most feasible path for the task at hand, reflecting both the value of transparency and the ethical/organizational considerations of privacy.

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11. Annex

I) List of Figures

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1. Pictures

2. Documents

3. Tables

II) German Abstract/Deutsche Zusammenfassung:

Diese Arbeit untersucht ein Wasserversorgungsprojekt in Nordalbanien mit Bruno Latours 'Actor Network Theory' (ANT). Letzteres Projekt wurde in den Jahren 1996 bis 2008 von der Austrian Development Agency (ADA) in der Nordalbanischen Stadt Shkodra implementiert. Über 12 Jahre hinweg wurden etwa 7 Millionen Euro in die Erneuerung der lokalen Infrastruktur investiert, wodurch die Wasserversorgung der Einwohner erheblich verbessert werden konnte.

Anstatt wie andere - bereits durchgeführte Evaluierungen - nach Erfolg oder Misserfolg des Projektes zu fragen, untersuche ich vielmer *wie* dieses Projekt ablief. Es geht darum zu verstehen, wie dieses komplizierte- vielleicht sogar komplexe- Netzwerk aus Konsulenten, Rohren, Entwicklungsexperten, Pumpen und Diplomaten funktioniert hat. Diese Aufzählung spiegelt bereits symmetrisches Interesse- sowohl an den 'sozialen' als auch an den 'natürlichen' bzw. 'technischen' Elementen des Projektes, wider. Um einem derartigen Interesse eine theoretische Basis zu geben, mache ich mir die in den Science and Technology Studies (STS) entwickelte ANT Theorie zu nutze. Diese Theorie - auch als antireduktionistische Heuristik bezeichnet - geht davon aus, dass eine a-priori Trennung von natürlichem und menschlichem zwischen sozialem und technischem nicht möglich ist. Geübt und erprobt in der Untersuchung von wissenschaftlichen Laboratorien und technischen Projekten, eignet sich ANT gut um die Spuren und Artefakte meiner Fallstudie ausfindig zu machen.

Nach einer anfänglichen, explorativen Untersuchung des Projektes, diskutiere ich insbesondere nach der Rolle der "Weissen Wanne"; eines Österreichischen Betonstandards, der sich trotz seines erstaunlichen Namens und anscheinend uninteressanten Inhalten wirkmächtig durch das gesamte Projekt gezogen hat.

Die zwei übergreifenden und zusammenhängenden Ziele meiner Arbeit sind daher folgende:

a) Einerseits gilt es die Prozesse und Abläufe- mit einem Fokus auf die Rolle von Standards und Normen- im Shkodra Wasser Projekt darzustellen.

b) Andererseits ist diese Arbeit ein Versuch um die Möglichkeiten und Grenzen von ANT in einem derartigen Erkenntnisprojekt auszuloten.

Es ist wichtig zu unterstreichen, dass diese Arbeit keine weitere Evaluierung eines ADA Projektes darstellt. Während Erkenntnisse und Schlussfolgerungen durchaus von Interesse für Beteiligte sein können, ziele ich auf einer allgemeinere Diskussion. Für jene Leser die an technischen Infrastruktur-Projekten in der Entwicklungszusammenarbeit interessiert sind, stellt diese Arbeit einer spannendes Fallbeispiel eines Wasserversorgungsprojektes dar. Aus einer STS Perspektive ist mein Vorhaben insofern interessant, als das meine Fallstudie eine Anwendung der ANT darstellt, und letztere auf ihre pragmatische Anwendungsfähigkeit in derartigen Erkenntnisprozessen testet.

III) Curriculum Vitae:

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