ENGINEERING RESEARCH JOURNAL (ERJ)
Vol. 1, No. 41 July. 2019, pp. 122-130
Journal Homepage: www.feng.bu.edu.eg

# Local Governmental Strategies for Sustainable Neighbourhood Development

## Case Study of Heidelberg & Ludwigsburg in Baden Württemberg – Germany

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**Abstract.** Sustainable neighbourhood development requires strategies to influence the interaction of all stakeholders in the public interest. Various tools can be used to implement these strategies in order to meet set sustainability targets, from planning to implementation and use. [1] In doing so, local government stakeholders in administration and politics face numerous challenges. Examples such as Heidelberg and Ludwigsburg illustrate how these can be met to apply sustainable development strategies in practice. The research methodology is a case study analyses and discussion by illustrating the different strategies implemented in these two case studies. The research paper concludes from the analytical part, the stakeholders' contribution to achieve the local Agenda 21. It shows also the different social, economic and environmental aspects towards sustainable development. In both cases, the sustainable development concept (SEK) include around eleven topics that comprehensively includes all aspects related to neighbourhood development. Two other main topic in the neighbourhood development (STEP): (1) integrated management cycle in the administration structure of municipalities and how neighbourhoods within the same city benefit and share systems and successful practices, and (2) Participation as one of the key issues for sustainable development. Regular public "Future Conference" is explained in the case of Ludwigsburg to keep the connection with all parties and keep the planning process transparent and democratic. Finally, the final remarks from this paper could be considered as learnt lessons and guidance for new neighbourhood development projects on the local (German) level, in addition to on the international level and especially in the developing countries where the role of municipalities and the cities must be supported and changed to more participatory sustainable development.

**Keywords**:Local Government, Stakeholder Theory, Neighbourhood Development, Integrated Energy Plan, Participatory Development Process.

## 1. INTRODUCTION

Generating lasting democratic support long-term consensus about neighbourhood development is especially challenging because neighbourhoods are generally neither formally defined nor politically constituted territories. This makes it necessary to clarify and justify which persons or groups are linked to the neighbourhood's development and thus have a justified expectation to help shape it. In order to work this out, it may be important to look beyond the group of players (i.e. those actively involved) and include all those who might have a legitimate interest in the neighbourhood's development and who are referred to as »stakeholders«. This term was first used by the Stanford Research Institute in 1963 and further developed as part of R. Edward Freeman's »stakeholder theory« in the 1980s.[2] Unlike the more narrowly defined »players«, stakeholders could also include residents of

neighbouring areas who are not actively taking part in the neighbourhood's development.

It can be difficult to know whether the groups who get involved truly reflect the neighbourhood. In planning a new neighbourhood, this is further complicated by the fact that the most important group - its future residents - are neither present nor known. This can lead to future residents' interests being neglected. Alternatively, local government may feel the need to give voice to a group that is invisible or non-existent as far as the existing local community is concerned, which is politically challenging. One way to avoid this dilemma is to debate the goals for developing a new neighbourhood at a city-wide level, where they can be given legitimacy and authority by territorially and politically defined democratic entities.

In order to meet this complex challenge, some cities such as Heidelberg and Ludwigsburg have developed criteria sets for sustainable urban development which allow them to regularly report progress towards their identified goals. The wide range of criteria makes it possible to comprehensively depict the field of sustainability. Moreover, formulating and agreeing goals and indicators together with the stakeholders provides an opportunity to give goals a democratic legitimacy which lasts much longer than individual politicians' terms of office, thereby building a broad consensus to support local government planning.

The city of Ludwigsburg takes a particularly effective approach: it invites groups of citizens who reflect the city's demographic profile to take part in so-called »future conferences«, where the city's development goals are formulated. Ludwigsburg is also especially exemplary, because it reformed its administration and established a sustainable urban development unit to deal with the following issued: fundamental questions, the urban development plan, neighbourhood development, regeneration projects, economic development, EU coordination, the metropolitan region, and energy projects.

As well as setting out legal frameworks, governments can also use financial incentives to influence other players in neighbourhood development. In Germany, federal and state funding can be distributed according the 1987 Building Code (Baugesetzbuch BauGB), which resulted from the merger of the 1971 Urban Development Promotion Act (Städtebauförderungsgesetz) and the 1960 Federal Building Law (Bundesbaugesetz BbauG) as well as administrative regulations, budget regulations and approval processes at state (Länder) level. Federal and state funding objectives are derived from the federal government's urban development policy goals, which in turn are based on the Leipzig Charter and other guiding principles.

Since 1990, various federal governments have set up different funding programmes, each of which addresses specific problems of neighbourhood development (e.g. Stadtumbau Ost/West). Since 2000, the European Union has also offered programmes within the framework of European structural policy to promote neighbourhood development, which are also geared to global models and strategies.

***Stakeholder Theory***

*The American philosopher R. Edward Freeman dealt with ethical and moral principles in corporate management in his book »Strategic Management. A Stakeholder Approach«, which was published in 1984. In addition to shareholders, he identified various other groups with a legitimate interest in the management´s approach and described ways in which management could respond appropriately to their concerns.*

## 2.CASE STUDY

### URBAN DEVELOPMENT IN HEIDELBERG

After two years of public consultation, the City of Heidelberg adopted the »Heidelberg 2010 Urban Development Plan - Guidelines and Goals« (Stadtentwicklungsplan, STEP) in1997. The policy document includes a commitment to socially responsible, environmentally compatible and economically viable development. Based on Heidelberg's 1974 Urban Development Plan, the STEP enacts the 1992 UN Rio Conference's call to pursue sustainable development at local level. To this end, the STEP identifies eight individual target areas - urban design vision, regional cooperation, working, living, the environment, transport, and social and cultural issues - as well as special cross-cutting issues such as engaging residents, gender equality, migration, local government collaboration on development and so on. Regular reporting on achievements was called for from the outset.

The first Urban Development Plan implementation report was published in 2002 titled: »Where are we, what have we achieved?«. It describes initial results for individual target areas and distinguishes between planned, started and completed projects. The report also identifies new, additional new actions required and any conflicts of objectives that have arisen. The report concludes with references to key projects, an overview of important existing or missing data and the compilation of selected decisions and projects.

The »Heidelberg Sustainability Report 2004« published three years later introduced an indicator-based performance review of the Heidelberg 2010 STEP Urban Development Plan. This approach using indicators and metrics was prompted by the realisation that achieving the STEP's defined goals requires a continuous effort. It was proposed that the city should continuously measure its performance against a simple, replicable interim score sheet every two years. Given that some targets - such as »regional cooperation« or »urban development model« - cannot be captured with metrics, consideration was given to adjusting or extending the indicator set from the outset. The complexity of issues such as CO2 savings or social situation is particularly difficult to capture with simple indicators, and requires detailed analyses and in-depth studies, which are regularly evaluated and communicated in independent reports.

In compiling the indicators, the city used various systems already introduced in Germany, including the indicators for sustainable urban development developed for the »Cities of the Future« research stream within the Federal Office for Building and Regional Planning (BBR) »Experimental Housing and Urban Development (ExWoSt)« project. The Sustainability Report is based on a total of 75 indicators, 42 of which address the STEP's target areas and Heidelberg's particular situation (Fig. 1).

In order to avoid costly new research, indicators were scored against existing official statistics or surveys were used as data sources. Each indicator was scored at two points in time. These two scores helped chart development, or the progress of development against a five-step scale ranging from »significant deterioration« to »significant improvement / target met«.

Unlike the »Heidelberg Sustainability Report 2004«, the 2007 report included an indicator-based evaluation of demographic change. Three years earlier, Heidelberg had still referred to a separate survey on this topic. The »STEP 2015« update in 2006 included demographic as a new chapter in the Urban Development Plan

| Objective | Indicator | 2000 | 2003 | 2006 | 2010 | 2013 | Difference 2010/2013 | Evaluation |
|---|---|---|---|---|---|---|---|---|
| Housing for all, 8,000–10,000 additional homes, delivering affordable housing, concentrating on the affordable rental market | • number of homes completed | 346 | 321 (2004) | 182 | 176[1] | 630 | +454 | ++ |
| | • percentage of subsidised homes[2] in completed projects | 19.1 | 10.4 | 1.6 | 40.3 | 9.7 | -30.6 % Pt. | -- |
| | • number of homes dedicated to social housing | 9,766 | 9,570 | 7,205 | 5,766 | 5,415 | -351 | - |
| | • average rent per m² according to rental map [in Euro] | 7.08 | 7.05 | 7.28 | 7.63 | 8.13 | 0.5 | - |
| | • m² housing space[3], which can be bought with the average annual income[4] per capita in Heidelberg | 8.2 | 9.3 | 9.6 (2005) | 10.5 (2008) | 8.6 (2011) | -1.9 | -- |
| Limiting increased consumption of housing space per capita, reducing land consumption, effective land use | • housing space per capita [in m²] | 36.5 | 36.5 | 36.8 | 37.2 | 37.2 | 0 | o |
| Supporting environmentally friendly building | • approved applications for energy efficiency funding | 93 | 107 | 192 | 237 | 134[5] | -103 | -- |
| | • number of existing homes in low-energy and Passivhaus buildings[6] | 29 | 95 | 97 | 128 | 1,125 | 997 | ++ |

[1] including 39 student dormitories, [2] proportion of homes with price and tenancy constraints, [3] rolling three-year average (current year, previous year, following year); Source: Assessment panel; [4] available income according to macroeconomic calculation, Source: Statistisches Landesamt; [5] raised by one grade due to four-year cycle; [6] sum total, excluding funding applications withdrawn

Fig. 1: Example indicators in housing objectives for Heidelberg urban development

In the meantime, with the publication of the "Heidelberg Sustainability Report", the indicator system has established itself more and more in Heidelberg's consciousness. Since 2005, in addition to the sustainability reports, all information and decision proposals submitted to the local council by the administration also contain a sustainability assessment, which sets out the objectives of the STEP with the resolution/project and the advantages and disadvantages of the proposal.

Sustainability monitoring has become an important part of the orientation and success control of sustainable urban development for the administration, politics and citizens of the city of Heidelberg.

Fig. 2: Bahnstadt development, Heidelberg

## 3. CASE STUDY URBAN DEVELOPMENT IN LUDWIGSBURG

In its approach to sustainable development, the city of Ludwigsburg focuses on tools and methods to support local government decision-makers responsible for sustainable development, and on

implementing efficient medium to long-term energy strategies.[3]Ludwigsburg´s implementation of Agenda 21 at the urban level is exemplary in terms of economic and social goals, and especially so in relation to especially environmental objectives.

***»Energy efficient Ludwigsburg«***

*The International Energy Agency (IEA) in Paris selected Ludwigsburg as a demonstration project for energy-efficient cities as part of the »Annex 51« research project. The City of Ludwigsburg commissioned the Centre for Sustainable Energy Technology (zafh.net) and the Centre for Sustainable Urban Development, both at the Stuttgart University of Applied Sciences (HfT), to join forces with the City of Ludwigsburg´s Sustainable Urban Development Unit to carry out the »Energy-Efficient Ludwigsburg« study. Funded by the German Federal Ministry of Education and Research (BMBF), this study analyses all of the City of Ludwigsburg´s activities in the field of energy efficiency and presents recommendations for action.*

Guided by the leading global Agenda 21 objectives, the »Local Agenda Ludwigsburg« group set up in 2001 to focus on environmental goals. Re-grouped as the Ludwigsburger Energieagentur e. V. (LEA) from 2007, the initiative is actively involved in the city´s development even today

The city government adopted an urban development strategy based on bottom-up resident participation. This strategy enabled residents, the private sector and regional stakeholders to get involved, building a broad and representative base for urban development

The city engaged in integrated debate and jointly developed a shared vision for the future in order to collaborate with all of the involved stakeholders and formulate sustainability goals addressing economic development, social balance and a healthy environment.

In a unique move, Ludwigsburg restructured the city administration to create a dedicated unit for sustainable urban development. Responsible for implementing, steering and coordinating the sustainable urban development strategy, this unit oversees each of the individual innovation projects. The unit networks horizontally and cuts across disciplines to pursue sustainability in economic development, integrated urban development, European issues and energy across all sectors and levels. Created in 2008 the unit aims to improve coordination between the different political and administrative levels, which influence sustainable development issues, and thus achieve better vertical networking (Fig. 3).

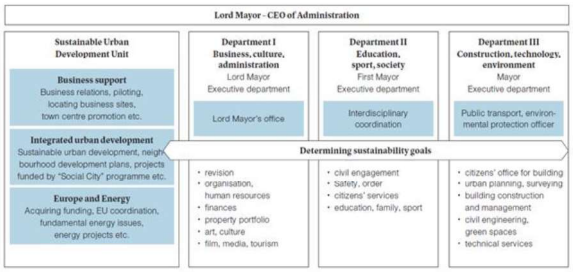


Fig. 3: Organisation of city administration in Ludwigsburg after re-structuring and ongoing development

The energy strategy includes a large number of measures and activities relating to the climate, adaptation to climate change, energy, transport, industry and land use plan. These were compiled by the Institute of Energy Economics and Rational Energy Use (IER) at the University of Stuttgart (Fig. 4). [3] This wide range of activities highlights the high priority the city has given to energy policy. In addition, Ludwigsburg successfully applied to the International Energy Agency (IEA) in Paris to gain recognition as an »Energy-efficient City« demonstration project within the international »Annex 51« programme.

## SUSTAINABLE URBAN DEVELOPMENT PLAN (STADTENTWICKLUNGSKONZEPT SEK)

Managed and monitored by the elected councillors, Ludwigsburg´s administration has been driving forward the development of the »Opportunities for Ludwigsburg« Urban Development Plan (Stadtentwicklungskonzept SEK) since 2004.

***Eleven SEK topics »Opportunities for Ludwigsburg«***

*12. attractive housing*
*13. cultural life*
*14. business and work*
*15. vibrant neighbourhoods*
*16. lively inner city*
*17. generations and nations living together*
*18. green in the city*
*19. mobility*
*20. education and care*
*21. varied sports offer*
*22. energy supply*

Residents and representatives of the business community are important stakeholders in this process. A local business conference called the »Business Day« was launched to promote close ties and cooperation between the city administration and local businesses, taking place since 2004.

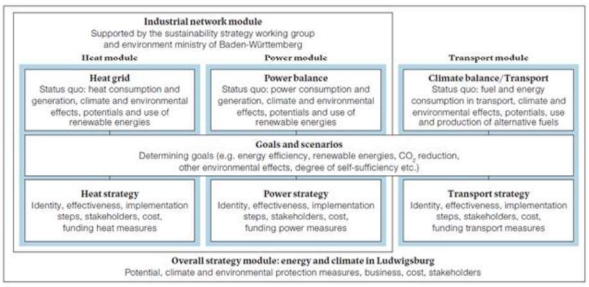


Fig. 4 Ludwigsburg energy plan

The first city-wide »Future Conference« (Zukunftskonferenz, ZuKo) in 2005 focussed on engaging with residents. Their participation had already been tested at the 2000 and 2002 neighbourhood conferences in Ludwigsburg-Eglosheim, which had been part of the national »Social City« (Soziale Stadt) programme.[3]

This participation provided inputs for the ongoing integrated urban development, with further workshops for residents hosted at regular intervals. Parallel to this, other activities such as opinion polls and a »summer of dialogue« also took place during 2005. After the second ZuKo future conference in 2006, a network was set up including administration, elected city councillors, and expert committees.[4] This implemented the various visions and guiding principles contained within the development strategies, and dealt specifically with eleven thematically diverse topics.

These noticed the guiding principles and goals of sustainable development and reflected a desire to address real quality of life in all aspects of each of Ludwigsburg´s neighbourhoods. Ludwigsburg`s SEK Urban Development Plan has a strong social dimension, because it links a political programme with a programme for administrative action (Masterplan) and a close relationship with residents and social groups. The SEK views urban space as a social space, and aims to help connect the city´s people, which it views as its key stakeholders, across social, ethnic and generational boundaries.

In 2014, the city of Ludwigsburg received the »German Sustainability Award« for the government, administration, and residents´ exemplary and integrated approach to urban development, looking back on 10 years of successful collaboration on the Urban Development Plan. The award celebrated the administration´s programme of work as well as the support it gained from vast numbers of dedicated residents and broad sections of the city government.

In 2015, Ludwigsburg set up a welcoming programme to deal with population change and the large number of refugees. On 26 March 2015, the German Association for Housing and Urban Development (Bundesverband für Wohnen und Stadtentwicklung, vhw) hosted a number of group debates on » a culture of welcome« to help prepare the fifth ZuKo future conference in 2015.[5]

Under the heading of integration and diversity, the results of these group discussions were later further developed together with refugees and so-called KiFa mentors (KiFa - children and family education) at the ZuKo future conference. In addition to the eleven main themes, the topic of inclusion was discussed at two tables focussing on welcome culture.[5] Migrants and refugees were recognised as members of a new resident group, and members of these target groups were regularly involved in workshops focusing on the development process taking place in 2015 and 2016.

Amongst other topics, the sixth ZuKo future conference in 2018 explored possibilities for the city of Ludwigsburg to contribute to sustainable development, even at the global scale. The seventeed United Nations Global Development Goals (SDG) were one of four focal points. As in previous years, outcomes were subsequently processed and documented in order to further develop the SEK Urban Development Plan.

The Federal Ministry of Education and Research (BMBF) also funds the »ZukunftsWerkStadt« (Future workshop city) programme in Ludwigsburg. As part of this programme, the city has worked with the German Association for Housing and Urban Development vhw to generate greater participation and help spread information and responsibility throughout all community groups, including new immigrants. The programme aims to work with residents, retailers and industry to jointly develop digitalisation concepts which address their needs and demands and which can be readily implemented. The digital agenda was also a topic at the 2018 future conference, highlighting Ludwigsburg's journey towards a Smart City.

## INTEGRATED ENERGY PLAN

Cities´ energy efficiency is determined by aspects such as urban planning, traffic systems, land use, urban density and urban context and user demand. Ludwigsburg´s SEK addresses these issues within the Energy Supply topic and area of work. The main objective is to balance energy consumption through greater energy efficiency and/or using renewable energy sources and resources. To this end, a city-wide energy strategy coordinates individual measures and approaches to achieve the best possible overall effect.

The municipal utility company (Stadtwerke Ludwigsburg-Kornwestheim, SWLB) is developing an innovative plan for the sustainable, efficient energy use. The energy plan is about more than simply energy, it addresses quality of life and future-proof habitats

A local wood-fired power plant provides Ludwigsburg with heat and electricity from biomass.


Fig. 5: Wood-fired heating plant in Ludwigsburg

The largest of its kind in the state of Baden-Württemberg (Fig. 5) this is a flagship for environmentally friendly energy supply. In 2010, it was able to meet 70 percent of Ludwigsburg's district heating demand.[6] By April 2015, SWLB was saving a total of around 41,000 tonnes of carbon dioxide (CO2) a year. The city is currently engaging with SWLB, residents, and interest groups such as business representatives and public institutions, in order to assess the renewable energy potential for the city's energy strategy. In providing geothermal district heating to the Grünbuhl - Sonnenberg neighbourhood, SWLB has become active in another important energy segment. Another important field of SWLB´s work includes sustainable mobility. In 2014, it set up three electricity charging stations in Ludwigsburg and Kornwestheim. By the end of 2016, this was extended to 18 charging stations to provide electric vehicles with environmentally friendly power.

## NEIGHBOURHOOD DEVELOPMENT PLAN (STEP)

Sustainable urban development prioritises brown fields over green field development areas. The city of Ludwigsburg adopts this approach by implementing integrated district development plans to convert former barracks and redevelop inner-city housing estates.

These adapt the SEK guidelines and strategic objectives to individual neighbourhoods and include a detailed Neighbourhood Development Plan (Stadtteilentwicklungsplan, STEP) addressing the eleven SEK topics. The STEPs also define specific goals and measures based on the SEK master plans.

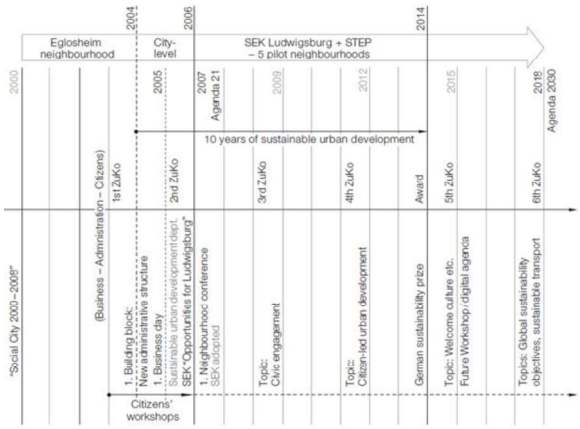


Fig. 6: Participation process in Ludwigsburg

In 2006, Ludwigsburg started producing STEPs for four selected pilot neighbourhoods: City centre, Eglosheim, Grünbühl-Sonnenberg (Fig. 7) and Karlshöhe. At the same time, Ludwigsburg succeeded in obtaining federal and state government subsidies as part of the »Districts with Special Development Needs - Social City« regeneration programme. The Grünbühl, Hirschberg and Schlößlesfeld neighbourhoods had been built very quickly and cost-effectively after the war and were given a high priority because the city had identified an urgent need for improvements to energy-efficiency. In the city centre, specific goals included reducing CO2 emissions. Since 2004, the city dedicated around € 50m of federal and state subsidies to around 100 projects and measures.[6] In the following years, further STEPs were developed for districts in the eastern and western areas, including Weststadt, Oßweil, Oststadt, Poppenweiler, and Neckarweihingen.

The city is currently running further workshops to engage stakeholders in specifying STEPs. In

2015, the state of Baden-Württemberg awarded Ludwigsburg a prize for the »Social City Grünbühl-Sonnenberg / Karlshöhe« project.

Fig. 7 STEP development plan Grünbühl-Sonnenberg, Ludwigsburg

## MANAGEMENT CYCLE

Since 2002, the Eglosheim neighbourhood has served as a pilot project, with intensive public consultation to formulate the objectives for its future development. Since 2003, the local sustainability process is controlled by a management cycle developed within the European »Managing Urban Europe« (MUE) programme.


Fig. 8 Urban Development management cycle

In September 2009, Ludwigsburg's city administration adopted a five-step management cycle adapted from this model to secure and manage the further development of the Urban Development Concept (SEK) and the Neighbourhood Development Plans (STEPs) (Fig. 8). Managing sustainable urban development is regarded as a task, which cuts across administration and politics, for which community engagement is an essential prerequisite. The final report evaluates results to review their contribution to achieving objectives set out in the catalogue of indicators. It also includes a feedback function to control or re-adjust measures or projects in detail.

## Conclusion & Final Remarks:

Cities and municipalities are state-constituted local authorities and are part of the urban development stakeholders together with other private and public bodies and institutions, individuals and interest groups, companies and organisations. Each party has different outlook and weight along the process of the development. However, the cities and municipalities such as in the cases of Heidelberg and Ludwigsburg are leading the whole process and are obligated to put it on the right track towards sustainable development. The physical form and the urban configurations of the city, its buildings, technical infrastructures and open spaces arise from a complex interplay of private and public actions, reactions and interventions. Democratically legitimate urban institutions are tasked with directing urban development towards the complex objectives of sustainability.

Neighbourhood development always involves changing the status quo. Thus it is essential in terms of social justice to strive for the Pareto Principle, which is a theoretical situation first described by the Italian engineer, economist, sociologist and founder of welfare economics, Vilfredo Pareto (1848 – 1923), where it is no longer possible to improve the situation of one player without making that of another worse. Another aspect that this theory lead to is the efficiency and optimality of the process. The two case studies illustrated here show successful sustainable development process for neighbourhood development. In both cases, social justice, participation of the locals and energy concepts are part of the urban development concept. It is significant that in both cases, different strategies are set to achieve the best possible results and to include all parties in the process (especially the case of Ludwigsburg, where migrants and refugees are getting involved from the beginning).

In Germany, public engagement in urban development planning has been embedded in federal building law (BBauG) since 1960 and in the building code (BauGB) since 1987. Article 3 requires citizens to be informed at an early stage, possible consultation responses to be discussed in public, and planning officers' considerations to be provided as a basis for political decision-making. [7].

The Agenda 21 mission can be seen as guidance for municipalities and cities to follow and instead of being only informed as citizens, residents and individuals about the planning decisions, all stakeholders should be involved, contribute and share decisions along the whole process and should be able to provide input and change the status quo.

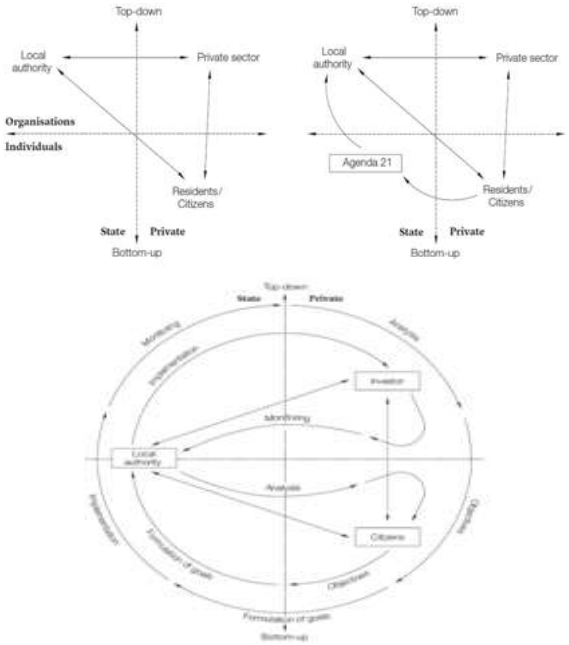


Fig. 9 Neighbourhood urban development towards sustainable development:

- to the left the stakeholders located as top-down and bottom-up groups.
- In the middle the stakeholders in relation to the Agenda 21
- to the right illustration shows the strategy for implementing project goals in five steps (as in the case of Ludwigsburg. The outer cycle represents the wider management cycle in the city as a whole, whereas the inner cycle represents the management cycle for a specific project. Local government engages with citizens to formulate objectives, and subsequently monitors and analyses implementation by investors, communicating performance back to citizens.

Since 1992, local governments have been given a far-reaching mandate, aimed at safeguarding sustainable development in operational and democratic terms:

"Because so many of the problems and solutions being addressed by Agenda 21 have their roots in local activities, the participation and cooperation of local authorities will be a determining factor in fulfilling its objectives. Local authorities construct, operate and maintain economic, social and environmental infrastructure, oversee planning processes, establish local environmental policies and regulations, and assist in implementing national and subnational environmental policies. As the level of governance closest to the people, they play a vital role in educating, mobilising and responding to the public to promote sustainable development." [8]

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