

POSITIONING OF THE VAAL TRIANGLE IN A NEW SOUTH AFRICA

Dr D J Bos

Department of Town and Regional Planning
PU for CHE

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1 INTRODUCTION

The underlying motivation for the subdivision of national states into smaller geographic areas, each consisting of its own government with specific responsibilities, lies in the wishes of the inhabitants to make their own decisions concerning certain matters which affect their daily living. This approach is based on the phenomenon that countries often consist of distinguishable units based on the following factors: climatic and physical aspects and in addition socio-economic communality.

During the fore election period, a decentralized unitary state was being considered for South Africa with its diverse population groups and their historical claims to specific territories, in order to delegate power to secondary level authorities. The negotiation process on constitutional affairs then centred around matters such as the principle of regional governments; the demarcation and determination of regional borders; which political and functional authority should be allocated to regional governments; and which sources of income should be made available to them (Van Rensburg 1993).

In 1992 the National Party announced a system of regional governments, with the existing nine development regions as point of departure, as a model for a new constitutional dispensation. These suggestions were followed up by suggestions and points of view of the ANC, the IFP and others. It was clear, however, that the positioning of the Vaal Triangle in a new South Africa was not a settled case within the framework of these and other suggestions, and was not investigated with the required sensitivity to

local circumstances. Suggestions concerning the Vaal Triangle, made provision for, *inter alia*:

- Sasolburg to be excluded from development Region H, to form part of Development region C (Orange Free State).
- Development region H to be divided into various sub-regions.
- The Vaal Triangle to be excluded from Region H and included in Development region C (Orange Free State).
- The Vaal Triangle and the Witwatersrand to form one region and the Midrand/Pretoria area, another.

The Vaal Triangle regarded itself an important role player within the larger PWV area. In order to prevent a plan "from above" being imposed upon the local community, a decision was made to act pro-actively so that the Vaal Triangle can position itself through a process "from below" (the so-called "bottom up approach") with regard to future regional governments.

1.1 Aim and extent of study

The aim of this study was to indicate where the Vaal Triangle fits in among regions as either subregion or as an independent region. Rational decisions are imperative when taking into account the limited resources available to increase the welfare of all South Africans. A holistic approach was proposed to demarcate the country into various regions which (i) are economic viable and create a basis whereby sufficient prosperity/job opportunities/tax income can be provided; and (ii) can be controlled administratively

and will not dominate other regions politically. The process of regional demarcation is, however, as important as the final product. Provision was made to involve the leading parties from the start by holding regional conventions to determine whether groups (i) wish to be part of a particular region or not; (ii) need to manage common interests jointly; and (iii) wish to handle domestic concerns autonomously.

1.2 Points of departure

At the time the study was conducted it was necessary to make certain assumptions due to the fact that the number and size of regions as well as the status of boundaries as determined by the objectives, the nature and extent of powers and the functions which regional government would perform, had not yet been finalised.

The following points of view were agreed upon and adopted by a special working group to support the arguments made in this paper:

- That the authority of the regional government would be entrenched in the constitution.
- That the number of regional governments would be determined by the:
 - viability of regions; and
 - optimization of administrative costs of the regional governments.
- That the existence of subregions and a degree of autonomy for these regions would be acknowledged.
- That the nine existing development

regions would be taken as departure points in the determining of regional borders.

- That differences between regions regarding their population size, areas and economies would be accepted.
- That strong regional governments in which the inhabitants of the Vaal Triangle make their own decisions, would be provided.
- That the regions would have autonomy regarding their own function. Functions would be efficiently performed on the lowest possible level or through commercialization.
- That the central government would have a reasonable source of income for the financing of duties and to support the various regions.

2 THE VAAL TRIANGLE IN NATIONAL AND REGIONAL CONTEXT

The name Vaal Triangle, was originally allocated to the towns Vereeniging, Vanderbijlpark and Sasolburg, which form a triangle adjacent to the Vaal River - Vereeniging and Vanderbijlpark being north of the Vaal River in Transvaal and Sasolburg south of the river in the Free State. Meyerton, which is situated just north-east of Vereeniging, was functionally regarded as an inherent part of the Vaal Triangle.

The black residential areas Boipatong and Bophelong (situated within the municipal boundary of Vanderbijlpark), Sharpeville (in Vereeniging), Zamdela (in Sasolburg) and the regional residential area for blacks, namely the Lekoa area, are all included in the Vaal Triangle. This also applies to the Coloured residential area Rust-ter-Vaal and the Asian residential area Roshnee, which are both situated in the municipal area of Vereeniging. In this study, all the above mentioned are taken to fall within the area referred to as the Vaal Triangle.

The Vaal Triangle forms the southernmost part of the PWV complex as specified in the National Physical

Development Plan of 1975. By 1970 9,02% of the total population of the PWV complex was accommodated in the region, which, in 1975, was responsible for 8,27% of the Gross Geographic Product of this area (RSA, 1982:9). In regional and metropolitan context, its position is, however, strengthened as 12% of the total population of the PWV area was housed here in 1990, and 8,6% of the Gross Geographic Product (1988) was produced here.

Road and rail systems spatially and functionally link the Vaal Triangle with other nodal points in the greater metropolitan area. This linkage has led to increased settling near the transport axes, the following being most important:

- The P156-1 and P157-1 freeways and the railway line connecting Sasolburg and Vereeniging in the south, via Germiston and Kempton Park, with Pretoria in the north.
- The N1 freeway and railway linkage, which stretches northwards from Vereeniging and Vanderbijlpark via Sebokeng/Evaton and Soweto to Johannesburg (Department of Regional and Land Affairs, 1992:10-11).

According to Geyer (1986:260) a prospective development axis could be identified, stretching southward from the Vaal Triangle via Kroonstad and the OFS goldfields towards Bloemfontein.

As a result of the urban centres Vereeniging, Vanderbijlpark and Sasolburg being regarded by the Department of Development Planning as part of the PWV area, there are no official hierarchical index values known for these centres. Should an urban development index value be determined for all the centres in the RSA, however, Vanderbijlpark, Vereeniging and Sasolburg respectively occupy the sixteenth, twenty-fourth and thirty-third positions in such a hierarchy and are thus individually comparable with towns such as Benoni, East London, Witbank, Kimberley and Middelburg (Bos 1991). Should an aggregate index value for the urban complex be calculated, a notable increase in their position could be expected.

3 A SOCIO-ECONOMIC REVIEW

In the following sections the population, composition and economic activities of the population are discussed briefly. The gross geographic product of the Vaal Triangle is placed in perspective and tendencies are pointed out. Underlying these aspects, the absorption capacity of the Vaal Triangle is discussed. For the discussion official census figures are used, but as a consequence of drastic changes in growth over the past two and a half years, these figures are supplemented with updated data where possible.

3.1 Population size, composition and growth

The total population of the Vaal Triangle increased by 233 452 inhabitants from 1985 (540 142) to 1991 (773 594), representing an annual growth rate of 6,2%. When this rate is determined for the black population for the 1991-1993 period, however, it seems that the growth was more than 25% per annum. This figure does not, however, take into account people on farms, domestic workers in backyards, etc. When the growth rate is determined for the period 1991 (official figures) to 1992 (Vaalgro figures), it reflects an increase of 94,6% per annum, with the Vereeniging district showing the highest growth. This growth could mainly be attributed to the rapid expansion of the Orange Farm/Poortjie areas in the north which places enormous pressure on: (i) the provision of infrastructure; (ii) the local treasury; and also (iii) has a negative influence on the viability (expressed in terms of GGP per capita) of the area. The high growth rate of the Vaal Triangle is especially significant when compared to the estimated growth rate of 2,9% per annum for the PWV area.

The urban population (semi-urban plus urban) increased from 1985 (472 522) to 1991 (716 043) at a rate of 7,2% per annum. In contrast, the non-urban population decreased in this period by 10 069, which constitutes a decreasing rate of 2,6% per annum. The composition of the 1991 population was as follows: Blacks - 71%; Whites - 24%; Coloureds - 3%; and Asians - 1%.

According to Vaalgro figures, however, blacks already constituted 84% of the total population in 1992.

3.2 Economic activity of the population

The employment figures of especially the trade, transport, finance and service sectors maintained high growth rates per annum (1985-1991) of between 8% and 13%. On the other hand, employment in the manufacturing sector increased by only 2,8% per annum, whereas employment in mining, electricity and construction decreased by 1,8%, 1,6% and 0,9% respectively. The relative decline in employment in the manufacturing sector, in terms of the total economic active population, can probably be attributed to: (i) the fact that industries are becoming more capital intensive; (ii) the rapid growth of the trade, transport and financing sectors; (iii) the large percentage of persons whose economic activities are not satisfactorily described or are unemployed.

The 1991 statistics show that 58% (449 762) of the community of the Vaal Triangle have no income at all, 12% (90 694) earn between R10 000 - R29 999 and 8% (62 605) earn between R1 000 - R2 999 per annum. If the average income per income group is used, the calculated per capita income amounts to R4 976 per annum.

3.3 Gross Geographic Product

In 1988 the Vaal Triangle contributed 8,6% towards the total GGP of the PWV complex (compared to 7,7% in 1984). Twenty percent of the production in the manufacturing sector within the PWV complex is concentrated in the Vaal Triangle, which gives the area a certain "technological" character.

The total GGP of the Vaal Triangle grew at a rate of 3,7% per annum for the period 1984-1988, whereas the total PWV complex only showed a growth of 0,66% per annum. This growth can be attributed mainly to the consistent growth of the manufacturing sector at 4,1% per annum, transport and communication at 5,9% per annum and electricity and water con-

sumption, which showed a rapid growth at 17,1% per annum. Furthermore, the manufacturing sector increased its share of the total economy of the region from 56% to 59% between 1984-1988, and electricity and water consumption from 7% to 12%. The other sectors, however, either retained the same percentage share of the economy or decreased.

3.4 Absorption capacity of the Vaal Triangle

Taking into account the waiting lists for housing, a survey among black town managements showed a backlog in housing and serviced sites of approximately 40 000 - 50 000 units.

As far as unemployment is concerned the total number of unemployed in the community in 1991 was 70 794, of which the black population constituted 92%. With the help of the Employment Research Unit's report which estimated the percentage unemployment as 14%, it could be calculated that these figures might be as high as 80 000 (1991) and 179 000 (1992). The economy, measured in terms of the GGP growth rate of 3,7% per annum, does not have the ability to create jobs for the population which is growing at a rate of 6,2% per annum or in terms of the Vaalgro figures, 94,6% per annum between 1991-1992.

4 POSITIONING OF THE VAAL TRIANGLE

In order to position the Vaal Triangle within regional context, it is necessary to identify, as a point of departure, a region with the urban areas of the Vaal Triangle (more specifically Vereeniging, Vanderbijlpark and Sasolburg) as core of the region. Especially the following critical questions must be answered:

- Should the core exist undivided or not?
- Does the Vaal Triangle with its inter-dependent region form an autonomous region, or does it function as a sub-region of a larger region?
- If a sub-region, what are and in

which direction are its linkages within the broader region?

There are, however, as many definitions or opinions on regions as there are disciplines using regions as divisional criteria. Through demarcation of regions, whether planning regions or administrative regions, sub-regions or districts, attempts are made to identify meaningful physical, economic and social units, wherein a certain degree of inter-dependence (functional coherence), homogeneity as well as regional affinity exists among the inhabitants. In other words, the regions should be a combination of the homogeneous as well as the functional regional concept, which, to be useful, should take into account administrative boundaries. A regional affinity or communal sense is important, however, as this could lead to rational joint decision-making with a view to increasing prosperity in particular regions.

The following criteria are generally accepted as points of departure for the demarcation of regions. To a certain extent these criteria were used to determine boundaries of RDA's, development regions and RSC's and could serve as point of departure in the demarcation of regions for regional governments. The criteria are:

- Existing administrative boundaries
- Physical considerations
- Natural resources
- Nodality
- Socio-cultural aspects
- Economical potential and feasibility
- Regional coherence

Population dispersion, population density and the occurrence of infrastructure are often viewed as demarcation criteria. It is often used in conjunction with criteria determining nodality, to indicate "zones of low intensity" with regard to, for example, densities and occurrence of infrastructure. Where the Vaal Triangle, however, is part of a greater metropolitan area, these criteria are not as relevant as in predominantly rural areas.

4.1 Characteristics of regions

Typical characteristics of a region, more specifically a planning region,

which are relevant to this study, are the following:

- The region should be large enough to bring about substantial changes with regard to the population distribution and the creation of job opportunities for example, in the case of a metropolitan area (compare Howard's concept of new towns surrounding London).
- The region should be small enough to grasp the planning problem in its entirety. Seen thus, the problem (and the effect it has on a certain area) should eventually demarcate the region.
- The region should possess a nodal core or cores which functionally interact with its environment.
- The internal interaction (intra-regional) should be greater than the external interaction (inter-regional). This can be measured in terms of service areas of the commercial and industrial sector, purchasing of raw materials, commuting to workplaces and all types of communication.
- The region should be comprised of heterogeneous elements displaying inter-dependence and a functional unity.
- Regions should possess a homogeneous economical structure or be homogeneous with regard to a particular problem. This is necessary in order to apply an appropriate development approach in an area which is in step with:
 - the development phase in which an area finds itself;
 - the location of the area with regard to the core area, the intermediary or outer periphery.
- Administrative boundaries and districts, should be taken into consideration. This is important, seen against the background of information which is usually available on a district base.
- A region should take into account the regional affinity or loyalty,

which basically boils down to uniting that which belongs together within such a region.

- Regions should be regarded as dynamic regions that need to be adjusted as circumstances change (Bos & Geyer 1992).

4.2 Criteria for the demarcation of regions

In the following section the criterion used for the demarcation of regional boundaries will be discussed briefly.

4.2.1 Existing administrative and planning boundaries

The Vaal Triangle is divided by a probably outdated provincial border. The district borders were, for the greater part, accepted as "given regions" and served as building blocks with regard to the economic or statistical regions, planning regions, development regions, regional service councils, as well as the guide plan areas. These regions are supposed to be demarcated according to the norms set for functional regions. The Vaal Triangle is divided into two economic regions for statistical purposes, but is considered a sub-region of Planning Region 42, as well as Development Region H. The provincial border did, however, play a role in the demarcation of regions for regional service councils. A combination of the Vaal Triangle RSC and the Northern Free State RSC area corresponds by and large to the Vaal Triangle area with its possible inter-dependence areas as indicated in paragraph 4.2.4.

4.2.2 Physical aspects

The most common physical aspects used for the demarcation of regions are topographic and hydrographic barriers, geology, nature areas, and the occurrence of natural resources. The topographic surveys clearly show that the Vaal Triangle is bordered to the north, west and east by an area with rough topography forming a buffer zone and a physical watershed between the Witwatersrand and the Vaal Triangle. This buffer zone coincides with existing district borders of

the Vaal Triangle to the north. In terms of the new White Paper (1993) on environmental management, it will make sense to demarcate regions in accordance with environmental units such as natural drainage systems. Since the erection of structures against steep inclines involves a number of problems such as effective access routes and services, and high cost of construction, it is also unlikely that the Vaal Triangle and the Witwatersrand will ever develop into a continuous metropolitan region. This separation will probably be maintained as a result of the occurrence of dolomite in the same areas. As a result of excellent transport routes, however, the rough terrain has little influence on the functional interaction between the Witwatersrand and the Vaal Triangle.

The only buffer effect the hydrography of this area displays, is the fact that Frankfort is separated from the Vaal Triangle to a certain degree by the Vaal Dam.

4.2.3 Natural resources

Although natural resources are not a "criterion for demarcation" *per se*, they do contribute to the economic potential and viability of a region. Only three natural resources have a bearing on this area. Water, being one of them, cannot, however, be claimed by the Vaal Triangle, as the run-off of the Vaal River is supplemented by schemes such as the Tugela-Vaal which are financed by state funds. The area is especially known for the occurrence of low-grade coal (estimated at 2 411 million tons) and clay (Mintek 1993). However, the GGP figures for 1988 show that the primary sectors (including agriculture) represent only 5% of the total GGP of the Vaal Triangle. Furthermore, a decline of 7,5% per annum was experienced in the primary sector during the 1985-1991 period.

4.2.4 Nodality

The following are significant with regard to nodality:

The Vaal Triangle as a nodal core complies with the characteristics of a "dispersed city". A dispersed city is

described as a number of urban centres being united into a higher order centre, namely a metropolis, by means of increasing functional interaction (Nieuwoudt 1983:285).

The empirical findings with regard to buying patterns, industrial linkages (Claassen 1985 & Sasolburg Town Council 1992) flow analysis of transport as well as the service areas of government offices such as the Receiver of Revenue and Internal Affairs, services such as education, hospitals, prisons and co-operations, and the distribution of newspapers, confirm the interwovenness of the Vaal Triangle as a core. According to this, it would appear that any regional demarcation not dealing with this area as a unit, will be detrimental to the growth and development as well as the planning and coordination in the area. Most of the earlier spatial development plans and strategies such as the Spatial Development Strategies for the PWV, 1981 and 1992, and the demarcation of Planning Region 42 as well as Development Region H, dealt with the Vaal Triangle as a unitary area.

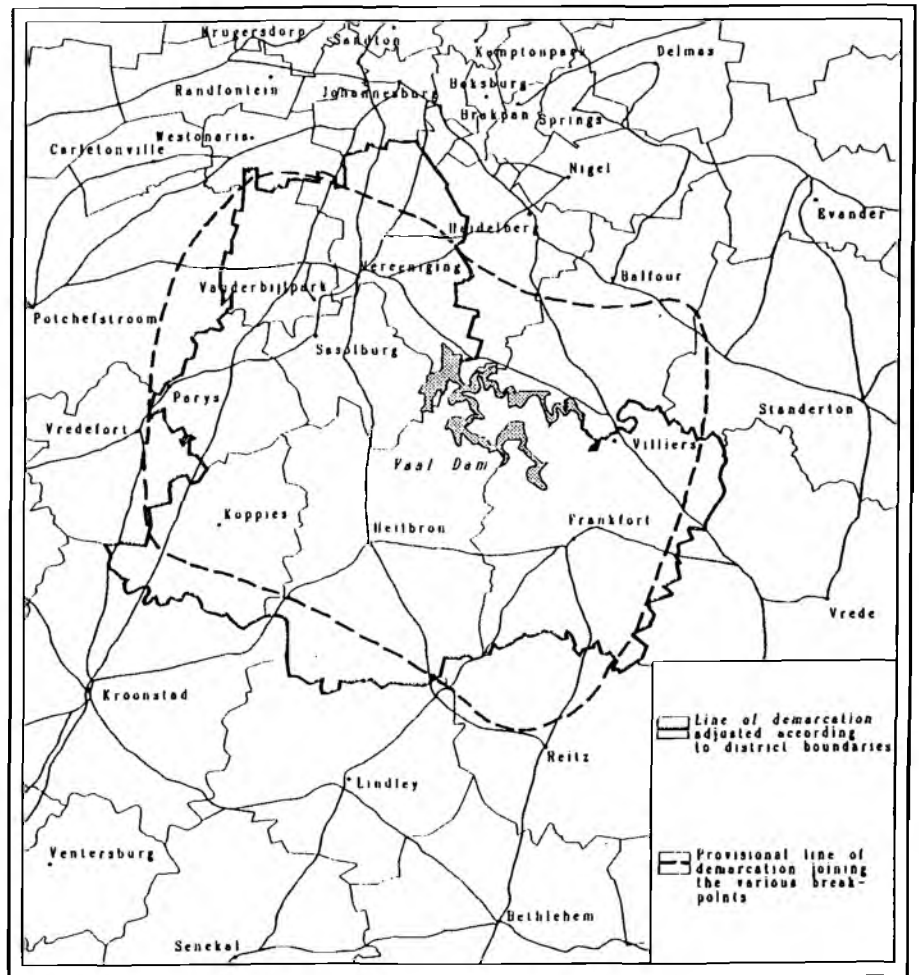


FIGURE 1: Results from a gravitational analysis

The sphere of influence of the Vaal Triangle was determined with the aid of a gravitation analysis, flow analysis based on empirical observations and the determination of service areas of government offices, service institutions, co-operatives, etc. Break-point distances between towns were determined by means of the gravitation analysis and are shown in Table 1.

A functional region consisting of the Vaal Triangle as well as the districts of Parys, Koppies, Heilbron and

Frankfort was demarcated as shown in Figure 1¹. This demarcation is confirmed by the flow analysis regarding trade as well as transport and telecommunication. In the northern part of the Vaal Triangle it would appear that, according to a 1991 transport study, a definite "watershed" exists between the Orange Farm/Poortjie area and Sebokeng/Evaton (Department of Transport, 1991). However, recent surveys by Putco (1993) also show a

strong linkage between the latter mentioned areas and the Witwatersrand, which challenges the existence of such a line of division. It is recommended that district borders which coincide with a physical buffer zone and watershed, namely Gatsrand, be upheld, rather than drawing a line between these black townships which are adjacent to each other.

A second gravitation analysis was conducted in order to indicate functional interaction between the Vaal Triangle and the remainder of the PWV area. The fact that an axis exists, indicates intense interaction as well as potential interaction between these cores.

In order to determine the presence of the development axis-phenomenon, Geyer's (1986) model for its measurement was used. An urban development index (UDPI) is calculated for each core in the PWV area with 1991 values which represent the "size" and "weight" of a centre. In order to take into account the interaction between centres and their positions in relation

Table 1: Calculated Break-points

Towns	Population (urban - 1991)	Distance between Vaal Triangle and towns	Break-points measured from Vaal Triangle
Kroonstad	81 761	137 km	93 km
Potchefstroom	127 373	89 km	56 km
Bethlehem	50 061	208 km	152 km
Standerton	43 010	139 km	103 km
Carletonville	174 533	75 km	44 km
Heidelberg	39 851	51 km	38 km

to one another, which contribute to an area's total development potential, a new value that depicts the "total development potential", was determined. These index values were plotted and joined by iso-geometrical² lines which clearly indicate the existence of a development axis between the Vaal Triangle and the remainder of the PWV complex (see Figure 2). Figure 3 shows a three-dimensional representation of this phenomenon. The relative economic potential of the Vaal Triangle compared to the Witwatersrand and Pretoria can also be observed in this figure. These iso-geometrical lines can be used by planners for example, to determine where new nodes should be located for job creation. The best location for nodes are on or as close as possible to the existing channels of communication. These can be used for the arrangement of physical and economic space and to relieve congestion in urban cores (to foster the deconcentration process from the Central Witwatersrand area).

The latter two possibilities thus refer to the interwovenness of the Witwatersrand and Vaal Triangle with regard to absorptive capacity and possible solutions to accommodate the growing population. The interdepen-

FIGURE 3: Three-dimensional representation of the Development Axis Phenomenon using Topi Values (1991)

dence between the Vaal Triangle and the rest of the PWV area is also evident in industrial linkages; the presence of head offices of industries in

the Witwatersrand; flow analysis of transport; socio-economic linkages (measured in terms of the number of telephone calls); as well as services such as electricity and water supply and the road network.

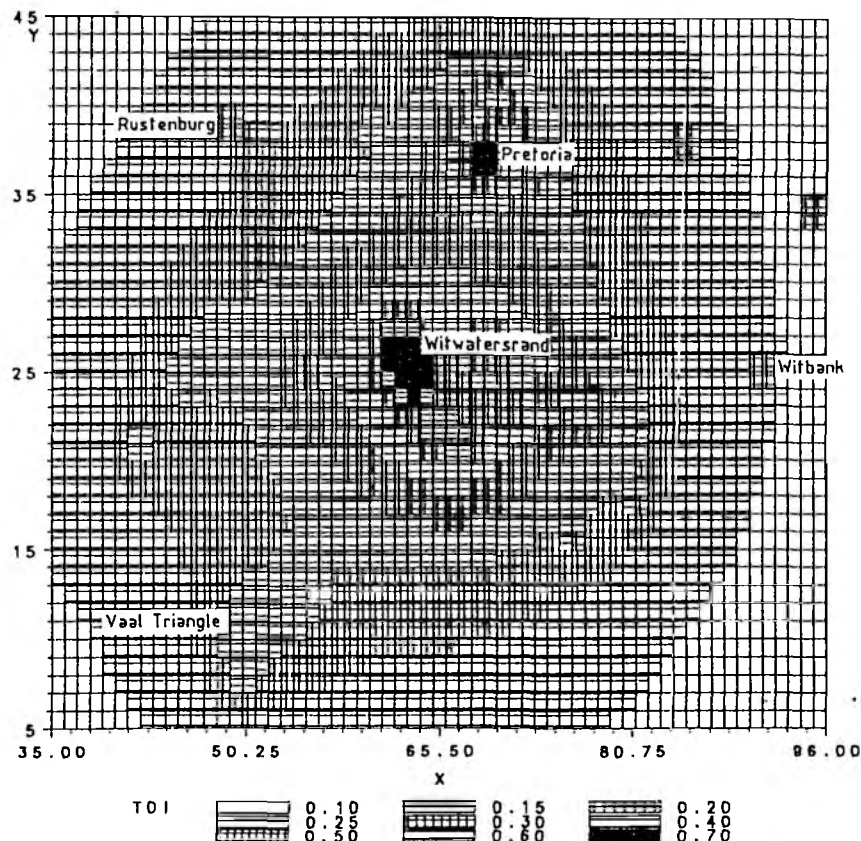


FIGURE 2: The PWV Complex: Measurement of the Development Axis Phenomenon

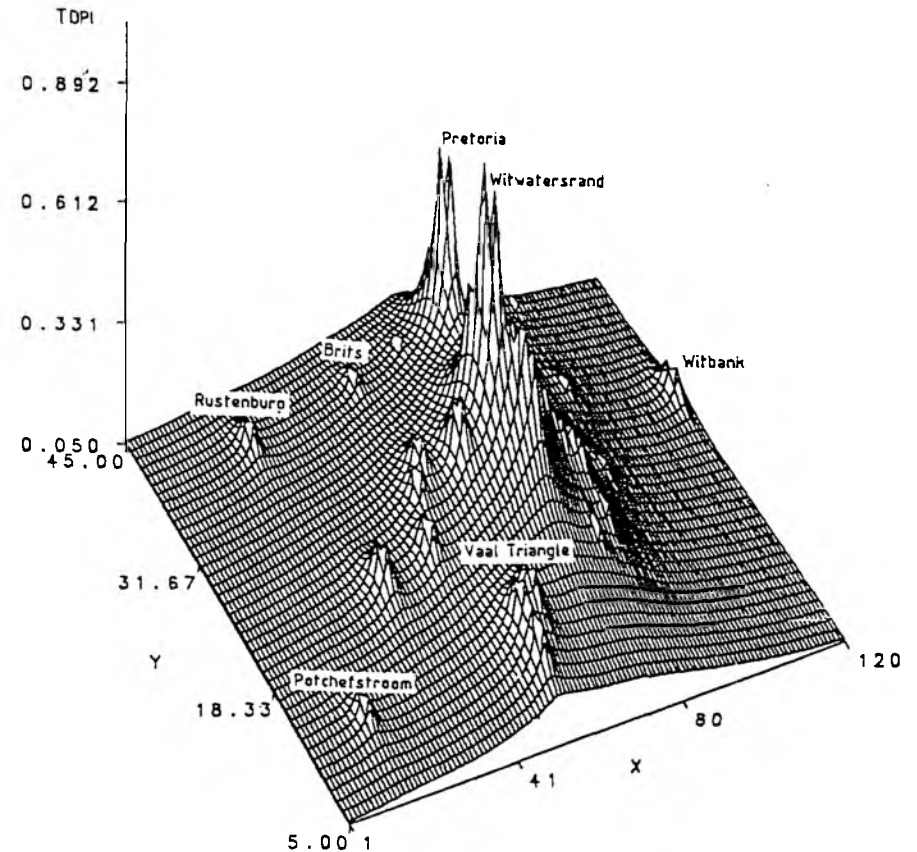


Table 2: Language Grouping within the Vaal Triangle - 1991
(% of total population of district)

District	Zulu	South Sotho	Afrikaans
Vanderbijlpark	16%	48%	13%
Vereeniging	14%	23%	30%
Sasolburg	7%	39%	33%
Average for Vaal Triangle	14%	39%	21%

the remainder of the PWV complex, its presence north of the Vaal Triangle is less significant. South of the Vaal Triangle, the percentages of particularly South-Sotho increase further, as illustrated in the following examples: Heilbron (59%); Koppies (69%); Parys (54%); Vredefort (50%); Lindley (74%); Frankfort (44%) and Kroonstad (58%). The consideration of socio-cultural attributes of population groups has two important implications:

- If the Vaal Triangle were to remain part of the greater PWV area, a sub-regional division, which would, to a great extent, give the Vaal Triangle an individual regional identity with regard to language used, i.e. Afrikaans

and South Sotho, could be made;

- The Vaal Triangle may be included in the larger region to the south where similar groupings of the population are found.

4.2.6 Economic potential and viability

The degree of autonomy of a region will be a deciding factor when decisions are being taken concerning the economic abilities of a region, and whether the region will be able to execute its autonomous regional functions. A final decision will, however, only be reached through negotiation. It is therefore difficult to determine the running costs of regional governments at this stage. Two sources which can reflect the economical capability of a region, namely GGP figures and a region's fiscal income basis, were used to ascertain the income. The fiscal income basis is, however, not readily available for all regions.

Fiscal income base is not easily determined according to the current base of tax collection, since statistics on income are not available on a regional basis. Certain revenues, such as personal income-tax and value added tax, are easily obtainable. The latter values may, however, not be directly comparable on a district basis as a result of, for example, value added tax refunds

to mines, as is currently the practice. Furthermore, company tax is not automatically reducible to regions, since: (i) companies can pay tax in the region in which their head offices are situated; or (ii) where their auditors are situated.

As a result of the abovementioned shortcomings with regard to fiscal income as an indicator of the economic abilities of a region, GGP figures are usually considered a reasonable indication of an income base and thus have been adapted. Table 3 shows how the Vaal Triangle with its interdependence area compares to the proposed SATSWA regions (Satswa 1992). It is therefore clear that in comparison to other regions, and with regard to all the noted attributes, the Vaal Triangle fares poorly with and without its dependence area, with the exception of GGP per capita, which is second to Region H.

4.2.7 Future spatial planning as part of the PWV complex

The planning point of view of the Department of Regional and Land Affairs (1992) is that preference should be given to areas that are well situated with regard to existing development corridors - like the Vaal Triangle - and are supported by the existing road and rail networks. The future prospects and planning of the

Table 3: Comparison of Salient Features of Regional Proposals

REGIONS	POPULATION	AREA KM ²	GGP 1990 ('000)	GGP/Capita	POP/km ²
Vaal Triangle	773 594	3 554	7 071 552	9 141.17	217.60
Vaal Triangle & Interdependence area	927 628	13 005	7 584 468	8 176.20	71.30
SATSWA Option 1	3 916 833	238 862	21 629 549	5 522.20	16.40
Region A and part of B	3 804 500	390 349	31 674 600	8 325.56	9.75
Region C	2 693 800	128 399	14 745 600	5 473.90	20.98
Region D and part of E	5 989 653	174 695	18 042 519	3 012.28	34.29
Region E and parts of F	7 684 367	97 803	35 014 866	4 556.64	78.57
Remainder F and G	6 210 403	167 760	29 931 863	4 771.33	37.02
Region H	7 909 200	23 894	91 099 954	11 518.23	331.01
TOTAL	38 208 756	1 221 762	241 838 951	6 329.41	31.27

PWV complex as explained in the spatial development framework, stress the integration of problems and solutions within metropolitan context. The deconcentration of the population over medium and long term in the Vaal Triangle will further exert pressure on existing services; the supplying of housing, as well as the creation of job opportunities. If the Central Witwatersrand deflects its problems to surrounding areas such as the Vaal Triangle, it is to be expected that the latter would have to be supported financially in order to increase its absorptive capacity with regard to services, housing and job opportunities. Such an approach in itself also indicates the interwovenness of problems and solutions within the metropolitan context.

4.2.8 Regional affinity and communal sense

The process of regional demarcation is as important as the final product, namely the region itself. The "emotional value" of communities should be tested in order to determine which communities wish to be part of a certain region, have the desire to jointly manage collective interests and to handle domestic affairs autonomously. The allowance in the demarcation of regions for consideration to be given to the socio-cultural backgrounds of the population can aid in obtaining a greater degree of homogeneity within regions, which in turn promotes regional affinity. A regional identity and the degree of stability within regions are however insufficient to ensure a communal sense. The input of communities is most important. During a regional convention held on 15 May 1993, the representatives of various institutions and town councils unanimously decided to be part of an autonomous region, if it was shown to be viable. The districts involved were Vereeniging, Vanderbijlpark, Sasolburg, Heilbron, Parys, Koppies and Frankfort. No consensus among the representatives exists however, if this option was not available.

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5 RECOMMENDATIONS

Viewed against the background that strong regional governments should be promoted, it is important from a *national point of view* that firstly, the number of regions be kept to a minimum so as to: (i) reduce the duplication of institutions, and (ii) assure the establishment of an affordable administrative and governmental dispensation. Secondly, the subdivision of the national core (which clearly forms an interdependent area) is from a planning point of view, also not acceptable, because problems related to urbanisation and the solution thereof require an integrated approach.

From a *regional point of view* the Vaal Triangle forms part of a socio-

economic functional area, namely the PWV area, which is also the core of the national economy. Development problems as well as solutions could be addressed with financial support of Region H to accommodate rapid urbanisation which takes place. Revenue can be applied locally to develop the area to its full potential. Linkage to the south on the other hand may hold the threat of funds being channelled out of the area to assist in the development of an extensive and relatively poor region.

From a *local viewpoint* it is important that the Vaal Triangle be planned and developed as a functional unity which would be beneficial to the region as a whole.

With these as the most important considerations, it was therefore recommended that:

- The Vaal Triangle should remain undivided.
- The Vaal Triangle be regarded as a part of the PWV-complex for planning purposes on the grounds of its functional and economic interwovenness within the greater metropolitan area.
- The Vaal Triangle be accepted as a subregion within the PWV-complex, which will allow for the desired degree of autonomy.

NOTES

- 1 Similar interdependence areas probably exist in other areas adjacent to Region H. The periphery of these interdependence areas can, however, be distinguished from those parts of the region situated inside Region H on the grounds of a lower intensity of interaction with the rest of the PWV area.
- 2 Iso-geometrical lines join points with equal relative values to each other.

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