# PARTICULARITIES OF THE GOLF-COURSE-BASED TOURIST-URBAN DEVELOPMENT MODEL (GBP): TOWARDS A SET OF CONTEXTUAL INDICATORS

JOSÉ ANDRÉS DOMÍNGUEZ-GÓMEZ[1] & JUAN ANTONIO DOMÍNGUEZ-ÁLVAREZ[2]
[1]University of Huelva, Spain
[2]Institute for Advanced Social Studies – IESA-CSIC, Spain

ABSTRACT

The first phase of any socio-environmental impact assessment is the detailed investigation of the context where the project is to be carried out. How best to articulate this context into socio-environmental dimensions and indicators has long been the subject of complex debates in the field. This paper attempts to advance this articulation, suggesting a number of contextual indicators based on the principal theories embracing environmental multidimensionality in measuring systems. We discuss the indicators chosen and the issues encountered in building this approach. Subsequently we assess the capacity of this set of contextual indicators to afford insights into the particularities of the golf-course-based tourist-urban development model (GBP). We set out to test the hypothesis that local contexts can be distinguished from each other via the impacts of the GBP model. To this end we perform a main components analysis of 16 socio-environment context indicators, using municipal data from a total of 59 coastal municipalities, i.e. the whole coast of Andalusia (Spain). Our findings show with acceptable clarity that the local socio-environmental context is marked by the development of GBP, revealing a battery of factors that, in the geopolitical area studied (Spain, south-west Europe), are especially sensitive to this type of tourist-urban development.

*Keywords: socio-environmental impact assessment, development projects, golf, tourism, local context analysis, Spain.*

## 1 INTRODUCTION

Among the salient issues which any socio-environmental impact assessment study (SEIA) has to address is the complexity of the context where the project (road, hydro-electric dam/ plant, mining development, etc.) will be carried out. In-depth knowledge of this context is essential for appropriate impact assessment, since each development project is distinct from all others: differences in scope or field, type of project, size, location, etc., make no two schemes identical.

The gradual increase of SIA studies in projects has placed the issue of complexity on the decision-makers' table. Currently SIAs are shifting from a positivist, engineering-based model towards a constructivist one [1], i.e. from a type of research design based on the application of general, standardised models (a deductive approach) towards one which is more tailor-made for each project, laying more stress on the phases of detailed exploration of the social context (geographical, sociological, historical, economic, demographic, cultural, etc.) and embracing participatory methodologies which bring stakeholders into the actual design and implementation of the project. However, developers, public administrators and politicians (the principal decision-makers) all share the prevailing engineering-based model of analysis, with its practitioners and traditional methodological grounding [2]. In the end, it is the scientific-technological models which, in our global culture, are legitimised to address social and historical problems. Thus, a clear challenge arises for SEIA: how to bring together the two research approaches or paradigms in order to improve the socio-environmental and economic sustainability of development projects.

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In this study we present a set of indicators which aims to focus our sights more closely on the complexity of the context that will be altered by the environmental intervention (the project). This system is built on the basis of the social dimension that some of the most-used and referenced analytical models in the field embrace. We also describe the transference of this system of reference to the 'real' system, i.e. the set of indicators for which we have real data available, from the context where our study is applied, enabling us to investigate the social context of the project. Finally, we carry out an exploratory test of the system of indicators using a principal components analysis (PCA). The hypothesis of this test could be formulated as follows: our system is capable of detecting the changes caused by the implementation of the development model defined as 'golf-based tourist-urban development' (GBP). Confirming this hypothesis would represent a firm first step in the quest for a system of indicators simple enough use as a reference in projects similar to our case study (GBP), but at the same time comprehensive enough to respond acceptably to the complexity of the particular context exposed to the intervention.

## 2 THEORETICAL MODELS FOR FOCUSING CLOSELY ON THE SOCIO-ENVIRONMENTAL CONTEXT

There are basically two approaches to defining indicators for measuring the social impacts of development projects. The first places its trust in the knowledge and abilities of experts who directly define the system that will measure the impacts. The scores obtained from the indicators are usually then aggregated and analysed according to the particularities of the project. In the second approach it is the various actors involved or interested in the project and its consequences who construct such a set of indicators. In both cases impact measurement is based on alignment with the project characteristics and the social and environmental context where it will be carried out [3].

Here we have developed an alternative strategy consisting in building an acceptable and discreet battery of contextual indicators which can offer the highest possible reliability in measurement and which includes the most common, accessible and valid indicators. In line with the methodological literature of reference in the SEIA field and project social sustainability studies, it is the context itself and the circumstances of the project's application that give shape to the indicators to be used. Basically, this means those for which data at a sufficiently specific level of disaggregation are available. This alternative approach to context complexity seeks to bring together the positivist and constructivist paradigms in SEIA practice using comprehensive (and complex) models, backed up by the specialist literature, and modified by the circumstances of the local context, which dictates which of the indicators in the system are applicable and which alternatives to them we may find.

Our reference models were chosen according to the following criteria:

- That they should be multidimensional and multidisciplinary; i.e., that they should tackle the socio-environmental context from the standpoint of the complexity and complementarity of its different dimensions.
- That they should be operative; i.e., that they should have been applied in specific cases or at least that they should clearly and specifically define the indicators to be used in practice for each of their dimensions.
- That they should be cited in the leading publications in the academic-scientific field.

Thus we have taken Slootweg et al. work [4] as a model for the development of the set of indicators, since it is specifically focused on the problem of context complexity in social and environmental impact assessment, and has made a highly interesting contribution to the methodological approach to analysis of both dimensions (environmental and social). Another

model of great interest is that of Ecosystem Services [5]–[7], which has had considerable academic and political impact. Its most important feature for our purposes is its high level of development of the operationalization of the dimensions and its degree of transference to the political decision-making system [8]. Similarly, we have used Colantonio's model [9], [10], more centred on the social dimension as the most complex one within the concept of sustainable development, with critical contributions stressing the need to embrace increasing complexity in assessment methods. With a more socially-centred approach, Sirgy et al. [11] takes on complexity methodologically with the aim of measuring 'community wellbeing' through the affected parties' subjective perceptions of changes in their contexts. Also in the same line, we find Maesen and Walker [12] and Berman and Phillips [13], with their construct of Social Quality and their painstaking sociological analysis of intangibles (social exclusion and inclusion, socio-economic security, social empowerment), all factors sensitive to contextual changes produced by development projects. Lastly, we have also taken as a reference the UN's set of sustainable development indicators [14], since it is a methodological document with global institutional recognition exploring context complexity in depth through the analysis of a full and multidimensional inventory of dimensions and indicators.

As the Table 1 (in [15]) from the battery of indicators taken from our theoretical models (48 indicators in total), we finally synthesised a database of 16 (marked in bold), taking particular care to represent all of the dimensions included in the models with at least one indicator each.

The institutional context played a key role in the final construction of the database, since a number of official structures and routines are needed for data gathering and management (digitization, indexing, public availability, effective response to requests for figures, database management, etc.). Thus for our case study we had recourse to official national and regional government information sources such as the National Institute of Statistics, the Ministry of Employment and Social Security, the Ministry of Education, Culture and Sports, the Ministry of Health, Social Services and Equality and the Ministry of the Interior (national); and the Department of Education, the Department of the Environment and Territorial Management and the Department of Equality and Social Policy (regional). All these official sources have their own data-gathering structures and routines; hence the construction of the database had to be oriented towards the maximum reliability combined with the minimum effort, applying this principle throughout.

In line with the principle of parsimony, we avoided indicators requiring specific field work (primary data) or prior production or analysis of raw data; for example, the indicator 'Degree of decentralization of political decisions' (see Table 2 in [15]), which would require an analysis of official publications assigning political responsibilities for each decision-making area bearing on project design and implementation.

Furthermore, in our case study the area affected by the GBP projects must be viewed with the maximum possible degree of territorial specificity (disaggregation). In other words, we require data on the municipal level, since in Spain, city planning responsibilities (those most relevant for the design and development of GBP) are assigned mainly to this level. This involves another challenge for building the database, since the more territorial disaggregation is required for the data, the less likely the existence and/or access to these. Therefore, depending on the case study (the project to be analysed), the listing of indicators with easily accessible data may grow, since the wider the area affected by the project, the easier it is to find data relevant to it.

Lastly, in addition to taking institutional infrastructures into account and having the appropriate degree of disaggregation, we need to have access to figures which are suitably

updated for the particular study. As a general criterion, we should have access to the latest figures available for each indicator reflecting, in each case, how updated they need to be. For example, with the indicator 'Area of natural spaces with protected status' (Table 2 in [15]) we can argue for a certain amount of flexibility, since changes in this area are infrequent.

## 3 TESTING THE SET OF INDICATORS WITH A CASE STUDY

GBPs can be defined as urban-tourism development initiatives, generally in coastal areas. They consist of (at the very least) one golf course accompanied by four and five-star hotels in tourist-complex format, combined with low-density, high-end residential estates. This is a very common pattern of development in many parts of the world and particularly in the south of the Iberian Peninsula. Thus the main distinguishing feature of a GBP is specifically the centrality of golf. The model is based on and justified by the presence of a golf course or courses.

In the last 20 years the south coast of the Iberian Peninsula has been rapidly urbanised on the basis of this model of tourist-urban development. The prestige of golf has been linked to: (a) its symbolic relationship with wealthy social classes, consumer models for the other social classes; (b) an erroneous generalised view of golf courses as 'sustainable development', based on confusion around their pleasant landscaping without taking into account the environmental and ecosystemic fit of each project; and (c) their connection to increasingly fashionable values such as healthy living, sport, fresh air, relaxation, etc. [16], [17]. It is a model that developers and governments advocate as an innovative approach to development, arguing its capacity to de-seasonalize and diversify the tourist industry [18]. However, doubts about its validity have arisen due to impacts such as increased local social inequality, reduction of cultural diversity, privatisation and avoidance of positive impacts combined with socialisation of negative ones, etc.

The case study we used to test our set of indicators, the Autonomous Region of Andalusia, is paradigmatic of this development model. It is the most populous region in Spain (8,379,820 inhabitants in 2017) and the whole 945 km of its coastline constitutes a prototype for the expansion of GBPs since the late 1990s. Out of a total of 778 municipalities in Andalusia we chose the 59 which are actually on the coast. By setting this common condition we aimed to explore possible regularities in the context indicators, such that groups of municipalities could be distinguished according to how the indicators performed in the latest figures available for each.

For this purpose, we carried out an analysis of the main components of the latest figures available for the indicators marked in bold in Tables 1 and 2 (in [15]). The outcomes of this analysis (KMO = 0.581, $p < 0.000$) yielded five factors representing 69.7% of total variance. Applying a Varimax rotation we observed the following matrix of indicator-factor correlations.

In order to test which of the factors identified was most able to distinguish the presence of GBP in the municipalities, we submitted the five factor scales to *t* tests for independent samples in relation to the grouping variable 'Municipality without/with golf courses' [19]. Table 3 shows the results of this test.

In the light of these test results, we chose factor 2 as the best scale for differentiating between municipalities participating or not in the GBP development model. We justify this choice taking into account: (1) the higher statistical significance of the test, since factor 2 shows a $p = 0.002$; and (2) its wider distribution in the mean scores of the scales in the two groups of cases (municipalities with/without golf courses), factor 2 showing the greatest difference between the two groups (0.738). Municipalities with golf courses within their boundaries scored a mean of -0.385, while those without scored a mean of 0.398. The

Table 1: Indicator-factor correlations (Pearson's *r*). Rotated component matrix.

| | Component | | | | |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| 2016 Total population | 0.283 | -0.519 | 0.592 | 0.039 | 0.041 |
| 2011 % Dif. between most-voted parties | 0.013 | -0.061 | 0.752 | 0.248 | -0.112 |
| 2011 % Participation in last municipal elections | -0.127 | 0.581 | -0.605 | 0.149 | 0.138 |
| 2015 % Women councillors | 0.105 | 0.391 | 0.332 | 0.009 | -0.710 |
| 2016 % Population 65 and older | -0.938 | -0.026 | -0.032 | 0.113 | -0.010 |
| 2016 % Population 15 and younger | 0.926 | -0.133 | 0.121 | -0.045 | -0.015 |
| 2015 Natural growth rates x 100 hab. | 0.896 | 0.075 | -0.113 | 0.254 | -0.014 |
| 2014 Employment rates | 0.385 | 0.627 | -0.150 | 0.371 | 0.132 |
| 2016 % Foreigners | -0.010 | 0.145 | -0.106 | 0.886 | -0.085 |
| 2016 No. different nationalities | -0.082 | -0.539 | 0.336 | 0.652 | -0.004 |
| 2016 Migratory balance x 1,000 hab. | 0.000 | 0.138 | 0.202 | -0.028 | 0.573 |
| 2016 Public health centres x 10,000 hab. | -0.729 | 0.187 | -0.297 | 0.127 | 0.235 |
| 2016 Private health centres x 10,000 hab. | 0.034 | -0.066 | 0.706 | -0.223 | 0.086 |
| 2016 Schools x 10,000 hab. | -0.198 | 0.257 | -0.244 | 0.010 | 0.530 |
| 2015 Posit. gross mean income (region) | -0.052 | 0.879 | -0.097 | -0.044 | 0.124 |
| 2015 Mean disposable income | 0.127 | -0.857 | 0.080 | 0.017 | -0.068 |

Table 2: Comparing factor scales results to variable 'Municipality with golf course'. Group statistics.

| Group statistics | | | | | |
|---|---|---|---|---|---|
| | | N | Mean | Standard deviation | Standard error |
| | Municipality with golf course | | | | |
| Factor 1 | No | 29 | -0.1990962 | 1.27907340 | 0.23751797 |
| | Yes | 30 | 0.1924597 | 0.58517412 | 0.10683769 |
| **Factor 2** | **No** | **29** | **0.3981213** | 0.91481090 | 0.16987612 |
| | **Yes** | **30** | **-0.3848506** | 0.93822235 | 0.17129518 |
| Factor 3 | No | 29 | -0.2443329 | 0.94011972 | 0.17457585 |
| | Yes | 30 | 0.2361884 | 1.01451688 | 0.18522459 |
| Factor 4 | No | 29 | -0.1576986 | 0.91688606 | 0.17026147 |
| | Yes | 30 | 0.1524420 | 1.06742691 | 0.19488460 |
| Factor 5 | No | 29 | 0.1368192 | 1.07109559 | 0.19889746 |
| | Yes | 30 | -0.1322585 | 0.92493213 | 0.16886873 |

maximum spread of scores identifies the scale showing the greatest differences between the potential components of the two groups of municipalities, i.e. those affected by the GBP model and those not.

In the light of these statistical outcomes, factor 2 can be defined as a relatively reliable scale in whose components we may see reflected the performance of a municipality in which a GBP has been carried out. It is the scale whose lowest negative scores came from the municipalities where the GBP model has the clearest presence. At the other extreme, the

Table 3: T-test for independent samples for the five factor scales.

| Independent samples test | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Levene test for variance equality | | t test for equality of means | | | | | | |
| | | F | Sig. | t | gl | Sig. (bilateral) | Difference in means | Standard error of difference | 95% confidence interval for difference | |
| | | | | | | | | | Inferior | Superior |
| Factor 1 | Assum. equal variance | 9.36 | 0.003 | -1.52 | 57 | 0.134 | -0.392 | 0.258 | -0.907 | 0.124 |
| | Not assu. equal var. | | | -1.50 | 38.9 | 0.141 | -0.392 | 0.260 | -0.918 | 0.135 |
| **Factor 2** | Assum. equal variance | 0.12 | 0.735 | 3.24 | 57 | 0.002 | 0.783 | 0.241 | 0.300 | 1.266 |
| | Not assu. equal var. | | | 3.24 | 56.99 | **0.002** | **0.783** | 0.241 | 0.300 | 1.266 |
| Factor 3 | Assum. equal variance | 0.65 | 0.423 | -1.89 | 57 | 0.064 | -0.480 | 0.255 | -0.990 | 0.030 |
| | Not assu. equal var. | | | -1.89 | 56.90 | 0.064 | -0.481 | 0.255 | -0.990 | 0.029 |
| Factor 4 | Assum. equal variance | 1.46 | 0.232 | -1.20 | 57 | 0.237 | -0.310 | 0.259 | -0.830 | 0.209 |
| | Not assu. equal var. | | | -1.20 | 56.23 | 0.236 | -0.310 | 0.259 | -0.828 | 0.208 |
| Factor 5 | Assum. equal variance | 0.31 | 0.578 | 1.03 | 57 | 0.306 | 0.269 | 0.260 | -0.252 | 0.790 |
| | Not assu. equal var. | | | 1.03 | 55.21 | 0.307 | 0.269 | 0.261 | -0.254 | 0.792 |

highest positive scores came from those municipalities whose development model was completely different (in terms of the performance of the indicators chosen for our model).

Thus the correlations between our chosen indicators and factor 2 (Table 3) can be used to characterise the GBP model in the context of reference (in this case the Autonomous Region of Andalusia, Spain). If we focus on the components with the highest correlations with the factor (Pearson's $r > 0.500$), we can say that the GBP model is more frequent in municipalities with higher population, lower election turnout, lower levels of employment, greater diversity of nationalities, lower income levels in relation to the context (regional in our case) and lower average disposable income. Broadening the characterisation to moderate though interesting correlations (Pearson's $r > 0.200$), we can add that the municipalities with GBP-based development tended to have fewer protected natural areas and a greater gender imbalance in local government (i.e. fewer women in municipal decision-making positions).

## 4 DISCUSSION AND CONCLUSIONS

The first step in SEIA of projects intervening in the environment is to develop knowledge of the context where the project will be carried out. If we define impacts as how people physically and cognitively experience the processes of change created by the intervention in the social and/or natural environment [20], we can see the importance of context as a factor filtering these processes of change. In other words, impacts are constructed on the basis of the effects of the intervention, its social perception and the socio-environmental contexts where these impacts act. Complexity is intrinsic to the analysis of contexts. On the one hand they have multiple territorial variations, i.e. the same project carried out in different territories will have different impacts owing to the distinct characteristics of each territory. On the other hand, since they are multidimensional (environmentally and socially), contexts are ontologically complex. Thirdly, impacts interact in multi-causal chains which overflow the borders of each particular dimension. In other words, one environmental impact (for example the increase in a specific pollutant in a river and the resulting fall in the number of fish) may create social impacts (abandonment of fishing due to the lack of fish) which in turn may give rise to further environmental impacts (changes in the use of the land: deforestation due to an increase in agricultural use).

This complexity conditions the epistemological view and for practical research requires the construction of models which are scientifically robust but at the same time manageable. The social sciences address EIAS through a constructivist paradigm of knowledge, in which complexity, multidimensionality and transdisciplinarity are underlying principles. The natural sciences (including engineering and their applied branches), predominant in the practice of these studies, are based on a traditional positivist paradigm which evaluates contexts and the processes of change and impacts caused by projects according to standardised criteria, models and tools [21], [22].

In this study we have taken on the challenge of bringing together the two paradigms, testing a set of indicators which can offer a parsimonious solution for knowledge of the context (and therefore the areas affected), i.e. a set of indicators which can sufficiently address the complexity of the contexts where projects are carried out, with a solid base in theoretical models common to both the natural and social sciences (Ecosystem Services, the UN sustainable development criteria). To these we have added theoretical models which are widely recognised in the field of project socio-environmental impact assessment and, more specifically, literature specialising in systems of indicators applied by the social sciences to sustainable development.

On these bases we have sought common indicators and dimensions; i.e. we have chosen indicators and dimensions which appear, either explicitly or implicitly, in the largest number

of the six theoretical models which we have taken as references. Finally, we have built a system composed of 48 indicators in 6 dimensions which, in order to respond to the parsimony principle, yielded 16 indicators, with the presence of all 6 dimensions. The end goal of a tool of this type is that it should be applicable to the specific case study, sufficiently addressing the complexity of the context in question. The data reflected in the battery of indicators must be able to reveal the key factors (and therefore also be sensitive to impacts) in the context of the type of projects which we aim to study: in this particular case, golf-based tourist-urban development projects.

While the statistical tests showed an interesting degree of reliability [23], we should point out a number of areas to improve in this research. First, the battery of indicators used only embraced a third (33%) of the total of indicators proposed. Increasing this percentage would require additional research endeavours to provide further data which, depending on the contexts of the case to study or the type of project to be developed, may or may not be interesting from the point of view of parsimony. Secondly, and on the basis of this parsimonious approach, the accessibility of quality secondary data clearly influences the choice of indicators. This conditions the greater presence of some or other dimensions in the final system. Thus, it will be the researchers themselves who will define what degree of endeavour it is worth undertaking to broaden the database and thereby widen the set of indicators. These research decisions will be influenced by the particularities of the type of the project to assess and the specific context (or area affected). Subsequent statistical tests will refine the final battery of indicators (as occurred in the study presented here). Furthermore, approaching the intervention context through qualitative techniques, or supported by local expert knowledge (through, for example, the Delphi technique), will doubtless contribute additional criteria to the building of the set of indicators.

As a final note, the outcomes of our exploratory analysis help to refute the traditional argument which identifies the GBP model, spread across the Spanish coastline particularly during the 1990s, with sustainable development. The specialised literature reveals two models of mass Spanish tourism: hotel resorts and tourist-residential resorts. The second model displayed signs of exhaustion in the 1991–1994 crisis. Faced with the saturation of coastal areas, local and regional governments put forward a new territorial development model [24], [25] based on large-scale residential developments around golf courses [26]. Politicians, administrators and the real estate sector promised that this new model would be environmentally friendly, create widespread employment and increase household incomes; in short, that the territorial development model based on housing estates with golf courses would create sustainable development. These arguments are not supported by the data compiled for this study, in fact completely the contrary. Furthermore, some analysts affirm that municipalities participating in the GBP model have been particularly badly affected by the post-2007 socio-economic crisis [27].

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