



# Comparative environmental federalism: experiences and issues in selected countries\*

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## 1. Introduction

Environmental federalism is ‘*the study of the normative and positive consequences of the shared role of national and subnational units of government in controlling environmental problems.*’ (Shobe & Burtraw, 2012) It relates to the ‘proper assignment of various roles’ to the different tiers of government. (Oates, 1997) Most of the literature has addressed the issue of environmental federalism through the lens of fiscal federalism or general environmental management. (Farber, 1997)(MacKay , 2004) (Adler, 1998) (Chandiramani, 2004) (Bhatt & Majeed, 2002) (Mandal & Rao, 2005) (TERI, 2009) However, some recent studies have examined environmental federalism in the context of specific environmental issues, such as climate change ( Courchene, 2008) (Shobe & Burtraw, 2012) (Selin & Vanderveer, 2011) (Jørgensen, 2011), (Sovacool, 2008) environmental assessment (Hollander R. , 2010), air pollution and standards, (Banzhaf & Chupp, 2010), rivers (Iyer, 1994), forests (Contreras-Hermosilla, et al., 2008) or other natural resources. (Fischman, 2006) (Ebegbulem, 2011) (Noronha, Srivastava, Datt, & Sridhar, 2009) The ‘race to the bottom’ thesis is an oft cited criticism of environmental decentralisation or the principle of subsidiarity. However, there is very little empirical evidence to prove race to the bottom as a fall out of environmental federalism. Moreover, differences in state policies may not necessarily lead to race to the bottom or exacerbate rivalry. It may even result in positive spillover effects such as drawing lessons from each other. (Jørgensen, 2011)

While there is a case for decentralization of environmental management on account of greater proximity to local concerns, because of improved representation, legitimacy and efficiency, several issues concerning the environment cannot remain local because environmental problems and the effects of environmental mismanagement cross state and national boundaries. Environmental degradation originating at one place goes on to affect a much bigger geographical area and involves not just the local governments but requires intervention from state and central governments too. Thus, the concept of environmental federalism requires an examination of the appropriate jurisdiction for the management and provision of environmental goods and services. For example, it will be crucial for the central government to play a role with regard to the environmental regulation that requires assuming responsibility for those activities that have important environmental ‘spillover effects’ across jurisdictional boundaries. State and local governments will need to engage in regulation of environmental quality and services (subject to the minimum levels set by the central government), and should design and implement programmes. Therefore, there is a need for a distributed governance of the environment across multiple levels of the government, and federal systems are uniquely placed for this challenge. This paper attempts at understanding how different federal systems respond to environmental challenges and what are the issues that arise in managing the environment across different levels of jurisdictions.

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## 2. Environment in different federal systems

Most of the older constitutions do not have any explicit provisions with respect to environment, neither recognizing an explicit right nor laying down clear competence. Enshrining environmental or ecological concerns in the constitutions of countries is a more recent phenomenon, introduced in newer constitutions or through amendments in the older constitutions.

Examining the constitutions of the various federal systems, old and new, four main trends can be observed with respect to how environment has come to be treated within different federal models.

*First*, countries with constitutions which are silent on environment, and matters related to it, have made use of the residuary powers to define competence of federal or state governments on environment. For example, there are no explicit powers to legislate for environment in the Australian Constitution.<sup>1</sup> However, powers held by the Commonwealth and states can be exercised for the purpose of environmental protection. States enjoying the power to legislate on residuary matters had environmental matters too open for their control. Initially, the performance of states vis-à-vis environmental regulation was patchy. (Davis, 1985) By the late 1970s, the commonwealth government began testing its competence on matters through the channels of marine environment<sup>2</sup>, heritage sites and international obligations. The federal government can use its jurisdiction over trade and commerce, financing, and external affairs to make laws pursuant to environmental objectives. (Bates, 2010, p. 106)

*Second*, environmental concerns are seen as an extension of rights or competence over natural resources, often linked to ownership. Many legislative jurisdictions are offshoots of ownership over resources. ‘*Every discussion of environmental problems must begin with the question of ownership.*’ (Gibson, 1973) Like most of the older constitutions, environment as a matter is not assigned in the Canadian Constitution. Environmental matters often overlap with other areas of federal or concurrent jurisdiction, such as clearances under the domain of federal Department of Fisheries and Oceans. However, provincial governments have been more ‘aggressive in asserting their jurisdiction’ where both the levels of government have jurisdiction. (Fafard, 1998)

*Third*, environmental rights and competences have found their way into some of the constitutions through amendments. In some cases, existing competences have been reallocated to address the needs of the times and political conditions. The Swiss Constitution, even before it was totally revised by the 1999 version, had begun the process of including environment related provisions. Provisions relating to protection of nature, flora and fauna (as a cantonal concern)<sup>3</sup>, and the protection of environment against harmful acts, such as air pollution and noise (concern for Confederation)<sup>4</sup> were added in the Constitution of Switzerland over the years before it was finally replaced by the 1999 version. Environment protection was introduced in the Indian Constitution as a directive principle of state policy in 1977, whereby the National State was enjoined with the duty to protect and improve environment and safeguard the forests and wildlife of the country as a part of the directive principle of the state policy and citizens enjoined with the duty to protect and improve the natural environment. The same Constitutional amendment also changed the centre-state jurisdiction on important environmental matters like forests. The Pakistani Constitutional amendment Act of 2010 had an opposite approach, whereby environment pollution and ecology were moved from concurrent list to provincial list. The Constitution of Argentina was amended in 1994 to

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<sup>1</sup> Section 51 of the Constitution of Australia on Legislative powers of the Parliament

<sup>2</sup> establishment of the Great Barrier Reef Marine Park

<sup>3</sup> Article 24sexies

<sup>4</sup> Article 24septies

recognize the federal government's duty to regulate minimum protection standards, and the provinces' duty to reinforce them.<sup>5</sup>

*Fourth*, newer constitutions, including newer versions of some older ones, give due regard to environmental concerns. The 1988 Constitution of the Federative Republic of Brazil gives concurrent powers to the Union, the States, the Federal District and the municipalities to protect the environment and to fight pollution; and to preserve the forests, fauna and flora.<sup>6</sup> Legislative powers on forests, fishing, fauna, and preservation of nature, protection of the environment and control of pollution are listed clearly as concurrent.<sup>7</sup> Under the South African constitutional scheme, environment, disaster management, nature conservation, pollution control matters are all listed as concurrent subjects.<sup>8</sup> The Constitution of Switzerland of 1848 was revised by the Constitution of 1999 and introducing explicit provision on newer concepts like sustainable development too, whereby 'the Federation and the Cantons are engaged to establish a durable balanced relationship between nature, particularly its renewal capacity, and its use by human beings'.<sup>9</sup>

Irrespective of the model of federalism and the approach adopted to address federal-state relations in environmental domain, some issues emerge as the most important and controversial ones. The following section discusses some of these issues in detail in the context of federalism.

### 3. Issues

#### 3.1. Decision making and enforcement

For a long time, most of the discourse on federalism focused on the need and role for transfers and grants in aid for an enhanced sharing of powers and functions between the centre and states. However, there is more to federalism than transfer and devolution from higher levels of government. In a federal system, states are 'not agents of some national government hierarchy' but have a role of their own in the government system. (Agranoff, 2001) It is a network of larger and smaller arenas as against higher and lower. (Elazar, 1998)

The principle of subsidiarity is seen as one of the bases for federalism and sharing of powers amongst Centre and states. (See (Esty, 1996)) The principle, from a common sense perspective, lays down that '*decisions should be taken at the level closest to the ordinary citizen and that action taken by the upper echelons of the body politic should be limited.*' (European Commission, 1992) This principle per se does not distribute powers amongst different levels of government, but simply aims at governing the use of such powers and 'justify their use in a particular case'. (Lenaerts, 1993) However, it lays the basis for distribution of powers and functions. It justifies environmental decentralization as the sub-national and local levels are directly impacted by environmental actions and externalities.

In environmental decision making, the two dominant models of federalism are that of collaboration and competition. While cooperative decision making may avoid duplication and conflict, it may lead to race to the bottom. However, conflicts per se are not bad as it may foster competition (MacKay, 2004) and enhance efficiency (Farber, 1997). Besides, cooperative federalism may itself not be sufficient to secure a voice for states in the decision making. As Arora points out, the political process dominated by federal coalitions and state-based parties has been more successful in making the national policy-making more

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<sup>5</sup> Article 41, Constitution of the Argentine Nation

<sup>6</sup> Article 23, clause VI and VII of the Constitution of the Federative Republic of Brazil

<sup>7</sup> Article 24, clause VI of the Constitution of the Federative Republic of Brazil

<sup>8</sup> Schedule 4, Part A, Constitution for the Republic of South Africa

<sup>9</sup> Article 73, Constitution of Switzerland

participatory than cooperative federalism. (Arora, 2007) As seen above, different systems have dealt with environment and its domains differently depending on the structure of government and the stage of development and environmental governance.

The Canadian Constitution Act, the then British North America Act was planned to create a strong Centre. (Lidden, 2005) The Canadian Constitution had a list of subjects divided between centre and state and anything not mentioned there was left for the Centre to legislate upon.<sup>10</sup> Initially forests did not feature in the Constitution but the position was changed with the ‘Resource Amendment’ in 1982, whereby a separate section was inserted on ‘*Non-Renewable Natural Resources, Forestry Resources and Electrical Energy*’.<sup>11</sup> The amendment not only paved way for provincial administration of resources<sup>12</sup>, but also spelled out legislative rights of provinces on matters of taxation on forest resources.<sup>13</sup> As a result Canada adopted a provincial approach to forestry. (Agnoletti, 2006) The Indian federal system also divides matters into Union, State and concurrent lists<sup>14</sup>. Learning from Canada’s experience with short lists, India made a more detailed list adding specifically to the concurrent lists (Hueglin & Fenna, 2006) to make sure that the competence of states emanates from a written Constitution subject to a final interpretation by the judiciary. (Singh, 2001) Modelled on the Government of India Act, 1935, the list placed forests under the States competence<sup>15</sup>. However, in 1976, the forests were taken away from the exclusive jurisdiction of states and put under the concurrent list.<sup>16</sup> The transfer of the subject was made on the ground that forests were not being adequately dealt with by the States. (Bakshi)

Other developing countries like Brazil have gone through phases which are ‘*neither one of consistent centralization, nor of consistent decentralization*’. (Piancastelli, 2006, p. 71) Therefore, a common trend may be difficult to establish. However, the current Constitution gives concurrent powers to the Federal, state and municipal governments to protect the environment. This concurrence has given rise to tensions when states or municipalities have tried to utilise this constitutional power, especially in the case of forests. (Benjamin, 2003) In US, where the federal government has not used the Constitutional space with respect to climate change as yet, states are free to promulgate their own rules and regulations in this regard.

State led initiatives have not always been opposed. In the case of US climate policies, regional and state level programmes have been effective. (See box 1) States have not played such a proactive role in other countries. In India, subnational governments are often merely implementing the policies designed at the Central level, resulting in over-centralisation within the federal structure. (TERI, 2012)

#### Box 1: Climate Change policy in the US

In the absence of concerted efforts in climate change policy making at the federal level, there has been greater experimentation on climate policy from the states, cities and some regional collaborations. For instance, climate change adaptation has evolved as a completely local agenda with states and cities formulating disaster management plans that are tailored to their needs and vulnerabilities. Even in the case of climate change mitigation, regional and state level carbon cap and trade programs have been more popular and effective than the 60 federal programs –ranging from mandatory, incentive based and voluntary - to reduce carbon emissions. While the states and cities experiment with policies and tools to reduce carbon emissions and adapt to a changing climate, the federal government plays a key role in improving the knowledge and understanding of the causes and impacts of climate change.

<sup>10</sup> Section 91 and 92, Constitution of Canada

<sup>11</sup> Art 92 A, Constitution of Canada, inserted by the Constitution Act, 1982.

<sup>12</sup> Art 92 A recognized the legislative authority of provincial legislatures on exploration, development, conservation and management of forest resources.

<sup>13</sup> Article 92A (3), Constitution of Canada

<sup>14</sup> Schedule VII read with Article 246 of Constitution of India

<sup>15</sup> State List, entry 19, Constitution of India; Now repealed.

<sup>16</sup> Entry 17 A, Concurrent List; Added vide 42nd Amendment of 1976 to the Constitution of India

In 1999, the Environment Protection and Biodiversity Conservation Act of Australia was developed as a result of conflicts and debates between federal government and the states, especially regarding jurisdiction over environmental matters. (Boer & Gruber, 2010) However, a review of this Act revealed how the operation of this Act too was inefficient due to, inter alia, overlaps and duplication in assessment and authorisation processes. (Commonwealth of Australia, 2009) In order to avoid duplication, environmental assessments have been delegated to the states in Australia. (Bates, 2010) There is no horizontal harmonisation of assessment or clearance procedures, the states seek to reduce overlap and duplication, whether through a single integrated system or a two tier regime with local government. (Hollander, 2010) In Argentina, 14 out of 23 provinces have enacted environmental laws. Therefore, environmental problems are handled differently in different jurisdictions and do not take into account regional ecological problems and overlapping jurisdictions. (Nonna, 2002)

Lack of harmonisation is one of the main arguments in favour of a centralised environmental policy. Inger Weibust examines the various arguments in favour of locating environmental decision-making at subnational levels and concludes that centralisation results in more stringent environmental policies as cooperation in environmental federalism is rare. (Weibust, 2009) This can be observed in the case of South Africa where the Constitution itself provides for a framework for cooperation. In the absence of any real cooperation, a law facilitating cooperation was passed but still left a void for clarification of roles and responsibilities. (Murray, 2006)

Judiciary and other institutions have had a great impact on federal-state relations on environmental and related matters. In India, some of the judgments on protection of environment and conservation of natural resources have added an additional level of stress in these relations. (TERI, 2012) In the famous *Massachusetts v. EPA* case, the US Supreme Court has upheld states' right to protect their interests against climate change in the absence of 'EPA's steadfast refusal to regulate greenhouse gas emissions'. The inherent tensions in the federalism remain and require some degree of compromise and coordination. (Biering & Biering, 2008)

### *3.1.1. Fragile ecosystems and Protected Areas*

IUCN defines a protected area as 'a clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long term conservation of nature with associated ecosystem services and cultural values.' (Dudley, 2008) National parks, sanctuaries and reserves are usually an extension of competence of governments on forests, wildlife, marine resources or environmental protection. However, under the Constitution of South Africa, where most environmental matters are concurrent, national parks, botanical gardens and marine resources are treated differently.<sup>17</sup>

The discourse on fragile ecosystems and Protected Areas, has undergone a vast change in most countries over the last five – six decades. While initially, the sole focus was on conservation, the emphasis on human-ecological interface has increased in several cases. As Slocombe observes, '*we have arguably moved from concern with species to ecosystems to socio-ecological systems, and to recognition of protected areas as one of many tools for resource and environmental sustainability at regional and larger scales.*' (Slocombe, 2008) It is increasingly becoming a difficult task to build mechanisms that recognize the rights of indigenous and local populations in these ecologically sensitive regions and allows them to participate in the management of these protected areas.

With more and more actors having a stake in protected areas, countries have begun experimenting with fiscal instruments to incentivize declaration of Protected Areas. (See Box 2). The Western Ghats Ecology Expert Panel (WGEEP) report (2011), currently under review, seeks to balance ecological concerns and

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<sup>17</sup> Schedule 4 Part A

development in a rich biodiversity hot spot of India, suggesting mechanisms to promote a more inclusive conservation and development and multi centred governance. (Western Ghats Ecology Expert Panel, 2011)

Management of Protected Areas, especially the marine regions, is more complex in a federal context on account of contesting claims, overlapping jurisdictions, multiplicity of actors and interests. National parks and sanctuaries in most countries were traditionally based on a conservationist approach, which primarily sought to conserve certain areas of ecological importance and sensitivity by excluding or limiting human-wildlife interface. This has meant prohibited or restricted human activities in these fragile ecosystems and thus triggering the ‘people versus parks’ debate, where the role of people in conservation is not adequately recognised. This issue has come to fore recently in the context of Indian federalism. With the Central government issuing Guidelines on Ecotourism and the Supreme Court imposing a blanket ban on tourism in core areas of tiger reserves, not only has the issue of human-wildlife interface surfaced once again, the gap in Centre’s policies and States’ concerns became more visible.

#### **Box 2: The Brazilian Ecological ICMS**

In Brazil, a value-added tax on goods and services, the ICMS, is a major public revenue source at the state level. In 12 out of 26 states, a proportion of this tax is allocated to compensate local governments for providing ecological services. The common ecological indicator used by all twelve states is based on conservation units, representing designated protected areas in relation to total municipal area. The ecological ICMS has also become an incentive to create new protected areas—since the introduction of ecological fiscal transfers in the state of Parana´ in 1992, public and private protected areas increased by over 1 million ha or 165% by the year 2000. Parana also assesses a quality index of each protected area on the basis of variables such as physical quality, biological quality (flora and fauna) and the quality of planning and maintenance. In this way, the monitoring and active management of existing protected areas is promoted. The ICMS has also led to new forms of public–private partnership between local governments and landowners in the management of protected areas.

It is worth mentioning here that although the basic features of the ICMS-E are rather uniform across the various states, the method of implementing it, its operation in practice and the reactions on the part of the municipalities vary greatly. In-depth empirical studies show that ICMS-E allocations have had a far greater impact on conservation decisions in some areas, such as municipalities with a high share of protected areas, than others. Further, the type of indicator chosen also determines the incentive effect. The examples of Parana´ and Minas Gerais show that not only the quantity but also the quality of the respective areas should be taken into consideration. In Parana´, there has not only been an increase in the number and surface area of conservation units, there have also been noted improvements in the quality of conservation units. A quality-based evaluation awaits implementation in other states, and this represents a major challenge

Sources: Ring 2008, Ring et al 2010

In Australia, Protected Areas is an area where the Commonwealth’s jurisdiction has been expanded over the years. International Conventions, World Heritage sites, and judgments of the High Court have expanded this scope. (Boer & Gruber, 2010) Protected Areas in Australia are interesting from a federalism perspective as World Heritage Sites was one of the points of contention between the Commonwealth, states and territories that led to negotiations on an Intergovernmental Agreement on the Environment of 1992. This agreement, inter alia, deals with allocation of powers with respect to Parks. It was agreed that the management of parks and protected areas is a function of the States and the Commonwealth is responsible only for the parks and protected areas on its own land and in maritime areas.<sup>18</sup>

<sup>18</sup> Para 12, Schedule IX of the Intergovernmental Agreement on the Environment, 1992, Australia

### 3.1.2. Shared jurisdictions and transboundary issues

Transboundary resources and issues require a cooperative and co-dependent approach to management of ecosystems. However, political boundaries, including those within the federal systems, divide the environment itself in the process of dividing roles and responsibilities. (Hollander, 2010)

Of all the ecosystems, river ecosystems have been the most common cause of conflict while managing shared resources. Some constitutions, like that of India, recognize the federal government's jurisdiction on interstate water issues. While other federal governments interpret their powers in provisions relating to interstate commerce, etc. In the United States, Congress has introduced rules for the management of the Colorado since federal laws supersede state laws. (Getches, 2001)

Treaties, agreements, and rulings often divide the transboundary river ecosystems into compartments. In some jurisdictions, courts have played an important, albeit mixed role in resolving inter-state river disputes. For example, the jurisprudence on transboundary water law developed by the US courts and the Indian courts in the Cauvery dispute. 1963, US Supreme Court laid down in *Arizona v. California* how the Colorado basin was to be apportioned. Since then, several conservation related laws at the federal level have been passed which govern the basin either directly or indirectly.<sup>19</sup> While these laws do not alter the apportionment, they put constraints on how states can use their allocations. (Heinmiller, 2009)

In another scenario, states themselves have exacerbated the problem of sharing transboundary resources. In India, the cauvery water dispute has been marred by confrontationist positions of states fuelled by party politics. While interstate water disputes is clearly a federal subject and a legislation has been passed thereunder, the Central government has been accused of being 'unable or unwilling to play its constitutional and statutory roles'. (Iyer, 2012)

While many of the issues around environmental decision-making in a federal context are specific to different countries and the environmental issue in question, some emerging issues need to be engaged with:

- Do the subnational governments have adequate decision making powers to address the environmental challenges faced by the units?
- In jurisdictions where such powers vest, whether explicitly or not, with the subnational governments what are the constraints in utilising the decision making powers for improved environmental challenges? Are these constraints external, for example, federal government's actions, court orders, or internal, for example, capacity and priorities of the states themselves?
- To what extent does the sharing of competence and roles amongst different levels of government need to be revisited to address new and emerging challenges like climate change?
- How do different federal systems accommodate the asymmetries in the system when addressing environmental issues?
- What mechanisms have been successful in mitigating inter-state disputes and rivalries over shared and transboundary resources?

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<sup>19</sup> For example, Clean Water Act, Federal Land Policy and Management Act, National Forest Management Act and Endangered Species Act, Colorado River Basin Salinity Control Act, and the Grand Canyon Protection Act



### *3.2. Fiscal issues*

In a federal system, fiscal policy - including taxes, other incentives and disincentives, and program spending - of each tier of the government can have direct or indirect impacts on resource-use and the environment. These impacts may be local or inter-jurisdictional. Environmental implications of specific fiscal measures<sup>20</sup> and the application of fiscal instruments (such as taxes, charges and fees) to environmental problems have been extensively studied in the literature. The present discussion focuses on inter-governmental fiscal issues- it looks at the allocation and scope of federal, state and local revenues and expenditures; and the nature and scope of intergovernmental fiscal transfers in the context of environmental management.

The basic principles of federalism provide some guidelines for the assignment of public responsibility to different levels of government. As discussed earlier, one of these is the principle of subsidiarity- that, services should be provided by the smallest jurisdiction that encompasses the geographical expanse of the benefits and costs associated with the service (Oates, *On Environmental Federalism*, 1997). Traditional theory also lays down a set of tax-assignment principles in accordance with the respective responsibilities of different tiers of governments. Thus, local environmental management and provision of basic environmental /civic amenities such as clean drinking water, sewage and solid waste management should fall under the purview of local bodies, as indeed is the case in most countries. However, when it comes to fiscal decentralization in terms of devolving ‘revenue handles’ for the delivery of such functions, the experience is diverse though in general it may be said that adequate revenue assignment to local bodies remains the most conspicuous problem, especially in the developing world.

Several environmental issues (e.g. transboundary pollution or conservation of rare species) or their solutions (e.g. knowledge and research on environmental management) are characterised by spillovers or exhibit economies of scale (e.g. solid-waste management). The national government may also be concerned about equity in the provision of basic services. These reasons justify the involvement of a higher tier of government. Inter-governmental grants are an important fiscal means used by national governments to incentivize local governments to internalize spill-over effects or larger national objectives. Across the world, countries have used grants to address environmental issues though there is a variety of experience in the use, design, and outcomes of such grants.

#### *3.2.1. Allocation and scope of environment-related revenues and expenditures*

Theory and experience make a strong case for adequate revenue sources with local bodies for financing local public services. On the one hand, inadequate revenues can undermine democratic decentralization and the quality of public services. On the other, the absence of a hard budget constraint can make local government too dependent on intergovernmental transfers or debt issues for financing their budgets, thus providing incentives for them to raid the “fiscal commons” and extend public programs well beyond efficient levels (Oates, 2005). Either way, the matching between revenues sources and expenditures is necessary for greater efficiency in delivery and accountability of public functionaries.

While it is difficult to isolate the distribution of environment-related revenues and expenditures in federal economies, a review of overall state of finances of local bodies can be indicative. A local revenue source or instrument is one where the local body determines the rate and base of the instrument and also retains the resulting revenue for financing local services. The principles of public finance suggest that ‘users pay’, ‘beneficiaries pay’ and ‘polluters pay’ are the desirable principles for financing local infrastructure and services like water supply, sewerage, drainage, and roads. Ideally local governments should rely on user charges to finance goods that provide measurable benefits to identifiable individuals within a single

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<sup>20</sup> For example “environmentally perverse” subsidies in energy and agriculture sectors have been extensively studied

jurisdiction, and taxes on immobile bases to finance services for which it is difficult to identify individual beneficiaries and to measure individual costs and benefits (RBI, 2007).

Actual experience with the devolution of revenue sources to local bodies is mixed and the patterns of local revenues vary widely across countries depending upon a range of factors. In general, fiscal autonomy at the sub-national level has lagged behind functional decentralization. It is, however, necessary to analyse the factors underlying this “gap”. As Rajaraman (2007) points out, because the principles underlying revenue rights and expenditure responsibilities in any federation originate from independent considerations, there will be a gap (at usually lower than national level), where its magnitude is not necessarily indicative of incomplete or unfair allocation of taxation rights.

Even for the OECD, while the expenditure share of sub-central governments (SCG) has increased their tax share has remained near static implying greater dependence on intergovernmental grants (OECD 2009a)<sup>21</sup> <sup>22</sup>. While efficiency and accountability call for a higher share of SCG spending covered by own taxes, that has not been easy since increasing property taxes – the most suitable tax for SCG – usually meets with strong resistance (OECD 2009a). At the same time, a review of OECD taxation indicates that although tax autonomy varies widely across countries, most sub-central governments have considerable discretion over their own taxes. On average, the tax revenue share with full or partial discretion amounts to more than 50 percent for state and almost 70 percent for local government (OECD 2009b). Further, there is a visible trend in OECD countries towards more effective utilisation of user charges by local governments. This is attributed partly to citizens’ preference for user charges over general taxes (RBI 2007).

**Box 3: Prodes (*Programa Despoluição de Bacias Hidrográficas* or Basin Restoration Program) in Brazil**

The programme was introduced in 2001 and is based on output-indicators with the objective to finance wastewater treatment plants and provide incentives to properly operate and maintain the plants. Under the programme, the federal government pays utilities (mostly public state or municipal water and sanitation companies) for treating wastewater based on certified outputs. Up to half the investment costs for wastewater treatment plants are eligible to be reimbursed over three to seven years, provided the quality of the wastewater discharged meets the norms. The program enhances the financial viability of utilities and thus increases their ability to access commercial credit. Thus the programme is able to channel federal grants into a key public service while promoting efficiency as well as operational sustainability<sup>1</sup>. Between 2001 and 2007 PRODES leveraged investments of US\$ 290m with subsidies and subsidy commitments of US\$94m, financing 41 wastewater treatment plants in 32 cities serving 2 million people. The program had a portfolio of 52 other projects to be financed serving 5.7 million people. Geographically, the projects are concentrated in the Southeast of Brazil, the country's most urbanized region with the most serious pollution problems.

**Source:** ([http://en.wikipedia.org/wiki/PRODES#cite\\_note-0](http://en.wikipedia.org/wiki/PRODES#cite_note-0); accessed on 10 Sept 2012).

Needless to say there are marked differences within these general trends. While the USA is an example of flexible fiscal federalism with states showing great diversity in the fiscal autonomy granted to local bodies, Australia has a far greater centralized federal structure. Local governments are seen as under-resourced and over-regulated by higher tiers of government. Local government in Australia has the fourth lowest share of taxation among the 30 industrialised nations of the OECD and are largely dependent on higher tiers for resourcing (Brown and Bellamy 2007). The mismatch between the finances and functional

<sup>21</sup> Over the period 1995 and 2005 the share of sub-central governments (SCG) in total government spending increased from 31 to 33 percent while the SCG tax share remained stable at around 17 percent (OECD 2009)

<sup>22</sup> While equal access to public services is the most common justification for such grants, the grant systems of most countries are much larger than required by equalization. Moreover, rather than smoothing out SCG revenue fluctuations over the cycle, grants often tend to exacerbate them. Finally, there is some evidence that grants reduce SCG tax effort, inflate SCG spending and increase SCG deficits and debt.

mandate of local bodies (which includes town planning, health and environmental protection, the provision of water and sanitation services among others) led to the signing of the Intergovernmental Agreement on Cost Shifting in 2006. The agreement provides a framework for inter-governmental consultation such that when a responsibility is devolved to local government, the financial and other impacts on local government are taken into account (IGA, 2006). Australian Local Government Association has argued that financial assistance grants should be replaced with a share of Commonwealth taxation revenue to provide more stability and greater buoyancy to their revenues in keeping with their enlarged responsibilities (Brown & Bellamy, 2007). In countries of the EU, such as in Germany while local bodies follow the broad mandates of the states, they have considerable autonomy in the manner in which to do so.

In the developing world, though generalizations may be difficult, local fiscal autonomy is likely to be weaker as compared to the OECD. In many developing countries including India, municipal revenue base is typically low with inordinate dependence on inter-governmental transfers while user charges remain grossly under-exploited. As a result, rural local bodies in India play an abysmally small part in public service provision, often acting as agencies of state governments. Urban local bodies, on an average spend less than 75% of what is required for providing the minimum level of civic amenities. Interestingly, under-spending is found to be strongly correlated, positively, with dependency for resources on upper tiers of government and negatively, with decentralization of revenue-raising powers<sup>23</sup> (RBI 2007)

### 3.2.2. Inter-governmental fiscal transfers

Given that local own-source revenues generally do not cover local government expenditure responsibilities; intergovernmental transfer programmes are inevitable in all federal systems. These transfers finance about 60% of sub-national expenditures in developing and transition economies (Shah A. , 2003) . In OECD countries, the figures vary widely anywhere from 13% in the United Kingdom to 65% in Austria, the average figure being about 40%<sup>24</sup>. IGTs serve multiple, often interrelated purposes, the important ones being (Shah A. , 2003):

1. to bridge the fiscal gap and supplement inadequate local own-source revenues to improve the ability of local governments to meet their expenditure responsibilities
2. to correct fiscal inequities and fiscal inefficiencies arising from differentials in regional fiscal capacities
3. to compensate for benefit spillovers, thus incentivizing the correct levels of services that yield benefits to residents of other jurisdictions
4. to set and ensure national minimum standards to preserve internal common market and attain national equity objectives
5. to influence local priorities in areas of high national but low local priority
6. to create macroeconomic stability in depressed regions

Several of these objectives constitute a basis for transfers to address environmental concerns and improve the provision of environmental services. In particular, federal governments the world over use IGTs to augment the resources of sub-national governments to provide basic minimum standard of public services such as drinking water and sanitation. Increasingly, transfers are also being used to encourage sub-

<sup>23</sup> *Dependency* was measured by the share of grants a municipal corporation receives in relation to its total expenditure. *Decentralization* was measured by the proportion of the municipal corporation's per capita revenue to the States' per capita revenue receipt

<sup>24</sup> OECD fiscal decentralization database. [http://www.oecd.org/ctp/fiscalfederalismnetwork/oecd/fiscaldecentralisationdatabase.htm#SEC\\_B\\_6](http://www.oecd.org/ctp/fiscalfederalismnetwork/oecd/fiscaldecentralisationdatabase.htm#SEC_B_6) accessed on 10 Sept 2012

national governments to improve their pollution control infrastructure as well as to compensate regions for the opportunity cost of preserving certain ecosystems or resources. This is particularly relevant since the decision to conserve ecosystems are typically taken by higher governments while the costs of foregone economic activity are borne by the lower, mostly local governments which are in any case cash strapped. Particularly in the developing world, where resource –rich regions are also among the poorest, inter-governmental transfers based on ecological indicators can often meet the dual objectives of poverty reduction and environmental sustainability.

Grants can take various forms- these can be unconditional or conditional. Unconditional transfers come as budgetary support with no strings attached while conditional transfers typically specify the type of expenditures that can be financed. In addition, they may also specify matching requirements from the recipient, which may be open ended (grants will match recipient resources without any limit) or closed ended (grants match recipient funds upto a pre-specified limit).

Internationally, there is considerable use of IGTs to address environmental concerns across tiers of the governments depending on the federal system in question. In three-tier structures for instance, there may be very diverse principles to guide transfers from the states to the local bodies within a single country as is evident in Germany. Some German states integrate specific ecological aspects such as mining externalities while determining fiscal needs of local bodies. Others incorporate ecological functions in their fiscal equalization structure through conditional grants for measures related to sewage disposal, water supply and waste disposal; remediation of contaminated sites etc. There are also some limited examples of fiscal equalisation laws that incorporate water and landscape conservation (Ring, 2002). While these transfers may be most relevant given that many aspects of environmental management vest with local bodies, systematic documentation of these experiences may be sparse, more so for developing world.

At the federal-state level too, the use of specific grants to address environmental objectives is common. For instance, the Indian federal government routinely provides assistance to states and local bodies through its central ministries and the Planning Commission for various urban and rural infrastructure projects which directly impact on the quality on the environment. Often, these constitute part of larger national programmes for example the Ganga and Yamuna Action Plans, or the JNLNURM (Jawahar Lal Nehru Urban Renewal Mission). More recently, the Finance Commission which deals with formulaic grants to states has also sought to address the issue of environmental performance (see Box 4). Likewise, the US EPA provides federal pollution prevention technical assistance grants to states (Zarker & Kerr, 2008).

Several countries have also used performance indicators as criteria in disbursing grants. While the use of performance-based sector-specific grants is more common there are now initiatives aimed at systematically integrating performance indicators into the overall framework of inter-governmental general-purpose grants.

An example of a sector-specific performance-based grant is the one provided by the Brazilian federal government for water treatment which uses output indicators based on the quality of waste-water discharged see Box 3). Brazil (Ecological ICMS) and more recently Portugal (Amended Local Finances Law as of 2007) have also introduced ecological indicators, such as protected areas, for the redistribution of intergovernmental fiscal transfers to the local level. The underlying rationale is to compensate municipalities for the restrictions and costs associated with protected areas. Both countries have introduced the size of protected areas as a simple and easily available additional indicator for the distribution of intergovernmental fiscal transfers to local governments. See Box 2 for the Brazilian experience. Other countries such as Germany and Norway are actively exploring the potential of

introducing conservation-related indicators into their fiscal transfer schemes to the local level (Ring, Drechsler, van Teef, Irawan, & Venter, 2010).

#### **Box 4: Thirteenth Finance Commission of India and the environment**

Unlike the previous Finance Commissions, the mandate of the 13th Finance Commission was enlarged to look at “the need to manage ecology, environment and climate change consistent with sustainable development” while making its recommendations.

The 13th Finance Commission has provided grants for the environment - forests, water sector management and incentives for grid connected renewable energy.

The Commission has earmarked 5,000 crore as green bonus, which are special grants for areas with more forest cover. This money will be given to all state governments over a period of five years. An amount of Rs 5000 crore is recommended as water sector management grant for four years. The purpose of this grant is to incentivise the states to establish an independent regulatory mechanism for the water sector and improved maintenance of irrigation networks. The grant for renewable energy is structured to reward states for renewable generating capacity that comes on stream into the grid during the first four years of the projection horizon. The reward falls due in fiscal year 2014-12 after having allowed enough time to states to respond to the incentive hereby recommended. Though the grant is targeted at state-level on-grid capacity, local bodies have a variety of small-scale technological options for off-grid generation of renewable energy which could even feed into the grid. It is important to note that the release of certain grants is subject to various prescribed conditionalities to ensure that the States comply with the overall agenda in these sectors.

The Commission has recommended a substantial increase in the grants to local bodies to provide for a broad level of unconditional support for both urban and rural local bodies for the entire five-year period governed by its recommendations. This funding is expected to enable the local bodies to meet the challenges of environmental degradation, population pressure, exhaustion of resources and revenue constraints. There are no usage conditionalities attached to local grants since certification of usage has been found to act as an obstruction to the regular flow to local bodies of funding provisions made by previous Commissions. Although there are no strictures imposed on usage, it is hoped that the considerably enhanced funding for local bodies will address the woefully inadequate sanitary conditions that prevail over the majority of human habitations in the country.

These examples also bring out the importance of the appropriate choice of performance indicators to determine the level of grants. Grants are best based on actual output or quality of services rather than on inputs and processes. In general, while it is necessary to monitor the use of funds in meeting the desired objectives, too many process-related conditionalities not only undermine fiscal efficiency but also raise concerns of micro-management and infringement of local autonomy thus creating a trust-deficit between different tiers. This is evident in the controversial central CAMPA fund for afforestation programmes in India. While on the one hand there has been much concern about the appropriate use of the monies by state governments- (see Box 5), the latter have argued that over-involvement of the central government in the management of the funds is intrusive and often causes delays and inefficiencies in the execution of projects.

There have also been some recent initiatives linking inter-governmental transfers as a whole to a performance-indicators that also include the environment as an over-arching objective along with gender,

social inclusion and poverty reduction. These grants are largely discretionary but generally directed at financing capital investments and capacity building activities of local governments. Uganda piloted the process in mid-1990s and at least 15 developing and middle-income countries are using similar approaches, either nation-wide or on a pilot basis ((Qibthiyah, 2011) (Steffensen, 2010) (Steffensen, 2010) for reviews). To date most PBGSs (performance-based grant systems) tend to focus on leveraging generic aspects of LG performance (such as planning, budgeting, financial management, transparency, governance, etc.), where improvements to such “processes” can impact on a broad spectrum of end-outputs or outcomes. The way these have been designed, PBGSs rely on two types of indicators: (i) Minimum Conditions (MCs), which are categorical (“yes/no” triggers), and which need to be complied with in order to gain access to basic grants; and (ii) Performance Measures (PMs), which are more “qualitative” and “calibrated” than MCs, and determine the size of grants allocated to LGs. Apart from indicators of general performance of local bodies, many countries including Uganda and Tanzania have also environment as a cross-cutting issue in the set of performance indicators. Though these initiatives are relatively new, there is evidence to suggest that they have yielded positive outcomes (Steffensen, *Fiscal Decentralisation and Sector Funding Principles and Practices (performance based Grant Systems - Concept and International Experiences)*, 2010).

It is important to note here that various other forms of grants are used internationally, depending on the type of federal systems, the role of different jurisdictions, and the specific constitutional and environmental legislation in force. (*See Annexure I*). In Brazil, for instance, the focus is on compensating municipalities and there are almost no instruments that directly support private land users in their role as conservation actors. In contrast, instruments for compensating for local spillover benefits in the European Union and its many federally organised member states have targeted almost exclusively the private land user, be it in agriculture, forestry or aquaculture (Ring, Drechsler, van Teef, Irawan, & Venter, 2010). See Annex II for a critique of the different approaches adopted by different federal systems.

Finally, it is necessary to point out that politics play an important role in the distribution of grants from higher to lower tiers of government. Boex and Martinez-Vazquez (2005), provide a survey of international experience of the political influence on discretionary grants and Arulampalam et al (2009) provide evidence on how centre-state transfers in India are influenced by the electoral goals of the central government. TERI 2009 documents how the disbursement of non-formulaic environmentally relevant central grants to states in India is shaped by politics. The presence of significant levels of such discretionary funds can undermine the effectiveness of objective or performance-linked grants. In multi-party federations like India, a related issue is the disbursement of grants by the federal government to the lowest tier- this may be viewed as an infringement of the powers of the state government especially when the latter is not a political ally of the centre.

The above discussion throws up some important issues in the environmental fiscal federalism

- What are the factors that underlie inadequate fiscal devolution relative to functional decentralization? Can the reasons be traced back to the Constitution or some fiscal principles or do they reflect a reluctance of higher governments to forgo revenue sources and lose political influence on local bodies.
- What are the factors (socio-cultural, institutional etc) that have made the implementation of user-charges for the provision of local services –including environmental- more successful in some countries than others?
- Has fiscal devolution been constrained by the capacity of local bodies to implement the principles of “users-pay”, beneficiaries-pay” and polluters-pay”? Do general grants-in-aid seek to build the capacity of local bodies to become fiscally more independent?
- Where transfers are provided for environmental/conservation objectives, is there effective monitoring of outcomes? To what extent are such transfers politically motivated? Do they

undermine the independence of local bodies by imposing too many process-related conditionalities?

- How are performance-indicators as a basis for disbursement of grants designed or selected?

#### **Box 5: The Compensatory Afforestation Fund Management and Planning Authority in India**

Under India's compensatory afforestation legislation, when forests are cleared for non-forest uses, the project owner has to pay the government for compensatory afforestation on an equivalent amount of land. Till 2002, this amount was paid to state governments directly but the money was allegedly often used for sundry purposes. In 2002, the central government directed such revenue to a new fund for compensatory afforestation, called CAMPA, which was to be managed by the central ministry, with states making fund requests for afforestation. However, pending an agreement about utilization of the CAMPA funds, a cumulative principal amount of about Rs.9,900 crore and an additional Rs.1,300 crore of interest lay idle in banks upto 2009. In 2009, the SC broke the 7-year deadlock and directed the centre to release funds annually to respective state governments for projects identified by the State CAMPA that form part of the state forest department's Annual Plan of Operations. The money would be used for conservation, protection, regeneration and management of existing forests and wildlife habitats, for compensatory afforestation, environmental services including provision of goods such as non-timber forest products, fuel, fodder and water; and research, training and capacity building. This was a good example of what the central government calls 'Agreed Arrangement of Decentralization'

While this initiative has been around for 3 years now, conservationists point out that utilization flaws continue to persist. A debate over the fund was triggered recently, when data released by the Forest Survey of India stated India's forest cover had shrunk by 367 sq km. Non-government bodies and social activists said the main concern was improper use of funds for compensatory afforestation. The CAMPA money is being used for creation of infrastructure such as offices, vehicles and computers. Second, compensatory afforestation is not taking place on the ground and where it is, it simply cannot replace forest lost, resulting in a decline in the quality and diversity of forests and loss of critical wildlife habitat.

Sources:

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3. India's forests are in serious decline, both in numbers and health, ET Bureau Apr 5, 2012, M Rajshekhar, ([http://articles.economictimes.indiatimes.com/2012-04-05/news/31294305\\_1\\_forest-survey-sq-km-timber-plantations](http://articles.economictimes.indiatimes.com/2012-04-05/news/31294305_1_forest-survey-sq-km-timber-plantations))

### *3.3. Capacity, accountability and transparency*

Two integral aspects of devolution of environmental governance to state and local governments are the capacity of 'these governments within the government' to perform and the accountability in the system to achieve the intended goal. While capacity is a critical factor for operationalization of decentralized governance, accountability brings in greater efficiency in the system. This is linked to transparency in the way in which governments take decisions and perform their functions.

Capacity can be broadly defined as '*the ability to perform appropriate tasks effectively, efficiently, and sustainably.*' (Hilderbrand & Grindle, 1994) The concern for capacities of the state and local government can be cited as a reason for limited devolution despite the poor performance of centralized governance in many spheres. The counterview suggests that capacity is not an absolutist concept but a dynamic process.(Honadle, 2001) The capacity to perform may increase with assignment of new responsibilities and by initiating adequate institutional and capacity development measures. One of the major objectives of any decentralized governance system is to make the government more accountable to citizens or focus on service delivery consistent with citizen's preferences (Shah & Shah, n.d.). Environmental governance

in a federal structure is often characterized with institutional density involving multiple agencies across the levels of the governments, often with divergent objectives. Federal governance systems often focus more on ‘structures and processes with little regard to outputs and outcomes’ (Shah & Shah, n.d.). Forest governance in India is an example of this. States seem keen on exploiting the carbon credit potential of forests in their climate action plans. However, they seem unaware of the and concerns and implications of schemes like these and also fail to take into account the experience and lessons learnt from previous experiments like the JFM. (Jha, 2011) Other similar challenges can be seen in the domains of biodiversity, pollution control, etc. Although nearly all states have established their respective state biodiversity boards by now, it took almost a decade for several states, including those rich in biodiversity, to set them up. Most state biodiversity boards suffer from problems of under-staffing, lack of resources, vision and expertise.

Lack of adequate capacity can itself lead to a skewed federalism, where greater powers are vested in higher levels of the government. In South Africa, the new law on intergovernmental cooperation, which has shades of centralisation, has been called uncooperative. Murray holds ‘weak capacity of provincial and local governments combined with lack of efficient systems and effective delivery of services as the factors responsible for such centralised cooperation. (Murray, 2006)

Several socio-economic and institutional factors influence (supplement or hinder) the capacity of governments at state and local levels. Even though several environmentally sensitive and resource rich areas have decentralised forms of governance in principle, the institutional mechanism for strengthening this decentralization is missing. Lack of willingness to strengthen decentralisation in practice can also be attributed to absence of a perceived direct or long term political benefits for the political institutions and parties. (TERI, 2012) Perception plays an important role in building capacity at local levels as there is often a fear that too much power, and associated capacity, at lower levels of government may restrict attainment of national goals, whether with respect to development or environmental conservation. There is a perceived lack of faith in the ability of state or local governments and agencies to deliver results with respect to environmental governance.

Accountability can be seen as *“a particular type of relationship between different actors in which one gives an account and the other has the power or authority to impose consequences as a result.”* (Black, 2008) The closest comparative to the concept is the principal – agent relationship where one actor acts in the interests of another and the role and goals of an agent determine the type of accountability effected. (Millar, 2011) Even though, accountability in the public policy context must not be interpreted as a purely principal agent situation, it does face the challenges of information asymmetry and moral hazards more commonly associated with the latter. And similar to principal-agent situations, it is important to properly identify responsibilities of the actor being held accountable, maintaining transparency in the decision making process of the actor/actors holding them accountable, define measures for poor performance and develop appropriate reporting mechanisms for monitoring performance of activities.

In multi-level governance frameworks there can be multiple types of accountability in place; most common of them being vertical accountability set up where one level of government/institutions are held accountable by another level of government (usually higher in hierarchy)– also known as political and administrative accountability. Horizontal forms of accountability have also arisen in countries with democratic institutional frameworks where government/institutions are accountable to the citizenry, organizations that represent various interest groups and non-state actors most notably non-governmental organizations and civil society organizations. (Millar, 2011) This has led to the development of the concept of social accountability which is of particular relevance in the context of environmental federalism.



In India, there seems to be a mismatch between capacity and accountability. At the Workshop on Greening the Indian Federal System, concerns were expressed around increasing perverse incentives for corruption at local levels, in particular with respect to environment and natural resources regulation. (TERI, 2012)

Simply understood in the federalism context, social accountability would imply that the federal institutions are accountable to the citizens of the country; state/province level institutions are accountable to the citizens of the province directly; each level of the governing institution is accountable to the other with regard to its decision making process and under specific circumstances to each other when implementing joint programs and policies. The concept of social accountability employs multiple actors as “principal” – who are more frequently citizens or groups of citizens and elected representatives of citizens act as “agents” along with the bureaucratic and administrative bodies.

It is implied that social accountability is especially challenging in the context of environmental decisions whether due to the lack of relevant information for decision making or due to conflicting agendas of the institutions and actors involved either as principals or as agents. It requires higher flexibility in the actions of the accountable institution and relevant bureaucratic reporting mechanisms that reduce the transaction costs of monitoring and verifying compliance with the preferences of the groups to whom they have to be accountable.

- Why do some governments perform better in addressing environmental challenges while others do not, irrespective of similar capacity level? What are the critical variables within the government structure that explains these changes?
- How have countries overcome the challenges associated with capacity and accountability?
- What other socio-economic and institutional factors have influenced (supplement or hinder) capacity of sub national and local governments in different federal systems? Are there any linkages among these variables and factors (Does social capital has any role in improved performance of governments)?
- Is it all about more personnel, better technology and more funds or is there any possible ways to improve the capacities with existing resources?
- How have countries strengthened legitimacy and accountability of actions of different levels of governments with respect to environmental management?
- What socio-economic and institutional factors deter accountability in systems with weak accountability and transparency? How different are these challenges in sectors other than environment and natural resources?

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### Annexure I : Features of different country initiatives in adopting environmental issues in fiscal federal frameworks

Features	Countries			
	Germany	Brazil	Switzerland	Australia
<b>Environmental issues covered</b>	Soil (prospecting and remediation of contaminated sites and recultivation), Water (water supply and protection, sewage disposal), Nature conservation (nature protection and landscape conservation), Recreation (spas, recreation and tourism), Waste (waste disposal plants), Energy (energy saving measures)	Watershed protection, conservation	Nature and landscape protection, etc.	Salinity, water quality, conservation of natural heritage, land
<b>Basis of transfer</b>	Compensation and Both indirect and direct approach used:  Indirect: area indicators  Direct: certain portion earmarked for ecological services	Incentives for conservation; compensation for land-use restrictions – based on ecological indicators	Ecological value of the resource, the financial capacity of the canton; the overall fiscal need for nature conservation	Multiple criteria analysis (MCA) adopted by Queensland to disburse funds to 14 regions



Features	Countries			
	Germany	Brazil	Switzerland	Australia
<b>Form of transfer</b>	Mostly conditional grants and loans to local governments	Percentage of tax revenue- ICMS Ecologico: 5% of total amount distributed to local governments by states is based on ecological indicators	Project oriented support	Devolution of centre governments funds through the MCA
<b>Principle of fiscal federalism followed</b>	Subsidiarity	Subsidiarity	Violates the principle of subsidiarity	
<b>Planned reforms</b>		Focus more on the individual land user, PES, agricultural certification schemes, etc	A shift from activity orientation to result-orientation with respect to purpose-linked transfers	

Source: (TERI, 2009)

**Annexure II: Requisites and critique of country approaches**

<b>Country</b>	<b>Requisites</b>	<b>Critique of the approach</b>
Germany	<ul style="list-style-type: none"> <li>▪ States needing to have access to earmarked grants</li> <li>▪ Under indirect approach: area related indicators required</li> <li>▪ Direct approach: <ul style="list-style-type: none"> <li>- Apportioning amount available for disbursements for ecological functions before any indicators</li> <li>- Including ecological services while calculating fiscal needs for lump sum transfers</li> <li>- Identifying specific ecological function measures to be tied to grants</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ Inclusion of ecological function for fiscal equalization in a rather nascent stage: only sporadically found among regions</li> <li>▪ Inclusion of only end of the pipe and infrastructure related ecological functions; neglect of resource protection and nature conservation</li> <li>▪ Inclusion of only area related indicators; thereby under-representation of ecological issues</li> </ul>
Switzerland	<ul style="list-style-type: none"> <li>▪ Submission of project specific proposals for undertaking conservation activities</li> <li>▪ Requires setting up an institution at the central level, for examining proposals and earmarking funds</li> </ul>	<ul style="list-style-type: none"> <li>▪ Violates the subsidiarity principle</li> <li>▪ Involves of red-tapism</li> <li>▪ Costly</li> <li>▪ More activity than result orientated</li> </ul>
Australia	<ul style="list-style-type: none"> <li>▪ Establish publicly funded programs</li> <li>▪ Regional agencies responsible for delivering the ecological service</li> <li>▪ Dependence of regional agencies on central government revenue</li> <li>▪ Developing a MCA<sup>25</sup> for</li> </ul>	<ul style="list-style-type: none"> <li>▪ MCA mechanism is only as good as the input data and weights assigned by the decision maker</li> </ul>

25 The process of MCA to define an environmental needs index for fiscal equalization involves:

- Identify the criteria (attributes) that collectively define environmental need
- Identify the set of objects that will be assigned an index value ('objects' could be states for example)
- Decision makers to assign weights to the criteria to identify their relative importance
- Transform criteria into commensurate units. Combine the weights and transformed measures via one of many MCA algorithms to attain an overall score for each object
- Allocate the fixed resource amongst the regions based on the needs index ensuring the ratio of funding to needs is equalized

	disbursement of environmental funds; as undertaken by the region of Queensland	
Canada	No specific environmental performance based earmarked fiscal transfers	-
Brazil	<ul style="list-style-type: none"> <li>▪ Sub-national governments to have revenue raising powers</li> <li>▪ Revenue from tax such as the value added tax used for disbursements</li> <li>▪ Allocation of tax revenues based on environmental indicators: mainly as lump sum transfers</li> <li>▪ Indicators chosen can vary among states</li> </ul>	<ul style="list-style-type: none"> <li>▪ Type of indicator chosen determines the incentive effect</li> <li>▪ Not only quantity but quality indicators should be included' majority of states Brazil still lagging in this</li> <li>▪ Allocation of revenue based on indicators through lump sum transfers could be earmarked to specific environmental purposes</li> </ul>

Source (TERI, 2009)