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Collective institutional entrepreneurship and contestations in wind energy in India

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ABSTRACT

With 21,136 MW of wind energy installed in 2014, India is considered a success story in terms of net installed capacity. Few existing studies on Indian wind energy have highlighted the important role of institutions, and how they stemmed from the work of advocacy groups; studies also tend to focus on short time periods. This paper uses the notion of collective institutional entrepreneurship to analyze Indian wind energy across three time periods (1985–1995, 1995–2003, and 2003–2013). The analysis shows that Indian wind power development was driven by collective efforts of institutional entrepreneurs using two aggregated strategies, that is, supportive techno-economic and socio-political networks and an indigenous innovation infrastructure. The paper highlights setbacks, controversies, and tensions between various entrepreneurship groups and argues that actions must be taken for including actors who have been marginalized.

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1. Introduction

Wind energy in India began with just 2 MW of installed, grid-connected power in 1986 [1]. Over the years, wind energy has been supported by several national and regional policies and regulations. In particular, substantial development took place in Tamil Nadu, Gujarat, Maharashtra, Rajasthan, Karnataka, and

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Andhra Pradesh. Tamil Nadu has been the leading state due to good wind resources, a proactive state government, and supportive captive energy users from the cement and textile industries [2]. Worldwide, India ranks fifth in wind energy production, topped only by China, the US, Germany, and Spain [3]. After rapid growth between 2003 and 2012, problems related to withdrawal of incentives, transmission and evacuation, and regulatory uncertainty became prominent in 2013 and slowed down the development of wind energy. With the introduction of the National Wind Energy Mission (NWEEM) in 2014, the Government of India is targeting 100 GW of wind energy by 2022 [4].

This study analyzes the long-term development of wind energy in India. This paper develops a narrative encompassing institutional developments and innovations, and also how they occurred. Existing studies have emphasized financial support schemes, technology policies, technical standards, grid-connection rules, industry organizations, and international collaborations [5,6]. This study adopts the notion that actors are involved in shaping their institutional context and that this is largely a collective effort rather than the result of powerful individuals [7,8]. Developing novel energy technologies therefore requires not just appropriate policies and regulations, but also collaboration and collective action by researchers, policy makers, political parties, industry organizations, lobbyists, and environmental groups [9]. Furthermore, the emergence of novel innovations is likely to prompt conflicting interests, power relations and political negotiations between stakeholder groups [10].

This paper aims to shed light on institutional changes in the wind energy sector not only by discussing their positive impacts, but also by addressing the controversies and potential barriers implicated by the associated dynamic institutional context. The paper focuses on the very early wind energy developments in the 1980s up to recent developments in 2014 and studies the institutional changes and the role of actors behind those changes by using the notion of “collective institutional entrepreneurship”. The notion of collective institutional entrepreneurship is elaborated in the next section.

Based on the literature outlined above, the following research question is asked: How has institutional entrepreneurship shaped the development of wind energy in India during the period 1985–

2014 and which controversies and conflicts can be identified? We begin by summarizing key arguments from the literature on collective institutional entrepreneurship in Section 2. Section 3 elaborates on the research method used in the study. Then, we describe long-term development of wind energy in India in Section 4. Finally, in the concluding section, we answer the research question and summarize the key conflicts and contestations in the three time periods. We also draw out implications for wind energy development in India.

2. Collective institutional entrepreneurship

The concept of institutional entrepreneurship was originally proposed by Paul DiMaggio ([11]) to study the role of “agency” in creating transforming existing institutional arrangements. Institutional entrepreneurs take advantage of uncertainty in existing institutional order and often act strategically to seek institutional change through a political process [12]. Institutional entrepreneurship is defined as, “the activities of actors who have an interest in particular institutional arrangements and who leverage resources to create new institutions or to transform existing ones” [13], p. 657. To qualify as institutional entrepreneurs, individuals and organizations must change dominant institutional arrangements and institutionalize alternative practices, rules and logics but by being limited by the same institutional arrangements [14,15]. According to this view, institutions are not just constraining, but are also the very fabric to be used for collective transformational action by a range of actors [16].

Institutional entrepreneurs use various strategies such as legitimizing new ways of working, lobbying, petitioning and advocacy to transform existing arrangements. Institutional entrepreneurs might not necessarily be always proactively transforming institutions through purposeful action, but instead sometimes are reactively acting on opportunities presented to them from a novel innovation [17]. Research has shown that institutional entrepreneurs comprise a broad range of actors and organizations. Examples include executives in firms, profit-oriented entrepreneurs, trade associations, professionals in organizations, regulatory authorities, licensing bodies, scientists, government officials, trade

Table 1
Overview of the research approach used for the study.

	<p>Step 1: Collection of data from multiple secondary sources and developing an account of important events such as policies, regulations, government programmes</p>	
	<p>Step 2: Selecting interviewees for interviews by reading through secondary data, summarizing the data collected from semi-structured interviews. Using data from semi-structured interviews to support findings from secondary data sources</p>	
	<p>Step 3: Summarizing the data from interviews and secondary sources and developing a case narrative. Using principles of process analysis to analyze the data by forming a data structure and then developing theoretical dimensions to explain development of wind energy</p>	
	<p>Step 4: Dividing the case narrative into three distinct time periods and explaining the development of wind energy in India through the respective theoretical concepts</p>	

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