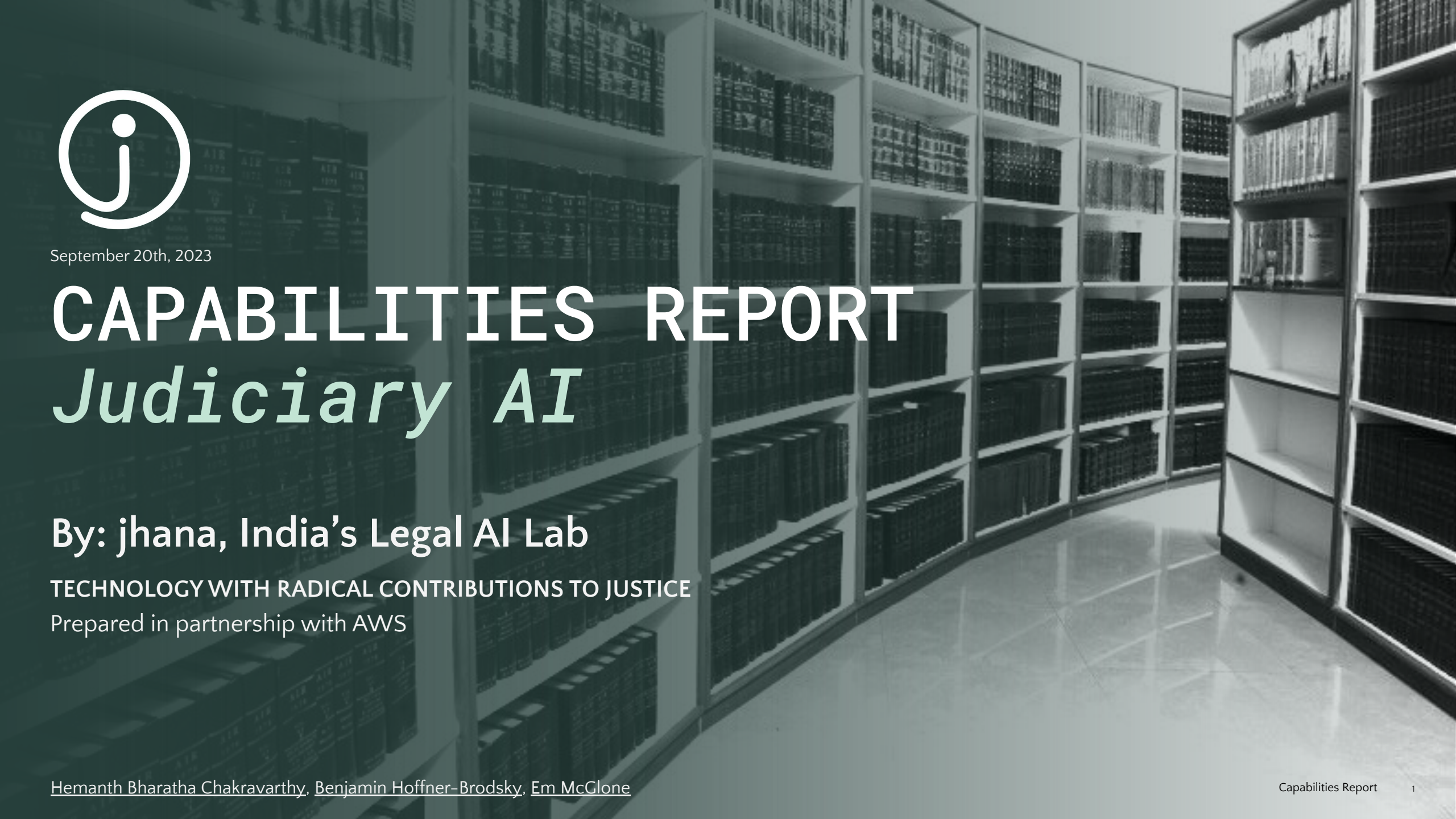

September 20th, 2023

CAPABILITIES REPORT
Judiciary AI

By: jhana, India's Legal AI Lab

TECHNOLOGY WITH RADICAL CONTRIBUTIONS TO JUSTICE

Prepared in partnership with AWS

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About Us

jhana is a startup founded in 2022 at Harvard University and based in Chennai. We're a mix of an AI Lab and a SaaS company, building futuristic legal technology.

Our beta platform, jhana.ai, is a virtual paralegal. Lawyers are assisted by humanlike assistants that iteratively conduct self-supervised research to answer questions, find case law, and draft briefs and contracts.

jhana is made by the world, in India for India.

OpenNyAI

MERCATUS CENTER George Mason University

Emergent Ventures

WILMERHALE LAUNCH

aws

Z Fellows

paddle

Core platform: One-stop shop for law

Search results. Q&A. Research memos. Briefs. Contracts... jhana.ai drafts & researches from 11M+ judgments, statutes, books, & web sources.

Reliable and transparent AI

Proprietary R&D in trustworthy and accurate AI. Every output is explained with quotes and sourced with links and citations.

Precedence with government work

Founders with deep experience in public sector projects incl. at Gates Foundation, World Bank, RBI, CEA's Office (North Block), & J-PAL.

Deep tech vision for the law

Judicial time is too precious for rote time-spend on researching case laws. We must abstract low-level legal tasks.

The end-to-end of understanding a legal document

Building legal AI takes so much more than AI...

Our AI's journey starts in a store of PDFs. A proprietary OCR pipeline converts them to neat and formatted text. Fine-tuned task specific experts take over. Some extract quotes and excerpts. Some produce summaries. Some annotate the text. Some embed it into searchable representations...

Our proprietary systems are experts at:

1. **Data acquisition and processing:** Automatically collected court PDFs that are parsed into structured text, reconstructing markup like quotes and numbering.
2. **Multilingual thought:** Large language models have powerful emergent capabilities, easily understanding and learning new languages.
3. **Summarization and extraction:** jhana chat is expert at succinctly describing judgments and finding relevant paragraphs to support user arguments.

[Our Commitments]

Impact is our mission. We want to build tools that reach people. The value from AI belongs to them...

1. Democratizing access to legal information and processes
2. Promoting the ethicality, alignment, and safety of AI systems
3. Interrogating, reducing, and measuring bias in our AI
4. Protecting the privacy and integrity of our clients' data

Ready-to-Deploy Headnotes Stack

Consideration 1: Privacy & IP

- In-house models provide complete control over training and inference
- Own IP can be extended later to other (sensitive) use cases

C2: Compute costs

- In-house models require persistent access to fancy GPUs
- At retail price, cloud cost of GPU rental for training alone > INR 40,000

C3: Runtime per output

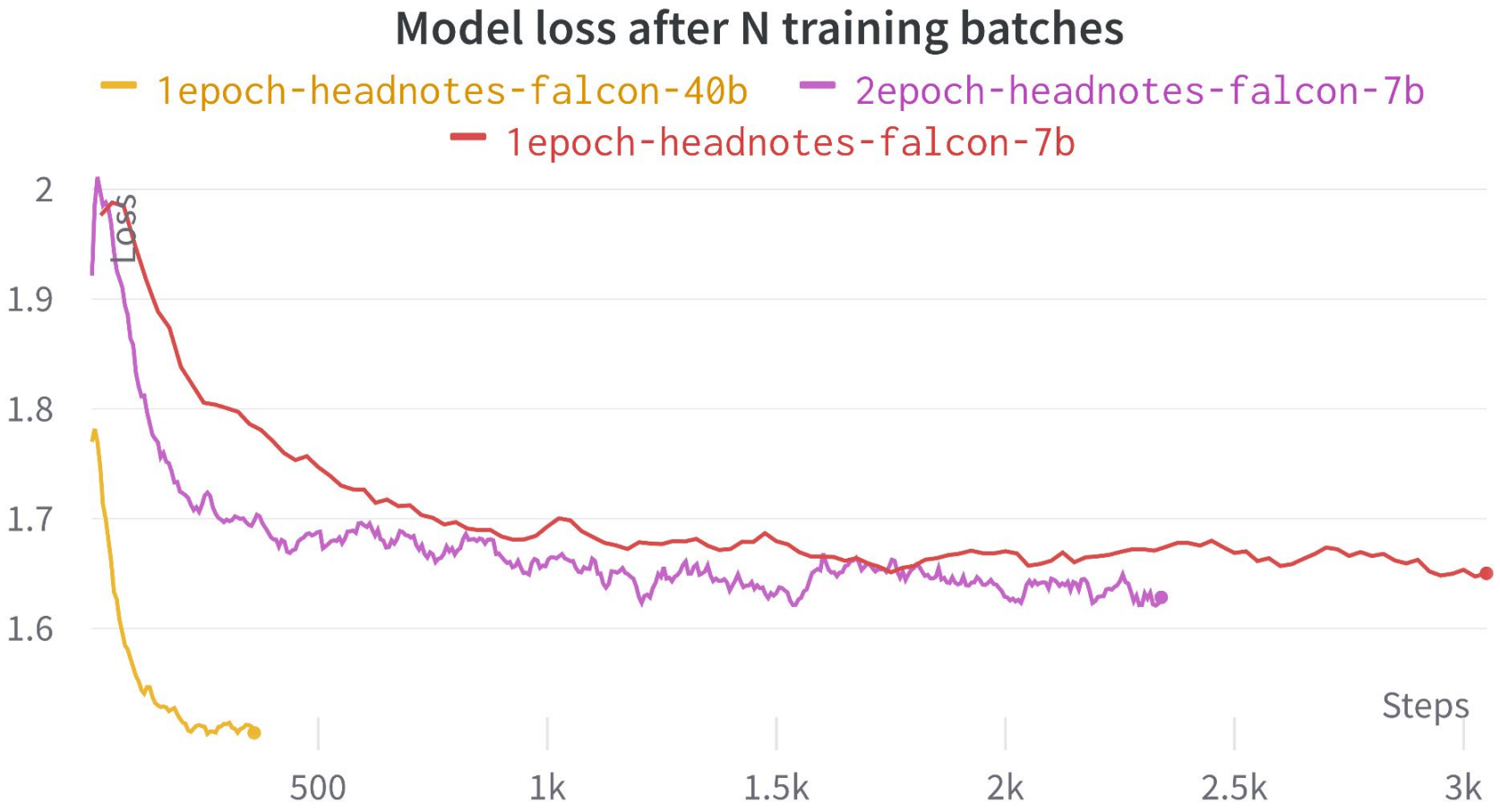
- In-house models rely on our servers for efficiency, can be slower or faster
- External APIs have fixed runtimes, infrastructure is their problem

- Ready-to-deploy assets
    - **Datasets:** Judgment highlights, headnotes, and relevant legal academia
    - **Headnotes models:** Specialized language models trained on task
    - **Supporting models:** Pantheon of AI legal assistants for pre- or post-processing tasks

- **Pre- and post-processing:** Our extraction models provide thematic summaries of case laws to use as input prompts. Our revision models help copy-edit output headnotes.

- **Different approaches based on cost, runtime, privacy, specialization…**
    - Prompt-based approaches to external APIs (eg., OpenAI) rely on the extensibility of powerful models; training-based approaches build customized models.
    - Experimental proprietary models are readily available at 7B & 40B parameters size, trained on pairs of judgment summaries and their real headnotes, built on top of commercially licensable open-source models (eg., Falcon).

Cost v. Performance Trade-offs in our Experiments in Headnotes Models



Comparing models by parameter size (7 v. 40 billion) and batch/training run size. Bigger models cost more to serve.

Example 1:
Few shot learning GPT

Prompting with example summaries
of judgments & their real headnotes



Few-shot OpenAI GPT-3.5

Acts and Questions:

Rajasthan Imposition of Ceiling on Agricultural Holdings Act, 1973—Validity of—s. 15 (as amended)—Whether violative of Article 14—Whether protected by Article 31(A)(1)(a) of the Constitution.

Headnote:

The appellants questioned the validity of Section 15 (as amended) of the Rajasthan Imposition of Ceiling on Agricultural Holdings Act, 1973. The validity of some of the provisions of the Act came up for consideration before this Court in Bansidhar v. State of Rajasthan, [1989] 2 SCC 557 before a Constitution Bench of this Court and this Court made a declaration that the Rajasthan Imposition of Ceiling Agricultural Holdings Act, 1973 was a legislation which was made for the purpose of bringing out Agrarian Reform. In view of the above finding, it is clear that the provisions including s. 15 (as amended) contained therein are protected by Article 31(A)(1)(a) of the Constitution notwithstanding the fact that some of these provisions contravened Articles 14 and 19. The grounds urged in respect of the appeal were that Section 15 (as amended) in question was violative of Article 14. Since the provisions of the Act, as already stated, are protected by Article 31(A)(1)(a), the attack does not survive. The High Court was, therefore, right in upholding the validity of Section 15 of the Act. These appeals fail and are dismissed. Interim orders passed, if any, in these cases stand vacated. P.B.R. Appeals dismissed.

Original (JUDIS)

ACT:

Rajasthan Imposition of Ceiling on Agricultural Holdings Act, 1973: Section 15--Validity of--Held protected by Article 3 I(A) (1) (a) and not violative of Article 14 of the Constitution of India, 1950.

HEADNOTE:

In these appeals on the question: whether section 15 (as amended) of the Rajasthan Imposition of Ceiling on Agricultural Holdings Act, 1973 was violative of Article 14 of the Constitution of India. Dismissing the appeals, this Court, HELD: Rajasthan Imposition of Ceiling on Agricultural Holdings Act, 1973 was a legislation which was made for the purpose of bringing about agrarian reforms. The provisions of the Act including section 15 (as amended) are protected by Article 31(A)(1)(a) of the Constitution. Therefore, the attack that section 15 of the Act was violative of Article 14 of the Constitution does not survive. The High Court was right in upholding the validity of section 15 of the Act. [247B; C-D]

Bansidhar v. State of Rajasthan, [1989] 2 SCC 557, followed.

Example 2: Supervised training

Task expertise by retraining FOSS model on judgment–headnote pairs

jhana Experimental Model (@ 4% size of GPT-3)

Acts and Questions:

Rajasthan Imposition of Ceiling on Agricultural Holdings Act—Section 15 and 16 as amended—whether violative of Articles 14 and 19 of the Constitution.

Headnote:

The respondent was working as a 'farmer' in the lands owned by the petitioner. The petitioner had a land of 20 acres. When the respondent died, the petitioner filed a petition before the Civil Judge, Senior Civil Judge, Sr. District, Jodhpur, praying for mutation of the respondent's name and that of the petitioner in the land register. In the matter of mutation order, the petitioner mentioned the name of the respondent as the person who had been working as a tenant on the land. In the counter affidavit filed by the respondent, it was mentioned that the petitioner was claiming that the petitioner was the owner of the land. The Civil Judge allowed the petition and held that the petitioner was the owner of the land and that the respondent was a tenant. The respondent, aggrieved by the order, filed a revision petition in the High Court. The High Court allowed the revision and declared that the respondent was a 'farmer' within the meaning of s. 2 (d) of the Act. Against the above order, the State Government appealed in this Court. Dismissing the appeal, it was, HELD: The validity of some of the provisions of the Act came up for consideration before this Court in Bansidhar v. State of Rajasthan, [1989] 2 S.C.C. 557 before a Constitution Bench of this Court. The Court made declaration that the Rajasthan Imposition of Ceiling Agricultural Holdings Act, 1973 was a legislation which was made for the purpose of bringing out Agrarian Reform. Section 15 (as amended) of the Act in question is a legislative provision making it obligatory on the landlord to give a notice to the tenant that he has a right to become a share-cropper, a share-labourer or a share-tenant. In such a situation, it is clear that the provisions including s. 15 (as amended) are protected by Article 31(A)(1)(a) of the Constitution, notwithstanding the fact that some of these provisions contravened Articles 14 and 19. [247B-C; 248A] The provisions of the Act as already stated are protected by Article 31A(1)(a), the attack does not survive. The High Court was therefore right in upholding the validity of Section 15 of the Act. [249F-G; 250A] The High Court was right in interpreting s. 15 (as amended) as protecting the landlord who is also a farmer and not only the share-labourers. It was wrong in the view of the High Court that the provision of s. 15 (as amended) will not apply to the case of a tenant who is not a share- ...

Original [(JUDIS)]

ACT:

Rajasthan Imposition of Ceiling on Agricultural Holdings Act, 1973: Section 15--Validity of--Held protected by Article 3 I(A) (1) (a) and not violative of Article 14 of the Constitution of India, 1950.

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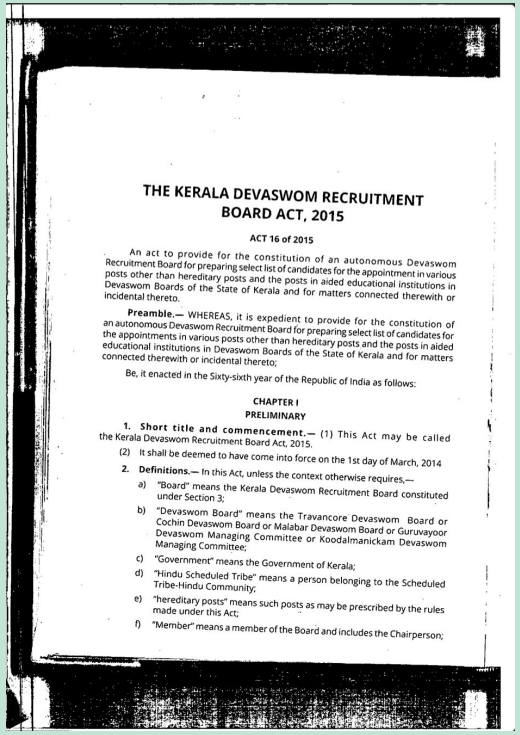
Bansidhar v. State of Rajasthan, [1989] 2 SCC 557, followed.

Supp. example: Digitizing legacy docs

Reconstructing headings, numbering, bulleting, quotes, and formatting.

Retaining the integrity of a scanned document

Like night



THE KERALA DEVASWOM RECRUITMENT BOARD ACT, 2015

ACT 16 of 2015

An act to provide for the constitution of an autonomous Devaswom Recruitment Board for preparing select list of candidates for the appointment in various posts other than hereditary posts and the posts in aided educational institutions in Devaswom Boards of the State of Kerala and for matters connected therewith or incidental thereto.

Preamble.— WHEREAS, it is expedient to provide for the constitution of an autonomous Devaswom Recruitment Board for preparing select list of candidates for the appointments in various posts other than hereditary posts and the posts in aided educational institutions in Devaswom Boards of the State of Kerala and for matters connected therewith or incidental thereto;

Be, it enacted in the Sixty-sixth year of the Republic of India as follows:

CHAPTER I
PRELIMINARY

1. **Short title and commencement.—** (1) This Act may be called the Kerala Devaswom Recruitment Board Act, 2015.

(2) It shall be deemed to have come into force on the 1st day of March, 2014

2. **Definitions.—** In this Act, unless the context otherwise requires,—

a) "Board" means the Kerala Devaswom Recruitment Board constituted under Section 3;

b) "Devaswom Board" means the Travancore Devaswom Board or Cochin Devaswom Board or Malabar Devaswom Board or Guruvayoor Devaswom Managing Committee or Koodalmanickam Devaswom Managing Committee;

c) "Government" means the Government of Kerala;

d) "Hindu Scheduled Tribe" means a person belonging to the Scheduled Tribe-Hindu Community;

e) "hereditary posts" means such posts as may be prescribed by the rules made under this Act;

f) "Member" means a member of the Board and includes the Chairperson;

And day

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